MINISTRY OF HIGHER AND MEDIUM
OF SPECIAL EDUCATION OF THE REPUBLIC OF UZBEKISTAN

SAMARKAND STATE OF VETERINARY MEDICINE, LIVESTOCK AND THE UNIVERSITY OF MUSIC ARE

"VETERINARY SURGERY AND OBSTETRICSDEPARTMENT"

“CONFIRM”
Vice-rector for academic affairs,
_____ A.A.Elmurodov
“___” _____ 2022.

VETERINARY OBSTETRICS
ON THE SUBJECT

EDUCATIONAL-METHODICAL COMPLEX

Branch of science: 400000 – Agriculture and Water

Training branch: 440000 – Veterinary

Direction of study: 5440100 – Veterinary medicine (by types of activity)

Samarkand - 2022 y

Science of the educational and methodical complex of the approved curriculum, curriculum plan, training program, and worker training in accordance with the program has been developed.

Structure:

1. **Eshburiyev B.M. –** "Veterinary surgery and obstetrics" department , professor
2. **Djumanov M. S. -** "Veterinary surgery and obstetrics" department , associate professor
3. **Alimov B. S.** "Veterinary surgery and obstetrics" the assistant of the department

"VETERINARY OBSTETRICS" SCIENCE'S

EDUCATIONAL-METHODICAL COMPLEXC

Science of working educational program "Veterinary surgery and obstetrics" department of the year 2022"____" _____ " in____" -the number of the faculty council to discuss at the meeting was discussed and recommended.

The head of the department is:_____Narziyev D. B.

Science of working educational program "Veterinary diagnostics and food – food safety" has been discussed and recommended for use at the board of the faculty (year 2022_____ _____in _ _ _ _ dated statement).

Faculty council chairman, _____Niyozov H.B.

Agreed:

Head of educational and methodical management,
Associate Professor _____ Ruzikulov R.F.

CONTENT

VETERINARY OBSTETRICS

SCIENCE EDUCATION PROGRAM

VETERINARY OBSTETRICS

SCIENCEI'S WORKER TRAINING PROGRAM

(SYLLABUS)

OF THE REPUBLIC OF UZBEKISTAN
MINISTRY OF HIGHER AND SECONDARY SPECIAL EDUCATION

SAMARKAND STATE OF VETERINARY MEDICINE, ANIMAL HUSBANDRY AND THE UNIVERSITY OF MUSIC ARE

"VETERINARY SURGERY AND OBSTETRICSDEPARTMENT"

ESHBURIYEV M. B., ALIMOV B. S.

“VETERINARY OBSTETRICS”
ON THE SUBJECT

THE COURSE LECTURES

Samarkand – 2022

VETERINARY OBSTETRICS

LECTURE LESSON

1-lecture. ABOUT ITEMS “VETERINARY OBSTETRICS”. ANATOMO-TOPOGRAPHICAL AND PHYSIOLOGICAL FEATURES OF THE GENITALS OF FEMALE AND MALE ANIMALS OF DIFFERENT SPECIES.

Training elements:

1. Purpose and objectives, history of development, achievement and role in veterinary practice of the subject "Veterinary obstetrics".
2. Connections of the discipline with other major sciences.
3. Anatomo-topographical and physiological features of the genitals of female animals of different species. Ovogenesis.
4. Anatomo-topographical and physiological features of the genitals of male animals of different species. Spermiogenesis.

The disciplines of "Veterinary Obstetrics" consist of three components, and they have their own specific goals and objectives, but they are all related to each other, as they study the processes occurring in the reproductive and endocrine systems or in the mammary gland.

Veterinary obstetrics (from the French accoucher – "to give birth", "to help during childbirth") examines the normal and pathological processes in the body of female farm animals during pregnancy, childbirth and after childbirth.

Veterinary gynecology (from Greek. gyne – "woman"," female "and logos – "teaching") - studies pathologies in the sexual, endocrine and other systems of non-pregnant females, for example, vaginitis, metritis, diseases and hypofunctions of the ovaries.

Veterinary andrology (from the Greek andros – "male") is a branch of science that studies the pathological processes that develop in the genitals and other organs of males, which lead to infertility (impotence).

The main task of veterinary gynecology is to develop methods for the prevention and treatment of animals with diseases of the reproductive organs and the prevention or elimination of infertility.

Veterinary obstetrics and gynecology are closely related to other sciences such as normal anatomy and physiology, pathological physiology and animal anatomy, pharmacology, non-infectious, subjects studying infectious and invasive diseases of animals, veterinary surgery, biochemistry and endocrinology, feeding, genetics and animal breeding, biotechnology, etc., based on their achievements.

At the junction of these sciences and veterinary obstetrics, a new branch has emerged – *animal reproduction biotechnics*. It includes issues of physiology, biochemistry and endocrinology of reproduction, as well as zootechnical and biotechnological methods of artificial insemination and embryo transplantation of farm animals, work on the cultivation of ovarian oocytes from slaughtered animals, and their fertilization outside the body.

The most important problems of obstetric science are the development and implementation of effective methods for regulating reproductive function in female animals, methods for their artificial insemination and embryo transplantation,

increasing fertilization and fertility, pregnancy diagnosis, and implementing a system of preventive and curative measures for infertility and various obstetric diseases in order to increase the offspring and productivity of livestock.

The main **goal of the discipline** is to develop knowledge and skills in veterinary obstetrics, gynecology and biotechnics of breeding farm animals.

The main **objectives of the discipline** are to study:

- physiology of reproduction processes;
- pathologies of pregnancy, childbirth and the postpartum period, breast;
- biotechnics of breeding farm animals.

As a result of studying the discipline, the student must:

- know the importance of veterinary obstetrics, gynecology and breeding biotechnics in the development of animal husbandry;

methods of prevention and elimination of infertility of farm animals; technology

organization of reproduction of animals of different species and birds;

- be able to carry out organizational measures for artificial and natural insemination of animals;

perform basic clinical and laboratory tests to determine pregnancy and infertility, diagnose diseases of the reproductive system, breast and newborn animals; provide obstetric care for normal and pathological childbirth; carry out prevention and treatment of obstetric and gynecological diseases.

Currently, there are extremely favorable prerequisites for the further development of animal reproduction biotechnics. Particularly great progress has been made in the development and improvement of methods of artificial insemination and embryo transplantation. This has opened up great prospects in managing the breeding processes of farm animals:

- the use of biotechnics creates the richest opportunities for breeding work (the use of high-value producers, animals with the most desirable breeding characteristics, individual selection of pairs, the use of improver producers, the creation of genetic banks, acceleration of the interval between generations);
- possibility of obtaining hybrids.
- prevention of infections and infestations;
- increase in the birth of twins;
- the use of animals for reproduction in some forms of infertility in them;
- exchange of the gene pool between countries;
- use of embryo transplantation for genetic engineering (production of transgenic and chimeric animals, etc.).

The origin of the simplest methods ofhelping animals during childbirth datesback to ancient times. Overtime, obstetric experience beganto accumulate in certain people who passed on their knowledge from generation to generation.

With the beginning of the training of veterinary specialists, obstetricsbegan to take shape as an independent scientific and practical discipline, scientific papers and textbooks appeared. One of the first Russian manuals, "Veterinaryobstetric Science with a section on diseases ofcubs "(1849), written by Professor G. M. Prokhorov of the Medical and SurgicalAcademy, discussed the rules for providing obstetric care

during childbirth in order to "preserve the life and health of mothers and their cubs." Subsequently, withthe expansion of the range of issues coveredby obstetrics, educationalinstitutions began to allocate special courses, and then departments. In 1919, for the first time in Russia, the Department of Obstetrics was established at the Moscow Veterinary Institute. Since 1922, such departments have been opened at the Kazan and St. PetersburgVeterinary Institutes.

For a long time inRussia, veterinary obstetrics and gynecology were studied from textbooks translated fromFrench or German,and in 1931 a textbook onveterinary obstetrics by Professor N. F. Myshkin was published. In the same year, Professor V. V. Conge published a manual on the fight against infertility of farm animals, and in 1932, his own course of veterinary obstetrics was published.

The work of the departments of veterinary medicine allowed us to solve a number of problems. N. F. Myshkin (1864-1950) developed a clinical methodfor the diagnosis of pregnancy in cows, proposed a number of methods for the prevention of puerperal paresis, afterbirth retention, and the most acceptableclassification of mastitis at that time.

Professor A. Y. Tarasevich (1873-1940) developed a new principle of clinical diagnostics of pregnancy in horses,recommended a number of methods of treatment for gynecological diseases (mudremoval, ovarian cysts punctures, faradic current application,diathermy, etc.). He scientifically substantiated the feasibilityof usingoperated probe stallions to detect sexual hunting and stimulate sexual function For the first time, he proposed inseminationof mares in combination with rectal control of ovulation time. This proposal is now widely implemented in practice thanks to thework of X. I. Zhivotkov, V. K. Kedrov, P. I. Shatalov and other Russian specialists. Tarasevich summarized his rich clinical experience in the monograph “TheInfertility of Farm Animals " published in 1936.

Honored Scientist of the RSFSR I. A. Bocharov (1901-1975) and his students carried out a number of important studies on infertility, summarized by him in the book “Infertilityof agricultural animals” (1956). He edited atextbook on veterinary obstetrics for veterinary universities (1967).

Professor N. A. Phlegmatov (1903 - 1986) developed a method for diagnosingpregnancy in donkeys, proposedan effective method for using fetal waters to delay the afterbirth andprevent uterine subinvolution, recommended ozokeritotherapy for gynecological diseases and mastitis in cows; together with his colleagues, he conducted a number of important studies on the physiology and pathology of animal reproduction. Theobtained materials are summarized in the collection "Increasing the fertility of farm animals "(1959).

Professor P. I. Shatalov performed important studies on the sexual cycle, postpartum period in mares, on the use of serum and blood of pregnant mares (FFA, FFA) incertain forms of infertility; synthesized together with scientists of the Academy of Sciences of the USSR andBulgaria a new domestic drug - gravohormon.

Чрезвычайно большую роль в развитии акушерской науки сыграл выдающийся ученый член корреспондент Professor A. P. Stutentsov (1903-1967), an outstanding scientist and corresponding member of the Russian Academy of Medical Sciences, an Honored Scientist of the RSFSR and TASSR, played an extremely

important role in the development of obstetric sciencePCФCP и TACCP, профессор А. П. Сту. He created a numberof new directions and teachings (on the sexual cycle, infertility, abortions, mastitis, etc.) and developed originalmethods of genital surgeries. He wrote the textbook "Veterinary Obstetrics and Gynecology" (1949), which went through three editions during his lifetime and was awarded the USSR StatePrize in 1952. His books "Diagnostics of pregnancy and infertility of farm animals "(1949,1950), " Castration of male and female cattle cattle and Pigs" (1950, 1954)," Cow udder diseases " (1952), translated and published in a number of foreign countries.

A. P. Studentsov - the first Doctorof Veterinary Sciences in obstetrics (1937). His numerousworks (about 300) had a great influence on the development of domestic veterinaryobstetrics and gynecology, on the growth and training of scientific and pedagogical personnel. Among them is the founder ofthe Lviv School of Veterinary Obstetricians, a prominent scientist, corresponding member of the VASNIL, Honored Scientist of Ukraine, Professor G. V. Zvereva. She has successfully studied breast diseases, pediatric physiology and pathology, infertility, and artificial insemination of animals.

Большой вклад в ветеринарное акуProfessor I. I. Ivanov (1870-1932) made a great contribution to veterinary dentistry and gynecology. Through his extensive research, he laid the foundations for solvingmost of the problems of the theory and practice of artificialinsemination of farm animals. He created a school of veterinarians and animal technicians who successfully continue the research he started.

Rational and efficient animalhusbandry, regardless ofindividual farms, is based onguaranteed and regularfruit production from animals of all kinds. Therefore, for the effective prevention of infertility, infertility, abortions and mastitis in animals, the requirements for the work of specialists who enrich veterinary obstetricswith new theoreticalprovisions and practical techniques are constantly increasing.

When solving any issuesof pathology of the reproductive organs and mammary glands of animals, it is necessary to take into account the leading role of environmental factors (living conditions). Manyspecialists (A. P. Studentsov, G. V. Zvereva, V. S. Shipilov, etc.) noted thepositive or negative impact of environmental factors onthe entire animal body, including the reproductive system. Therefore, the prevention of any disorders inthe reproductive organs or mammary gland of animalsis effective when it is based on the main event-the creation of optimal (normal) living conditions for animals (favorableecological conditions). Only in this case will the maximum productivity and, accordingly, high economic efficiency of animalhusbandry be ensured.

Currently, obstetrics, gynecologyand biotechnics of animal reproduction have developed into an importantbranch of clinical veterinary medicine,equipped with a theory and a setof diagnostic, therapeutic andbiotechnological techniques that are widely used in animal husbandry practice.

The external genitalia (genitalia externa) of females include the labia, vestibule of the vagina, andclitoris; the internalgenitalia (genitalia interna) includes the vagina, uterus, oviducts, andovaries.

The sexual organs of females are the hornsof those cattle. The vulva of cows and buffaloesis covered with wrinkled skin,the dorsal angle of the genital fissure is rounded, and the ventral angle is sharp and slightly hangs down in the area of the ischial tubercles. The clitoris is formed by two relatively long cavernous bodies (in cows up to12 cm long), endingin a glans.

The vestibule без резких of the vagina passes into the vagina without sharp borders, since the urinary valve in ruminants is poorly developed. Large vestibule glands are located in the side walls, opening into the lumen by the right andleft excretory ducts. Below, near the clitoris, are the openings of the underdeveloped small glands of thevestibule. In cows, as in all otheranimals, the vestibule channel is directed from below-up and forward.

The vaginal mucosaforms many longitudinal folds. вентральной стенке влагалища распола Gartner's ducts (rudiments of the wolf channels) are located on the ventral wall of the vagina.

Themecca of cattle belongs to the two-horned type. Its body is of insignificant size (in cows 2-6 cm in length); it does not serve as a fruit carrier, which gave rise to a number of authors to assign such a uterus to a special type of two-part uterus.

The cervix is sharply separated from both the vaginal and uterine sides. In cows, the neck is up to 12 cm long, characterizedby strong circular andcomparatively weak longitudinalmuscle layers, betweenwhich there is a well-developedvascular layer. The cervical canal mucosa forms small longitudinal and large transverse folds (palmaplicata); their tips are directed towardsthe vagina and usually hinder the catheterization of theuterine cavity. The posterior part of the neck with an external opening in the formof a blunted cone protrudes 2-4 cm into the vaginal cavity. This section of the neck is as if incised by radial folds of various sizes. In heifers, the folds are smooth; in older cows, they can be so hypertrophied that they resemblecauliflower in shape.

The uterine mucosa has special formations-uterine warts, caruncles, which are located along the horns in four rows of 10-14 in each row; there are from 75 to 120 of them in total. Caruncles have the appearance of convex, semicircular, and glandularformations. With age, the number and size of boils increase. However, their size hasno practical significance, sincecaruncles are not palpable during rectal examination.

For adults (6-11 years of age) For Simmental cows, the sizeof the carcasses varies in the followinglimits: length 4.4-13.8 mm, width 3.2 - 9.1 mm and height 1.2-4.7 mm.Caruncles of the rudimentsof maternal placentas. Duringpregnancy, they increase tenfold (up to the size of a goose egg or more).

Рога матки The uterine horns merge at a considerabledistance so that their medialwalls form a septum.In the snout, the confluence area is visible as a longitudinal depression (inter-horn trough), disappearing caudally at the junction of the horns into the body and neck, andcranially in the area of divergence

Each horn tapers towards its apex and forms significant curves in cows and comparativelypoorly defined curves in buffaloes.

Яйцепроводы Ruminant oviducts have a shortdilated part and anunderdeveloped fringe. The length of the cow'segg ducts is about 25-30 cm.

Яичники The cow's ovaries are oval in shape, 2 to 5 cm long and 1-2 cm wide. In adult animals, the right ovary is usually larger than the left, but the size and shape of the ovaries depend on theirfunctional state.

Most of the ovary ofruminants is free of serous cover (the spread of the latter is mainly limited to the area of entry of the ovarian vessels).

Genitals of sheep and goats. АнатомиAnatomically, they differ from those of large ruminants only in their smaller size. Vestibule length 4-5 cm, vagina - 8-12 cm. The cervix of the uterus in females is 3-5 cm long, in adult queens-5-7 cm, has 7-8 well-defined buttockfolds of the mucous membrane, increasing towards the vagina. The last fold protrudes into the vagina, forming the pharynx of the uterus, shaped like the mouth of a fish. The body of the uterus 2-4 cm long passes into strongly twisting and tapering horns with a length of 10 to 20 cm, depending on the age and breed of the animal. On the mucous membrane of the horns 88-110 caruncles with depressions in the center. There are more boils in the fruit-bearing horn than in the free horn. The inter-horn trough is well defined. The oviducts are sinuous, 9 to 18 cm long. Ovaries are oval in shape, 0.5-1 cm long, 0.3-0.5 cm wide,and increase to 2. 2x2 cm in the arousal stage.см.

The genitals of a mare. The skin of the vulva contains a large number of sweat and sebaceous glands. The mucous membrane of the inner surface of the labia minora is coveredwith a multi-layered epithelium. At the bottom, the lips form a roundedcorner of the genital cleft and cover the well-defined head of the clitoris. On the sides of the clitoris are folds of the mucous membrane of the vestibule of the vagina, ending near the head in the form of a frenulum of the clitoris, corresponding to the preputial sac of male individuals.

The vestibule of the vagina is 8-16 cm long. On its sides, in the thickness ofthe mucous membranes, two rows oftubular glands are laid, which open into its lumen with several excretory ducts and secrete mucosal secretions, especially during estrus and inflammatoryprocesses. In addition, atthe depth of 1.5-2.5 cm from the genital fissure, orto the upper corner of the vulva, large vestibular jellies(Bartholinian vestibular glands) are located in the mucous membrane. On the sides of the vestibule, under the mucous membrane and partly under the sphincter of the vulva, there are two cavernous bodies surrounded by a dense fibrous membrane. These cavernousbodies, when filled with blood during sexual intercourse, cause athickening of the labia and some gaping of thegenital fissure, which facilitates coitus. The vagina is covered with peritoneum,passing from the uterus.

The vaginal mucosais covered with a flat multi-layered epithelium and does not contain glands; it is collected in a large number of high longitudinaland small transverse folds.

The cervix is 4-8 cm long and 3-5 cm in diameter. The posterior part of the cervix protrudes 2-2. 5 cm into the vaginal cavity in the form of a sleeve-like protrusion, which is as if cut by radial folds, giving the mouth astellate appearance.

Depending on the physiological state of the sexual apparatus, the contours of the cervix and the lumen of its canalcan vary greatly.

The uterine body is a hollow muscular organ that passes craniallyinto the horns and caudally into the neckof the uterus. The area of the body located between the horns is called the uterine floor. The length of the uterine body is 8-15 cm, the width is 7-12 cm. The horns are 14-30 cm long and 3-7 cm wide.

The oviducts are 14-30 cm long and strongly twist, their abdominal end expanding to form a funnel (abdominal opening), the uneven edges ofwhich are located in folds near and around the ovulatory fossa of the ovary.

The ovaries are round, bean-shaped, or irregularly oval, locatedin the abdominal cavity; of these, the right one is suspended under the 3rd-4th, and the left one is suspended under the 4th - 5th lumbar vertebrae. The ovary is connected to the tip of the uterine hornby an ovarian ligament extending from the caudal end of the ovary in the form of aflattened connective tissue suturecontaining smoothmuscle fibers.

The diameter of the mare's ovaries varies from 2 to 10 cm, which depends on the phase of thereproductive cycle and, in particular, on the numberand size of maturing follicles. Their size and location can also cause changes in the shape of the ovaries (see "Ovulation in a mare").

The ovaries, oviducts, horns, body, cervix, and partof the vagina are located in the abdominal cavity on paired folds of the peritoneum containing a hairlineon smooth muscles and known as the broaduterine ligaments (mesenteries). These ligaments start on the sides of the spine and, descending in the form of wideplates, attach tothe vascular edge of the ovary, the oviduct, the smallcurvature of the horns, and the lateral surfacesof the body and cervix.The cranial area of the mesentery is called the ovarian ligament.

Sexual organs of a pig. The vulvaof the pig has an acute ventral angle. The clitoris is long, thin, and ends in a somewhat blunted head.

The vestibule of the vagina is 5-10 cm long (depending on the sizeof the animal), lined with a mucous membrane that forms clearly defined longitudinal and transverse folds; here, small vestibular glands are laid in longitudinal rows. Cavernous plexuses are located under the mucosa in the ventralpart of the lateral walls.

The urinary valvein young animals has the form of a semicircular or circular fold. In older pigs, this fold decreases or becomes invisible.

The vagina is a narrow muscular tube. The cervix is long(12-20 cm) andmerges with the vagina and uterus without sharp borders. Themucous membrane of the neck is collected in rough, blunted folds of protrusions; their towering tips do notcoincide with those of the opposite side, as a result of which the cervical canal forms an irregular curve (corkscrew-shaped) line. The folds become higher in the direction from the vagina to the uterus. In addition, the cervical mucosa is dotted with many small longitudinal folds.

The body of the uterus is 5-6 cm longand passes cranially into two horns. Both horns first go together and grow together with their walls for 5-10 cm.ле идут вместе и на протяжении 5- 10 см Along theway, the horns forma large number of loops

suspendedfrom the neck. The length of the horn in an adult pig is from 100 to 200 cm.

Cranially, the horns graduallynarrow and pass into the oviducts,which have small curves and end in a distinct fringe. The total length of the oviduct in an adult pig is 25-30 cm, its narrowed part is ¼ - ½ length. Usually the left ovipositoris longer than the right one.

The pig's ovaries are hidden in a highly developed ovarian bursa and fringe. Their length is not constant, the surface is bumpy, the shape of a mulberry or blackberry. The tuberosity of the ovariesis caused by the formation of follicles or yellow bodies protruding on the surface of the organ.

The genitals of a rabbit. The characteristicdifference between the genital organsof rabbits is that they have two independent queens that openwith two necks. Both necks protrude into the vagina in the form of smallelevations (Fig. 3). Each uterus,starting from the corresponding neck,is erased cranially and forms small half-loops suspended from a wide uterine ligament. From the tops of the horns depart faintly noticeable egg-holes. The ovaries of rabbits are oval in shape, ranging in size from a pea to a bean; in sexually mature animals, they always have an uneven surface (follicles and yellow bodies).

With the onset of puberty, the blood supply to the genitals increases; in heifers, it reaches its maximum after 14 months of age.

Ovogenesis. In the first period, the period of reproduction, female cells called ovogonia divide intensively by mitosis, their number increases, and they becomefirst-order oocytes. The second period - the period of growth of primary oocytes is much longer than the stage of growth of first-order spermiocytes. This is explained by the accumulation in the oocyte of a large numberof plastic substances necessary for the development of zygotes. In the third period,the period of egg maturation, two consecutivedivisions occur. As a result of the first maturation division (first reduction division), large secondary oocytes and small directional or reduction bodies are formed, unsuitable for fertilization. At the second maturation division (second reduction division), the secondary oocyte divides to form a mature egg and a second reduction body. The final maturation of the egg occurs after it leaves the follicle (ovulation) in the oviduct.

As a result of the complex process of spermiogenesis and ovogenesis, sperm cells have different chromosomes (X and Y), while eggs have the same chromosomes (X and X).Therefore, during fertilization, an egg can connect toa sperm containing either an X or Ychromosome. In the firstcase, a female fetus is formed, in the second - a male one.

Anatomical, morphological and physiological features of the genitals of male animals of different species.

The male's sexual system consists of the *sex glands*, their *excretoryков*ducts, *adnexal sex glands*, and the copulatory organ *of the penis*.

The sex gland (testis, didymis, orchis - testis, testicle) is oval or rounded in shape, is a complex tubular gland,which differs from other similar glands in that the

secret secreted by it consists of cellular elements (sperm), and not of fluid. On the outside, the testisis covered with a serous membrane, which is firmly fused with the underlying dense (albuminous) membrane (tunica albuginea testis), which contains a significant amount of elastic fibers.

In the area of the appendage head, connectivetissue septa extend from the albumen shell, which are embedded in the testicular parenchyma and subdividethe latter into a large number of pyramidal lobules. The basesof these lobules are directed to theperiphery of the testis, and the apices are directed towards the head of the appendage. There are 4-5 convoluted tubules in each lobule,which, approaching the center of the testis,merge and flow into the straight tubules. The latter, connecting in the areaof the head and appendage, form a network of testicles(retetestis). From the testicularnetwork there are 10-30 strongly wriggling spermatictubules (ductus efferens); the latter form the head of the appendage by their convolutions, and thenmerge into one common duct of the appendage (ductus epididymis). The canal of the epididymis with itsvery numerous convolutions, decreasing in the area of the tail, creates the body mass of the epididymis of the testis. In the tail of the appendage, the lumenof the canal increases, and when it passes into the spermioprotum,it narrows somewhat. The lengthof the canal appendage in a stallion is up to 86 m, in a boar up to 64 m, in a bull up to 30 m.

Spermioprovods together with vessels and nerves, forming spermatic cords, pass through the vaginal canals into the abdominal cavity, where, separated from them, they are directed to the bladder and cross it along the dorsal surface. Above the bladder, spermaticconduits form extensions *of the ampoule of*spermatic conduits, which are well developed in stallions, bulls, sheep, and goats and are almost invisible in boars and males.

At the level of the bladder neck, both sperm conduits merge into the common ejaculatory duct(ductus eyaculatorius), flow into the urethra (canalis urethralis), which continues further in the form of the urogenital canal (canalis urogenitalis). The urogenital canal runs along the bottom of the pelvic cavity, goes around the sciatic notch and, having reachedthe cavernous bodies of the penis, is located between them, being covered from the ventral surface by the urethral cavernous body; it ends freely on the head of the penis.

Adnexal sex glands. Near the neck of the bladder, there are ***visibleglandsthatые железы***, оторen with excretory ducts (one on each side) into the lumen of the sperm ducts. Vesicoid glands are well formed in rodentsand stallions; in ruminants and boars, they are massive,lobular, tubular-alveolarformations, while in male dogs and predatoryanimals *they are absent*.

Numerous ducts of the prostate gland flow into the lumen of the urogenital canal in thearea of the bladder neck**предстательной железы**. It is especially well

developed in stallions and males. In the bull and boar, the prostate, in addition toits small body, has a significant number of small groups of glands located along the urethra, and in the goat and ram, there are onlyvascular groups scattered along thepelvic part of the urethra.

At the exit from the pelvis, on the bulb of the genitourinary canal, there are paired **Cooper's glands**, открываютhat open into the lumen of the genitourinary canal with two ducts, one on each side. These glands are highly developed in boars and stallions, small in bulls, rams and goats, and absent in males.

Along the urogenital canal, tubular urethral glands are embedded in the thickness of the urethral mucosaны трубчатые **уретральные** .

The penis consists of a head, body, and root. The head is formed by one venous body, and the base of the body is formed by two arterial cavernous (cavernous) bodies, which aremodified blood vessels. Between thesecavernous bodies is the cavernous body of the urogenital canal, surrounding the urethra, which opens on the glans penis, and in rams protrudes in the form of a process beyond the glans. In bothexperimental and carnivorous animals, the head of thepenis is thickened, in the bull and ram it is elongated, and in the boar *it is corkscrew-shaped*. In carnivorous animals, the base of the penis is represented by a bone.

Features of the structure of the genitals of sheep.

The peculiarities of the structure of the sheep's genitals include:

- small adnexal sex glands;
- the prostate gland, which has only a diffuse part;
- well-developed ampoules of sperm ducts;
- the process of the genitourinary canal extending beyond the head by 3-4 cm;
- S-shaped bend of the penis behind the scrotum.

Features of the structure of the stallion's genitals.

The structure of the stallion's sexual apparatus has the following features:

- ampoules of sperm ducts are well developed;
- all the adnexal sex glands are strongly developed;
- in the head of the penis is a powerful cavernous body of venous origin;
- the preputial sac is double, consisting of an outer and inner leaf;
- There is no S-shaped bend of the penis.

Features of the structure of the genital organs of the boar.

The sexual apparatus of a boar has its own characteristics:

- well-developed cooper's (bulbous) glands;
- S-shaped bend of the penis in front of the scrotum;
- the upper part of the prepuce forms a blind sac-diverticulum;
- the head of the penis is corkscrew-shaped;
- there are no ampoules of sperm ducts.

Features of the structure of the male genitals.

Features of the male's genitals are:

- a well-developed prostate gland;
- absence of bubble-shaped and couperous (bulbous) glands.
- there is a bone at the base of the penis.
- there is a thickening in the caudal part of the penis.

The physiological functionof the male sexual apparatus is toform sperm, remove them from the genitals, and introduce them into the genitals of females. These processesare provided by the distinctive structure of the male sexualapparatus, whichvaries significantly depending on the type of animal and the dynamics of sexual intercourse.

Spermiogenesis. When ananimal reaches sexual maturity, its testis undergoes complex processesthat lead to the maturation and formation of sperm - *spermiogenesis*. Inspermogenesis, four periods are distinguished:reproduction, growth, maturation, and formationof sperms. During these periods, changes in the size and shape of germ cells and complexrearrangement of chromosomes in their nuclei occur. Various phases of spermiogenesis can be easilyobserved by histologicalexamination of cross-sections of convoluted tubules, especially during the sexual season. On the basal membrane of the tubule, spermiogonia are visible - comparativelysmall cells that are in different stages of division (the stageof multiplication). Above the spermiogonia lie larger cells with a clearly defined dark nucleus - first-order spermiocytes (growth stage). With thedivision of first-order spermiocytes, second- order spermiocytes (prespermiotides) appear. Each prespermiotide, dividing, gives twospermatids, after which the stage of formation begins. The latter occurs in the protoplasmic processesof the Sertoli syncytium. Syncytium has the shape of a pyramid; its broad cytoplasmic base with the included nucleus lies on the basement membrane, and the tipprotrudes into the lumen of the tubule in the form of a flame tongue. Syncytial cytoplasm is rich in glycogen, which, apparently, is used by sperms during their formation, since with intensive sperm formation, the amountof glycogen in the syncytial cytoplasm decreases.

The spermiotides formed in the convoluted tubule enter the free surface of the syncytial cytoplasm and form sperms. The nucleus andcellular apparatus form the acrosome, head, and axial filament; centriolestransform into nodules of the neck, chondriosomes-into a spiral filament, and cytoplasm-into the tail. Part of the cytoplasmof the sperm-myotides-is not used in the formationof sperm and turns into a cytoplasmic (protoplasmic) droplet located on the sperm and persists until its fullmaturation. Usually, 16 sperms are formed from one spermiogony in bulls and sheep, and 24 in rats.

During fertilization, a setof sperm chromosomes is added to the setof egg chromosomes, which ensures the constancy of the number and structure of chromosomes in the zygote, and the regularity of inheritance of traits.

In different representatives of the animaland plant world, sperms have different sizes and shapes; in mammals, the specific features of the sperm structure are poorly expressed.

The formed sperms moveinto straight tubules,reach the testicular network, and enter the head of the appendage through the sperm-carrying ducts. From here, as they accumulate, they move into the canal of the appendage, where their final maturation occurs, which consists in the formation of alinoproteid shell covering the sperm and giving itstability in the external environment. This membrane appears to be formed from secretions secreted by the epithelium of the appendage canal. In addition to the protective shell, sperms acquire a negative electric charge in the epididymal canal, which preventsspermoagglutination*спермиоагглютинацию*, and lose the cytoplasmiccapelka. Using the labeled atom method, it is established that spermiogenesis and spermmovement through the appendage channel take a long time. So, in a bull, these processes last 48 days, and in a boar-4-5 weeks. Sperm move along the canal of the appendage due to rhythmic contractions of its walls (every 7-8 seconds) under the influence of oxytocin.It is believed that the appendage is also akind of biological" storage " of sperm. The accumulationof a large number of them in the appendage,especially in the expanded part of its canal, is established. They make up 60 % of the total contents of the appendage. In two appendages of the bull's testis, for example, up to 60 billion eggs were found. spermatozoa.

It is not possible to completely free the appendages ofthe spine from sperm. Even with sexual exhaustion, almost 50% of sperm remains in the appendage. At the same time, sperm from the tail of the appendage have a greater ability to fertilize than sperm from the head and body of the appendage. The fertilizingcapacity of sperm from the initial part of theappendage is 30%, and from the outputpart of the appendage tail-70%.

В придатSperm can be found in the appendages of the testisfor a long time (probably 1-2 months) and are consumed gradually. Gobies and sheep that were castrated whilepreserving the appendage sometimes showed sexual potency and productivecapacity during the entire pasture season. Sperm motility in the ligatedappendage was preserved for 32 days.

Experiments have shown that rabbits, guinea pigs and mice kept for several days in a thermostat at 37^0C,. When the testis is transplanted into the abdominal one after 10-15 daysспермиоге, spermiogenesis stops. If the testis is returned to the scrotum, spermiogenesis is restored. ***In foreign countries, this method is used to prepare probe bulls.*** Cryptorchids have aspermia and aspermatism. If the testis can be surgically removed into the scrotum, cryptorchids sometimes become prolific.

In the cold season, the scrotumtwitches up, gathers inthe ki warehouse, thereby reducing heat transfer. In hotweather, on the contrary, the muscles of the scrotum relax, it sags, in some rams almost to the ground. When working in horses, sweating usuallybegins on the skin of the scrotum. All these factors indicate that the scrotum is a thermoregulator-an organ necessary fornormal sexual function.

This position is also confirmed by the fact that in some animals (deer, ferrets, rabbits, etc.), the testicles descend from the abdominal cavity to the scrotum exclusively during the sexual season.

Control questions.

1. What are the structural features of the reproductive system in female domesticanimals of different species?
2. What factors regulate the manifestation of sexual function in pets?
3. What anatomical and physiological features are characteristic of the sexual system of males with vaginal andmale insemination?
4. B What are the specific features in the structure of the reproductive system in males?
5. Inspermogenesis, what periods are distinguished?

2-lecture. PHYSIOLOGY OF THE SEXUAL CYCLE

Training elements:

1. Stages, phenomena and features of the sexual cycle in female farm animals.
2. Formation and development of the corpus luteum.
3. Mechanisms of regulation of the sexual cycle.
4. Polycyclic and monocyclic animals.
5. Sexual and physiological maturation of the body.

The sexual cycle is a complex neurohumoral reflex processthat is accompanied by a complexof physiological and morphologicalchanges in the genitals and inthe entire female organ from one stage of arousal to another. During this period, a number of changes occur that are easily noticeable or sometimes imperceptible even with the most sophisticatedmicroscopic, chemical andbiological research methods.There are three stages in the water cycle: ***1) excitation; 2) inhibition and 3) balancing.***

The arousal stage of the sexual cycle is characterized by a vivid manifestation of four phenomena: ***estrus, sexual arousal (general reaction), hunting, follicle maturation, and ovulation.*** Each of these phenomena is specific and reflects any one side of the sexual cycle. The above-mentioned phenomena occur inmutual connection, but they arise and manifestthemselves at different times, and develop and fade away according to their lawsand conditions of existence of the organism.

With each phenomenon, a rhythmic increase in morphological and physiological changes is detected, followed by their inhibition and balancing.

In the arousal stage, all reflexes are subject to sexual reflexes, up to the weakening or even complete inhibition of such a powerful reflex as food. In females, blood pressure increases, blood composition changes, and milk quality changes.вяное давление, изменяются состав кроBut especiallydistinct changes are noted in the genitals, in which cells grow not only in the muscle and mucous layer, but also in nerve formations.

The main feature of this stage is the predominance ofproliferative processes in the sexual and other systems of the body. The stageof arousal begins with the gradual growthof a complex of these processes inthe sexual apparatus caused by the development of follicles.

Estrus (oestrus) is the processof releasing mucus from the genitals as a result of morphological changes in the female's sexual apparatus. Itis diagnosed by examining the external genitalia, vagina, and cervix,examining the mucus released from the genitalia, and using clinical and laboratorymethods. Estrus is characterized by pronounced proliferative processes. Bo During estrus, there is severe hyperemia of the genitals, swellingof the mucous membrane, and increased functioning of the glands of the vestibuleof the uterus, cervix, and tubes. In some animals (dogs, less often cows), hyperemia is accompanied by rupture of small vessels with bleeding, asa result of which the mucus becomesbloody.

During estrus, the cervixopens and releases mucus through it into the vaginac, which then flows out. The uterusis enlarged, juicy, and its excitability is increased. According to the degree of opening of the cervix and the amount of mucus released, estrus of the first, second and third degrees is distinguished.

Sexual arousal (general reaction)is a change in the behavior of the female during the arousal stage, which occurs in connection withthe maturation phase of the follicle. Sexual arousal occurs later than estrus and is manifested by a more or lesspronounced general reaction of the body in the form of anxiety, refusal of food, sometimes anger, as well as a decrease in milk productivity, changes in milk quality, and other signs.

When sexually aroused, the female shows “interest” in the male, can jump on him or on other females, allows other females to jump on themselves, but does not allow the male to cage. As the concentration of estrogens in the blood increases, estrus and sexual arousal increase; the effect of these hormoneson the nervous system causessexual hunting.

Охота (половая Sexual hunting (libido sexualis) isa positive sexual response of a female to a male, i.e., the manifestation of a sexual reflex in a female, which is expressed in her peculiar behavior in the presence of a male. During hunting, the female tends to approach the male, takes a pose for sexual intercourse, often performs the act ofurination, allows cage and coitus.

Созревание Follicle maturation and ovulation. The section of the ovary shows two zones: cortical and cerebral. The cortical zone containsfollicles and yellow bodies. Infollicles, germ cells - oocytes-go through the growth stage. As

they develop, the structure, size, shape, number, and location of follicles change. There are several stagesof follicle development.

Follicles with several layersoffollicular cells around the egg are calledsecondary. They do not yet haveti bands; they are located more deeply in the ovary than small follicles. Developing, secondaryfollicles turn into Graaf vesicles (named after the Dutch scientist R. De Graaf). As they transform, the follicular cells secrete drops of liquid, which, merging, squeezes the cells of the follicular epithelium, and a small cavity forms between them.

The process of opening a mature follicle and isolating an egg cell from it is called ovulation. The mechanism of ovulation is not yet fully understood. One thing is indisputable: this is a complex reflex actregulated by the central nervous system, its higher division - the cerebral cortex. This is evidenced by the fact that ovulation in cows and horses often occurs at night, early in the morning (in a quiet, calm environment).

Domestic animals have two variants of ovulation: reflex - in camels, cats, rabbits,nutria and some other animals, occurs only after coitus (in rabbits after 10 hours); spontaneous (regardless of sexual intercourse) - in most femalefarm animals. However, in this case, coitus acceleratesthe onset of ovulation.

ОвуOvulation occurs under the influence ofluteinizing hormone with the participation of follicle-stimulating hormone. After ovulation, a hollow with flabby edges is formed at the site of the burst follicle, which is easily determined in large animals by rectal palpation of the ovary.The ovary shrinks and becomes soft.The emptied follicularcavity of the follicle is filled first of all with blood, and then with fast-growing cells of the follicularepithelium (granular layer). The latter, acquiring a multi-coal shape, turn into luteincells that deposit a yellow pigment-lutein. A number of scientistsbelieve that luteal cells are formed only from cells of the inner connective tissue membrane (theca interna) of the ovulated follicle, since follicular epithelial cellsdie after ovulation.

The resulting luteal cells gradually mix the blood clot (it is resorbed) and fill the entirefollicle cavity. From the connectivetissue elements of the follicle, radial partitions are formed, which together with the vessels and nerves go from the periphery to the center. **This is how the yellow body is formed** (named after its color), divided by connective tissue strands into lobules. The resultingcorpus luteum luteumis denserthan the follicle; in cows, it often grows mushroom-shaped on the surface of the ovary and is clearly distinguishable from the follicle on rectal palpation, often exceeding its size.

The corpus luteum is a temporaryendocrine gland that secretes the hormone progesterone. Itprovides preparation of the uterine mucosa for embryo implantation and placental development, and helps preservepregnancy and overgrowth of the glandular breast tissue. Progesterone prevents the growth of new mature follicles and their ovulation, and therefore pregnantfemales do not have sexual cycles.

The degree of development of the corpus luteum and its endocrine function depends on the fateof the follicle and egg cell.There are three possible outcomes of developing foulplay: 1) ovulation; 2) atresia and 3) luteinization. Ifpregnancy does not occur after ovulation, the corpus luteumundergoes reverse development (involution);

during this period, it is called *the corpus luteum of the sexual cycle*. If pregnancy occurs, the corpus luteum is greatly enlarged, occupying most of the ovarian parenchyma, and is called the corpus luteum of pregnancy. It exists throughout the entire period of fruiting and only by the end of pregnancy or after childbirth undergoes a reversedevelopment. Sometimes the corpus luteum of the sexual cycleor a former pregnancy (less often)remains in the ovary for more than 30 days (delayed corpus luteum). Itcauses the occurrence of anaphrodisia (cessation of sexual cycles) of variousdurations.

At the site of the follicle, a corpusluteum may not form if the follicle is atresia. Finally, sometimes the corpus luteum is formed even without ovulation, when a hemorrhage occurs in the cavityof the unopened follicle and the follicle cells are replaced by cells of the corpus luteum (follicle luteinization).

When examining the ovary, it is possible to trace the growth of the follicle and distinguish between the phases of folliculogenesis and luteogenesis: 1) the pre-ovulation phase - maturation of the follicle; 2) the ovulation phase; 3) the post-ovulation phase, characterizedby the development of the corpus luteum in place of theovulated follicle; 4) the balancing phase, when the corpus luteum resolves and new follicles begin to develop.

Diagnosis of the phasesof follicle maturation and ovulation in large animals is performed by probingthe follicles through the rectum.

Stage of inhibition - the stageof weakening the signs of sexual arousal and estrus. It begins immediately after the arousal stage. Hunting is replaced by a pronounced rebound, gradually replaced by an indifferent attitudetowards the male; a yellow body develops in place of the ovulated follicle. With the weakening of hyperemia, the volume of all areas of the sexual apparatus decreases. The cervix closes, mucus is not released, the glands of the genital apparatus undergo reverse development, the epithelial layers that have grown in the vagina are rejected.

The animal calms down, the appetite is gradually restored, the quality of milk, blood composition, the structure of the mucous membrane of the genital tract and other changes that occurred duringthe revival stage are leveled. The female becomes aggressive towards the male: she tends to bite him, hit him, or run away from him. Such a negative sexual reaction of the female to the maleis called a r e b o u n d .

The balancing stage occurs after the stage of inhibition of sexualprocesses and lasts until the onset of a new, regular stage of arousal. At this stage, the general state of the femaleis balanced, she has an indifferent or negativeattitude towards the male (lack of hunting), there are follicles in the ovaries and functioning yellow bodiesof the sexual cycle.

В равной степени выражены пролиProliferative and degenerative processes are equally pronounced. The cervix is closed. Microscopy of the vaginal smear reveals mainly mucus, as well as leukocytes, cells of flat multi-layered epithelium with a well-defined nucleus, and non-nuclear cells (scales).скопии влагалищного мазка выявляется преимущественно слизь, а также лейкоциты, клетки плоского многослойного эпителия с хорошо выраженным ядром и безъядерные клетки (чешуйки).

Full and incomplete sexcycles. Sexual cycles can be full-fledgedми, if during the arousal stage all its phenomena - estrus, general reaction, hunting and ovulation- are manifested, and notfull-fledged when one or more phenomena occur, for example, estrus (anestral sexual cycle), ovulation(anovulatory sexual cycle), hunting (alibid sexual cycle), signs of general reaction (areactiveflow cycle). There may bemixed inferior sexualcycles (areactive-anovulatory, etc.).

In full-fledged sexual cycles, the arousal stage сапваться be formed synchronously (simultaneously), when all the phenomena-estrus, hunting, general reaction and ovulation, for example in cows, are manifested for 48 hours, and asynchronously - whenindividual phenomenaare more pronounced, even 5-6 days after the beginning of the arousal stage.

Clinical practice shows that sometimes the female has a pronounced sexualarousal and hunting, and estrus and ovulation are absent.

After the first sexual cycle, which characterizes the onset of puberty, sexual cycles are repeated throughout the entire sexual life of the female, i.e. until old age, whenthe sexual cycle ceases and the climactericperiod begins (climax-senile infertility).

The sexual life of the female's body can be represented as a complex of sexual cycles, since normally each full-fledged sexual cycle is accompanied by insemination, fertilization, pregnancy and childbirth.

Polycyclic and monocyclic animals. The rhythm of sexual cycles, i.e. their alternation andduration, is specific for animalsof each species. In some species, sexual cycles are repeated consistentlyand relatively frequently; in others, only one or two cycles are observed throughout the year. According to this feature, all animals are divided into po-lycyclic and mono-cyclical.

Polycyclic animal species include ungulates, cattle, and pigs. Theyare characterized by sexual cycles with short stages of balancing. The sexual cycle of monocyclic animals (dogs and all wild animals) is characterized by a long balancing stage.

There are transitional forms between mono-and polycyclic animals. Sheep have several consecutive cycles, followed by a relatively longperiod of anaphrodisia. Thenseveral cycles are repeated again, and so on. Accordingto this, sheep are classified as polycyclic animals, but with a sexual season.

The sexual season is the period during which sexual activity manifests itself or is moreintense. It is usually associated withthe time of year, specific features of the animal. Its main manifestation, as well as its cyclical nature, depends onthe conditions of maintenance, feedingof animal and sexual stimuli.

Factors that determine the sexual cycle. The rhythm of sexual cycles,the sequence and interrelation of sexual phenomena (ovulation, estrus, hunting and sexual arousal) can beexplained by the interaction of the nervous and humansystems of the body. A necessary condition for the occurrence andflow of sexual cycles is the presence of two groups of hormones: gonadototropic and gonadal (ovarian). There are threeнmain adotropic hormones produced by the pituitary gland: follicle-stimulating (FSH), luteinizing (LH) and luteotropic (LTG), or lactogenic. Follicle-stimulating hormone causes the growth and maturation of follicles in the ovaries. Underthe

influence of luteinizing hormone (with an optimal ratio of FSH and LH, approximately 1:10), ovulation and the formation of the corpus luteum occur. If the specifiedphysiological correlation is violated, then ovulation does not occur(anovulatory sexual cycle). The corpus luteum is formed underthe influence of LH, and LTH regulates its function and stimulates milk production during lactation.

Gonadal hormones involved in the regulation of the sexual cycleare produced in the ovaries. These include follicular hormone (folliculin, folliculosterone) and corpus luteum hormone (progesterone, luteohormone). Follicularhormone, which is formed in maturing follicles, is called estrous, as it causes estrus (estrus) in animals. Three types of estrogens are known: estrone, estradiol, and estril. The most active follicle hormone is estradiol, and estrone and estriol are products of its transformations; a significant amount of estrogens are also produced by the placenta and a smaller amount by the adrenal cortex and testes.

The highest hormonal activityof the corpus luteum of the sexual cycle is manifested on the 10th-12th day, when itreaches its maximum development.

Progesterone causes the development of the secretory function of the endometrium, prepares the uterine mucosa for embryo attachment and itsnormal development. This is an extremelyimportant function of progesterone. If it is not enough, the embryo dies.Progesterone contributes to the preservationof pregnancy in the initial stage; squeezing out the ovarian corpusluteum during this periodcauses abortion. This hormone inhibitsfollicle growth and ovulation, prevents uterine contraction,and keeps the uterus in a balanced state. In addition, the hormone of the yellow body causes hypertrophy of the mammary glands and prepares them forlactation activity. The entire humoral system receives primary impulses from the cerebral cortex.

Inaddition to internal factors, external factors also influence the formation and manifestation of the sexual cycle. Amongthe external factors affecting the sexual cycle, food, light and the male are of primary importance as a specific stimulatorof the reproductive system.

The feed contains sterones and vitamins, from whichfollicle-like substances are synthesized in the body. They can also form in the body's tissues under the influence of sunlight (insolation).

Sexual cycles in animals of different species. All the data below on theduration of individual phenomena of the arousal stageof the sexual cycle are typical for animals that did not have coitus. In all females, long-term communication with breeders and test males, especially in combination with multiple coitus,significantly shortens sexual hunting and accelerates ovulation.

Sexual cycle of a cow. The durationof the cow's sexual cycle varies from 18-22 days, with an average of 21 days. The cow is a polycyclic animal; when properly fed, kept, and operated, its sexual cycles repeat throughout the year, but the arousal stageis usually brighter in spring. After delivery, the stage ofarousal manifests itself in 18-25 days. Anaphrodisia (absenceof sexual cycles) later than 30 days after delivery is alwaysa sign of some form of infertility.

The arousal stage lasts 3-5 days; in summer, it averages 98 hours, and in winter- 84 hours. During estrus, the vulva is swollen, the mucous membrane of the

vestibule and vagina is hyperemic, the cervix is opened, sometimes it passes 1-2fingers. The vaginal part of the cervix is flabby, its contours are smoothed; whenthere are pronounced folds at the mouth, they are often covered with bruises, especially after sexual intercourse. Aclear, viscous mucus is released from the genital fissure in some cases. By the end of estrus, the mucus becomes thicker, somewhat cloudy, and sometimes contains an admixture of blood. Bloodymucus is more often observedin young animals. Sometimes the presence of estrus is indicated only by crusts formed from the drying of mucus on the hair of the croup or tail.

Signs of sexual возarousal. The cow is worried, oftenmoos, does not lie down, raises its tail; appetite and milk yield decrease, weight does notdecrease much; body temperature rises by 0.8-1.2°C, pulse and respiration become more frequent. Milk can acquire the properties of colostrum and, when fed to young animals, has a laxative effect. The hemoglobin content in the blood does not change, but there is a slight leukocytosis. The cow often assumes a urination pose, jumps on top of othercows, and lets them jump on top of her. Эти признаки полового возбуждения A number of authors quite unreasonably attribute these signs of sexual arousal to the phenomenon of hunting. Often such a cow puts up a sharp resistance to the bull when trying to make a cage on it.

Hunting for cows and heifers lasts 10-23 hours; for most animals, it lasts 13-17 hours, with an average of 16 hours. In winter, hunting is somewhat shorter, with an average of 13.8-14.8 hours.

Ovulation in cows occurs 10-15 hours after the end of hunting (from the beginning of hunting in 28 hours), in mostcases (85.2 %) in the evening-night time.

Dosed communication of the female with the probe producer increases the clinical signs of estrus, sexual arousal and hunting, and sexual intercourse accelerates the onset of ovulation and usually shortens the hunt.

Ovulation can be detected by systematic rectalexamination of the ovaries based on changes infollicle consistency. At the beginning of the hunt, it has an elastic consistency, bythe moment of ovulation it is fluctuating; a few hours before ovulation, the follicle increases, reaching 2-2. 5 cm. After ovulation, a small depression is easily detected at the site of a previously fluctuating follicle (witha smaller ovary).Due to the formation of a blood clot, the location of the follicle rupture cannot be determined 6-8 hours after ovulation.

Formation стадии of the arousal stage y in cows. As a rule, cows first show signs of estrus, then (after 2-4 days) sexual arousal and, finally (after 4-15 hours), hunting. Sometimessigns of sexual arousal appear first, followed by estrus and hunting;the occurrence and course of these three phenomenacan occur simultaneously. Forthis reason, there are two variants of the formation of the stage of arousal of a full-fledged sexual cycle in cows: synchronous and asynchronous.

With proper feeding,maintenance, and operation, in most cases estrus, sexual arousal, and hunting occur almost simultaneously (synchronously). Whenthe arousal stage is formed asynchronously, the onset of estrus, sexual arousal, and hunting does not coincide in time. This is what causes unavoidable errors in the diagnosis of hunting in the absenceof a probe, and therefore the occurrence of artificially acquired infertility.

The stage of inhibition lasts 1-3 days, it begins with the cessation of hunting and signsof sexual arousal, followed by a gradualdecrease in signs of estrus. Thecow reacts negatively to the bull.Rectal examination in one of theovaries (less often in both) reveals the developing corpus luteumof pregnancy (if any) orthe sexual cycle formed after ovulation or luteinizationof the non-inflamed follicle at the site of the former follicle.

Стадия уравновешивания The balancing stagelasts 6-14 days and is characterized bythe absence of mucus discharge fromthe genital organs. The mucous membrane of the vestibule and vagina is pale pink in color. The contours of the vaginal part of the cervix protrude in the form of a nipple-like protrusion. The general condition of the animalis normal. The reaction to the maleis negative. In the predominant number of cows, rectalexamination reveals one large ovary with a clearly defined yellow body in the form of a small dough-like elevation located on the free edge or at one of the ends of the ovary. The surface of the ovaries is finelybumpy (small follicles), often along with the yellow body, a fluctuating follicle the size of a bean or a small pea is felt.

Sexual cycle of mares. ПродолжительThe average duration was 20-21 days. In spring and autumn, sexual cycles are more rhythmic, and signs of the arousal stage are more pronounced.

The stage возбуждения возof arousal occurs after delivery on the 5th, and more often on the 7th - 12th day. In the absence of fertilization, sexual cycles are repeated throughout the year. Normally, the arousal stage lasts 6-12 days.

Estrus lasts 5 days or more. It is characterized by hyperemia of the mucous membrane of the vestibule and vagina, the color of the mucous membrane is pink or bright pink, it is covered with mucus secreting from the genital cleft. Atfirst, the mucus is viscous, translucent, then it becomes more transparent,compressed, stretching into long threads, and by the end of estrus it becomes cloudy. The cervical canal opens slightly by 2.5-3.5 cm, the cervix is felt in the form of a juicy dough string, the contours of its vaginal part are blurred, it takes the form of a rosette. The rigidity of the uterus decreases, its horns acquire a rounded shape, softconsistency. According to the degree of cervical dilation, hyperemia of the genital mucosa, and the amountof mucus secreted, estrus of the first, second, and third degrees is distinguished.

Most mares have well-developed signs of sexual возarousal (general reaction),which is an increased response toshouting, noise, and other stimuli.There is a decrease in appetite, malice, tickling when cleaning, the desire to get closer to otherpeople, insubordination to the driver,resistance to caring staff.

Hunting lasts 2-12 days. In most cases, it lasts4-5 days in young mares, 5-7 days in suckling mares (of average age), and 7-12 days in old mares. The hunt is determinedby a probe stallion, and responsesto auditory, visual, olfactory, and tactile perceptions are taken into account. When a stallion neighs, the mareis preoccupied, raises her head, "pricks her ears", turns inthe direction of the sound, responds with a neigh, sometimes raises her tail, spreads her hindlegs, makes rhythmiccontractions with her labia,and excretes urine in small portions.

At the sight of a stallion (visual perception) these symptoms increase, the mare moves her legs, tends to the male. When a stallion approaches, the cow sniffs (olfactoryperceptions), rubs against its neck and head, and turns its rump towards it.Simultaneously with the increase in rhythmiccontractions of the vulva, a significant amount of mucus is released (sometimes "spills out") from the genital fissure. Duringthe cage, the mare stands still.

Ovulation often coincides with the time of the most vivid manifestation of hunting, estrus, and sexual arousal, but it can also occur without these signs (alibid, anestral, or areactive sexual cycle). The follicle matures within 9-35 days. In spring and summer, this happens faster than zimoi. Based on regularresearch of the ovaries, Zhivotkov proposed to distinguish between six phases of theirstate: four-during the maturation of the follicle, the fifth-ovulation, and the sixth - formation of the corpus luteum. In the fourth phase, the mare's follicle reachesits highest development. Its wallsare strongly stretched, strained and thinned due to increased intra-follicular pressure; the follicle fluctuation is elastic and tight. Insemination at this time gives a high percentage of fertilization.

In mares, the follicles are opened only in the ovulatory fossa. Ovulation occurs at the end of the hunt,mostly after midnight (from 2 to 7 am).

The size of the follicle can not serve as an accurate guidelinefor predicting the time of ovulation. Signs ofapproaching ovulation are considered to be a well-defined fluctuation and a decrease in intra-follicular pressure, usually in combination with a pronounced hunt, estrus, and general reaction.

Formation стадии of the arousal stage. Установлено неSeveral variations in the dynamicsof the formation of the excitation stage have been established. In some cases, thesigns of all the phenomena of the sexual cycle appear and occur almost simultaneously, while in others, thesigns of estrus first appear, then they are joined by the symptoms of sexual arousal and hunting. Sometimes the intervals between the manifestation of symptomsof individual phenomena reach 12 days. and more.

The above facts allow usto clarify the causeof unsuccessful multiple inseminations of mares when choosing the time of insemination based on the presence of only signs of estrus or sexual arousal.

During стадии торможеthe inhibition stage (duration 2-8 days) all signs of sexual arousal and hunting abruptly, and signs of estrus graduallydisappear. When examining the vestibule of the vagina, a smallamount of cloudy mucus is detected.The mucous membrane turns pale, acquires a palepink color, the cervical canal closes, its vaginal part decreases, and the contours are formed. During rectal examination, the uterus has a more elasticconsistency than in the arousal stage, its horns are ribbon-shaped, and the rigidity of the uterus is restored. Signs of sexual arousal disappear, the mare is calm, the appetite is good.

Instead of hunting, the negative reaction of the female to the male is revealed (lights out). When a stallion approaches, the imp mareresists, flattens her ears, screams, tries to bite him, kick him, or run away.

In the ovary, the yellow body of the cycle develops in place of the ovulated follicle (when pregnancy occurs, theyellow body of pregnancy), so the ovary has a

bean-shaped, oval or rounded shape.Due to the general elasticity of the ovarian tissues and the location of the corpus luteum in itscentral part, the contours of the corpus luteum are not palpable.

Стадия уравновешива The balancing stage lasts 4-17 days. There are no signsof a leak. The tissues of the vulva are elasticin consistency, the mucous membrane of the vestibule and vagina is pale or slightly pinkish, slightly moistened with viscous semi-permeable mucus. The cervical canal is closed, the contours of the vaginal part of the cervix are well formed; it protrudesinto the lumen of the vagina in the form of a cone. Palpation through the rectum can establish well-defined contours of the cervix. The body and horns of the uterus react to touch and stroking by contracting, giving them a denser, more elastic consistency (well-defined rigidity). There are no mature follicles in the ovaries. Ovaries of equal or unequal size, elastic consistency, bean-shaped or rounded shape. These variations in shape are caused by the onset of development and atresia of the follicles or yellow bodies.

A smear taken from the vagina (near the cervix) consists of squamous epithelial cells with clearly visible nuclei and a small number of white blood cells.

The animal's behavior is calm (there is no sexual arousal);there is no desire, a negative reaction to the male (hang up).

Sexual cycle of a pig. The pigbelongs to polycyclic animals with a duration of sexual cycles of 20-21 days. With good feeding and maintenance, daily boar stimulation, the arousal stage in pigsis observed during the first month after delivery. Violation of feeding and maintenance of sows causes the manifestation of sexual cycles only after weaning piglets.

Стадия The arousal stage y in sows can be formedsynchronously (estrus, sexual arousal, and hunting occur one after anotherfor 24 hours) or asynchronously (24 to 177 hours pass between individual phenomena). Asynchronous formation is most often observedin the summer (N. P. Malinkin). Estrus is characterized byredness and swelling of the vulva, weak hyperemiaof the mucous membrane of the vestibule of the vagina, and sometimes the discharge of mucus. By the end of estrus, congestive hyperemia(cyanosis of the vulva) is noted.

The general reaction is manifested by anxiety, decreased appetite, and the desire to make a cage for other queens. The hunt lasts an average of 40 hours for repair pigs, and 50 hours for main queens. During this period, the pig tendsto approach the male and, upon contact with him, starts the cage.

Ovulation occurs more often on the 2nd day after the onset of pregnancyand usually ends within 24-48 hours, in young pigs-1-3 hours; it is possible to extend this process to 8 days. An average of16 follicles are usually ovulated in guinea pigs среднем 16 фолликулов, у взрослых свиand 22 follicles or more in adult sows.

Sexual cycle of a dog. The dogis a monocyclic animal. Her sexual cycles are characterized by a long duration (from 3 to 6 months). Стадия The arousal stage (rut) usually appears in spring andautumn, but depending on the conditions of existence and breed of the animal, rut can be observed at other times of the year. The duration of the arousal stage varies between 8-14 days; in well-fed animals, this period may be prolonged. Estrus usually begins withthe first days of the arousal stage and lasts for 8-14 days. Signs of estrus: edemaand hyperemia of the external

genitalia; discharge of mucus from the genital fissure with a specific smell detected by males at a great distance. The mucus is initially bloody, after a few days - reddish, by the end of estrus it becomes transparent and less abundant. Sometimes, due to severe edema, the mucous membrane of the vestibule of the vagina protrudes from the genital fissure in the form of a red rim or falls outso much that it has to be removedoperatively.

Sexual arousal usually coincides in time with heat; its signs are: playfulness, restlessness, swollen mammary glands, weakening and perversion of the senses in hunting and detectivedogs. Bitches often jump on other dogs, allow other dogs to jump on themselves, but coitus is notallowed until the hunt begins. Signs of hunting: the desire for males, the accumulation of males aroundthe female. When the male approaches, the femalegets into a position for sexual intercourse, does not resist the cage and coitus. Huntingtakes place in 4-5 days, more often on the 9th-12th day after the start of estrus, andlasts 1-3 days. Hunting endssimultaneously with the cessation of signs of estrus. Ovulation usually occurs at the end of estrus, coincides with the phenomenon of hunting; due to the maturation of many follicles, it can last for several days, which leadsto frequent superfecundation phenomena (multiple fertilization with spermfrom different males). The stages of inhibition and balancing are characterizedby the absence of sexual arousal, hunting, estrus, and ovulation, i.e.they occur in the same way as in other animals.

Sexual maturity is the abilityof animals to produce offspring. It is characterizedby the formationof eggs and the manifestation of sexual cyclesin females, the release of sperm in males, and the production of sex hormonesthat cause the development of secondary sexual characteristics. With the onset of puberty, spermiogenesis in maleindividuals and ovogenesis in female individuals continues throughout the entire reproductive life. Animals acquire the characteristic features (appearance, body shape, etc.) inherent in the male and female individuals. During puberty, theanimal's body undergoes a complex morphofunctional transformation leading to a new physiological state. In heifers, for example, from the momentof puberty (from 6-7 months of age), the amount of gonadotropin hormones significantly increases (A. A. Sysoev). The timing of pubertydepends on many factors, primarily on the species, breed, sex, climate, feeding, care, maintenance, and the presence of neurosexual stimuli (communication between different-sex animals).

Sexual maturity is always manifested before the main growth and development of the animal ends. Therefore, the onset of puberty does notyet indicate the readiness of the animal's body to reproduceoffspring. The use of animals forreproduction immediately after pubertyhas a negative impact not only on the animals themselves, but also on the offspring. Such females lack a well-developed reproductive system, bonepelvis, and mammary gland. The firstsexual cycles are usually incomplete and arrhythmic. When metered communication of heifers with a probe significantly increases the number of ovulations during the first sexual cycle. Cycles become more rhythmic, and their stabilization accelerates. The literature describes cases when heifers weresuccessfully inseminated at the age of 6 and even 4.5 months, and they eventually became gooddairy cows. However, animals are usually usedfor reproduction onlyafter some time afterpuberty.

Physiological maturity. Physiologically mature females and males are characterized by the completion of the formation of the body, the acquisition of the exterior and 65-70 % of the live weight inherent in adult animals of this breed and sex. The physiological maturity of males and females is determined by age, body weight, and the degree of development of the genitals. Usually, physiological maturity, which indicates the possibility of using young animals for reproduction, occurs in the following terms (in age, months):

mares	36
cows	16-18
sheep and goats	12-18
pigs	9-12
dogs and cats	10-12
rabbits	4-8

Synchronization of the arousal stage of the sexual cycle. It can only be performed in healthy animals andmust be performed against the background of optimal feeding and maintenance. In cattle breeding, the need for such a technique arose in connection with embryo transplantation, which requires synchronous flow of the arousal stage in donors and recipients. The method is also important in beef cattle breeding, where there is seasonal insemination of females. One of the synchronization options is as follows: for 6-15 days, cows and heifers are injected with a progestogen (progesterone, megestrol acetate, etc.), and then FFA or estrogens are injected. Another option is less time-consuming, when prostaglandin F_{F2a}or its synthetic analogues are used (thedrug is administered twice с иat intervals of 10-11 days).

Due to the seasonality of breeding, synchronization of the arousal stage in sheep is promising by feeding5 mg ofmeg trol acetate for 10-15 days or injectinga spongesoaked in 3 ml of 1% alcoholsolution of this drug into the vagina for a specified period of time. Then, 15-16 days after the endof using megestrol, 1000 ME of FFA is injected.

Control questions. 2. At what age do sexual and physiological maturity occur?

3. What factors regulate the manifestation of sexual function in pets?

4. What stages are distinguished in the sexual cycle of females?

5. What signs characterize the phenomena of the arousal stage of the sexual cycle?

6. What are the specific features of the sexual cycle in female domestic animals?

7. What is the synchronous and asynchronous formation of the excitation stage?

8. What is the difference between full-fledged sexual cycles and incomplete ones? What are the types of defective cycles?

3-lecture. ORGANIZATION AND TECHNOLOGY OF ANIMAL INSEMINATION. ARTIFICIAL INSEMINATION OF ANIMALS

Training elements:

1. Preparation of animals for insemination. Features of sexual intercourse in animals of different species.
2. Methods of natural insemination. Animals with uterine or vaginal insemination.
3. Veterinary and sanitary assessment of animal insemination methods. Terms of female insemination.
4. Artificial insemination (Epicervical, visocervical, manocervical and rectocervical) of animals
5. Methods of synchronization and stimulation of the sexual cycle in animals

1. Preparation of animals for insemination.

Each uterus that arrives at the point can only be allowed to be performedafter a veterinary clinical examination and exclusion forvarious diseases. Veterinary inspection is carried out before the animals enter the premises of the point. If spilled edema of the external genitalia, ulcers, purulent or bloody discharge, swelling of submandibular lymph nodes, nasal discharge, etc. are detected, queens areinseminated only with the permission of veterinary personnel.

Infected (or suspectedinfectious diseases) queens that have entered insemination sites are immediately removed; the room and objects that have come into contact with them are thoroughly disinfected orquarantined if indicated.

Regardless of the method of insemination adopted on the farm, producers should be kept under constant veterinary supervision and thoroughly examined at least once a month.

Lower-average fat queens should be placed inthe best conditions of care and feeding in order tobring them to normal fatness by the planned time of insemination.

It is necessary to prepare the necessarynumber ofvasectomized samples (check them for activity, for the absence of sperm in the ejaculate)or animals operatedon by other methods. If there are no operated animals, then prepare aprons and teach them to reserve producers who are also used as testers in farms that have switched to artificial insemination.

Successfulinsemination can only be expected if all the phenomena ofthe arousal stage of the sexual cycle are present: estrus, sexual arousal, hunting, and ovulation. Focusing on thearrival of one of the phenomena allows you to count only on a higher or lower probability of fertilization. Insemination shouldbe performed at the most favorable time for sperm to meet the egg. Incows, sexual hunting always occursearlier than estrus and does not always coincide intime with sexual arousal.Therefore, insemination of cows only on the basisof taking into account the signs of estrus and sexual arousal is not very fruitful, since sperm in this case die

before the egg is released. Dischargefrom the genital fissure is not always asign of estrus; it is also observed in inflammatory processes in the genitals and in the normal state of cows at 4-5 months of pregnancy. A more accurate sign of the animal's readiness for fertilization is the presence of sexual hunting and estrus. During this period, all processes aimed at insemination reach their maximum development. There is a significant increase inantiperistaltic contractions of the uterus, which play a crucial role in the suction of sperm into the uterus. The release of mucus, which has high bactericidal activity, elasticity, low viscosity and an alkaline reaction, improvesthe survival rate of sperms and accelerates theirprogress. The cervical canal is completely open, which contributes to the correct introduction of sperm.These features indicate the need for insemination of animals only during sexual hunting. Therefore, timely and accurate detection of hunting, especially in cows, is considered in all countries of the world as the most importantproblem, on the solution of which, firstof all, the effectiveness of artificial insemination and an increase in the yield of offspring depend.

According to the specificity of coitus, animals are divided into groups with vaginaland uterine insemination.

In animals with vaginalinsemination, coitus is short, ejaculationis synchronous, and semen enters the cervix.Typical representatives of this group are large andsmall cattle, deer, and rabbits.

Animals with uterine inseminationinclude pigs, horses, dogs, and foxes. Their coitusis much longer, ejaculation proceedsgradually, and sperm is released into the uterus

Sexual intercourse in ruminants. The sexual act of the bull, ram and goat is characterized by short duration. After the erection, the manufacturer makes a cage and, after insertingthe penis into the vagina, begins sexual intercourse with one sharp copulatory push. The presence of this push is a sign ofa state of ejaculation. The duration of sexual intercourse varies between 2-10seconds. Ejaculation occurs simultaneously. The speed of the process can be explained by the fact that during an erection andthe growth of sexual arousal, sperm from the appendage reach the ampoule-like extensions of the sperm ducts, wherethey are held up to the copulatory reflex. During a copulatory push, sperm мышц ампул и мочеиспускательного kais pushed out with such force by vigorous contractions of the ampoule and urethral muscles that when the penis is located outside the vagina at the time of ejaculation, the ejaculate is thrown forward several meters.

Sexual intercourse in deer. It usually occurs on the run and lasts 10-15 seconds.

Sexual intercourse in a rabbit. It's short. A sign of ejaculation is a sharp fall of the male from the female back or on its side. Orgasm is often accompanied by a squeak.

Sexual intercourse in horses. It proceeds in the following sequence. The stallion shows strong excitement, begins to neigh, often moves his legs and tends to approach the mare. In breeders regularly used at natural andartificial inseminationsites, signs of sexual arousal may appear after putting on a bridle with stretchmarks.

In heavy-type stallions, sexual arousal is usually weaker than in trotters and mounted horses.

Simultaneously with sexual arousalin the stallion, especially when approaching the mare, an erection ofthe corpus cavernosum of the penis trunk occurs. At the same time, most manufacturers immediately show hugging ("making a cage") and copulatory reflexes. Phlegmatic stallionsgo into sexual arousal and make a cage after more or less prolonged sniffing of the female and contact with her. 5-10 seconds after the beginning of copulation, ejaculation occurs. During orgasm, the stallion seems to calm down, occasionally making copulatory movements, accompaniedby rhythmic contractions of the musclesof the perineum and tail, which usually judge the release of ejaculate. At the end of the orgasm, copulatory movements stop andthe producer descends from the female. The entire sexual act is normalbut lasts 1-3 minutes.

Sexual intercourse in pigs. Lasts up to 10-15 minutes. After the hug reflex, the boar gets an erection, removes the penis from theprepuce sac and inserts it into the vagina; ejaculation lasts 7-8 minutes.

Sexual intercourse in camels. Males areparticularly vicious during the mating season; when they see a female, they get very excitedand pull out a dark curtain that protrudes fromthe oral cavity like a red bubble.The sexual act is performed in a supine positionand lasts an average of 13-14 minutes. The orgasm goes unnoticed. Ejaculation is judged by themale's refusal to re-incarcerate. The camel secretes ejaculate, consisting of sperm and a large number of secretions of the adnexal sex glands.

Sexual intercourse in dogs is characterized by a peculiar course of the erection reflex: the enlarged head of the penis is pinched by swollen cavernous bodies of the vestibule of the female's vagina ("scleshivanie", "lock"). Then ejaculation occurs for 4-5 minutes. The duration of coitus varies from 10 to 45 minutes, sometimes up to 2 hours.

In production conditions, hunting in females should be determined by a male probe. Some experts believe that hunting in females can be detected without a probe. But this statementis wrong. You can notice thegeneral excitement of the female, estrus, but not hunting, since hunting isa strictly specific phenomenon (reflex), the reaction of the female to the male. **Reflexologyтод** is the only way to diagnose hunting. In some animals, the reaction of thefemale to the male is crucial, while in others (sheep), the reaction of the male to the female in hunting is also taken into account, which it detects primarily through olfactory perceptions.

The male identifies females in huntingmainly by perceiving specific odors (sex pheromones: epagons, gonophions, and gamophions). These odors are not detected either visually, or by various instrumental or any other means that allow you to diagnose hunting.

To conduct a hunting test in cows, a special pen with a hard surface and a high canopy is allocated next to the artificial insemination point and the cowshed. The paddock isenclosed with a solid fence. The presence of such a pen allows you to testcows for hunting and stimulate sexual function with a probe at any time of the year.

Cows that are inthepostpartum period (from 4 to 5 days after delivery, to stimulate sexual function), heifers that have reached the age of 16 months, as well as all inseminated females(from 10 to 30 days afterinsemination, for the diagnosis of the initial stages of pregnancy and infertility).The probing bull is released to the females 2 times a day for 1.5-2 hours in the morning and in the evening. At this time, the animals are carefully monitored. A longer stayof the probe bull among the breeding stock and, moreover, the joint mouthof the ba with cows are unacceptable, since this can quickly cause the bullto inhibit sexual reflexes.

After a hunt is detected, the cow or heifer is immediately removed from the pen so that the probecan find other females in the hunt.

There may be various optionsfor using probe bulls. However, in all cases, the principle of temporary stay of samplers among cows and heifers and control over their use by animal health specialists must be strictly observed. In a number of countries, bull probes with markers are widely used.

In Bulgaria, artificial cryptorhids are specially preparedby operating on sheep up to 3months of age.

Testing of young mares for hunting by a probing stallion begins at the beginningof planned insemination, andsuckling mares - from the 3rd day after delivery. It should be borne in mind that manual testing does not provide 100% detection ofcows in hunting, and therefore it should be supplementedwith a sample using an operatedprobe stallion.

3. Methods of natural insemination.

When breeding animals, two *methods of insemination are practiced*: natural and artificial. In natural insemination, the task of the breeder is to select, select and mate the breeder with the appropriate female so that they can perform sexual intercourse (coitus). In artificial insemination, the sperm of producers selected for females is introduced with special tools.

Natural insemination (mating) of animals. Several mating methods are used: manual, boiled, free, kosyachny, cool, harem. The choice of mating method depends on the type of animal, the direction of productivity, local conditions, the size and composition of the herd.

Manual pairing. With manual mating, individual selection of queens to producers is carried out, sexual intercourse takes place under the direct control and supervision of the breeder. This method allows you to keep an accurate record of inseminations, regulate sexual activity, and conduct a veterinary examination. 40-50 queens are assigned to one stallion, 60-100 to a bull, 50-60 to a ram, and 15-20 to a boar.

Cooking pairing. This method makes it possible to use valuable producers for insemination of queens, detection of hunting, infertility and stimulation of sexual function. Queens intended for insemination are brought into a spacious fence (brews, bases), released to them by a probe or immediately by a producer who chooses the queens in the hunt and inseminates them without the intervention of caring personnel.

Free mating. The producer is constantly in the herd (a specific irritant to the sexual function of females). The onset of the arousal stage in this case is

accelerated, proceeds brightly, the possibility of skipping sexual hunting is excluded, sexual intercourse is performed at the optimal time, as a result of which a high percentage of fertilization is achieved. The disadvantage of this method is that it is difficult to record inseminations, it is impossible to conduct breeding work in a large herd. Free-range mating is of limited use, practiced mainly in beef cattle breeding and on small farms. The load per male is 35-50 queens.

Joint mating. Used in herd horse breeding. The breeding stallion is kept around the clock together with the mares on the pasture under the supervision of the herder, who registers the inseminated queens. 20-35 mares are assigned to one adult stallion, 15-20 mares to a young stallion, and 12-15 mares to an old stallion.

Cool pairing. Used in sheep farms. Sheep are divided into flocks, taking into account the bonus class, and assigned to them certain sheep-producers.

Harem mating. A group of queens of the corresponding bonus class is attached to each ram. The breeding sheep grazes with them and inseminates them.

According to the specificity of coitus, animals are divided into groups with vaginaland uterine insemination.

In animals with **влагалищным**vaginalinsemination, coitus is short, ejaculationis synchronous, and semen enters the cervix.Typical representatives of this group are large andsmall cattle, deer, and rabbits.

Animals with **uterine** inseminationinclude pigs, horses, dogs, and foxes. Their coitusis much longer, ejaculation proceedsgradually, and sperm is released into the uterus

The importance of artificial insemination in animal husbandry. Artificial insemination is the most advanced method of herd reproduction, based on the use of a number of technological methods for obtaining, storing and using sperm from producers.

Ilya Ivanovich Ivanov was the first to prove that the act of mating and the reaction of animal behavior are not necessary components for the birth of offspring and can be replaced by artificial introduction of sperm into the genital tract of females. He also conducted experiments for the first time on storing sperm outside the body, making diluents and improving the quality of offspring from inseminated females. In the following years, science successfully fulfilled the production order for the fastest transformation of low-yielding livestock into high-yielding ones.

That is why artificial insemination is an important state measure aimed at the widest possible use of valuable producers that can increase the dairy, meat, wool and other types of animal productivity.

Artificial insemination allows you to study the producer in a short time, get a huge amount of offspring from him and, by selecting and selecting, strengthen and consolidate the useful qualities of animals, i.e. formalize the breed group, and then the breed.

This method has significant advantages over free mating.

The main advantages of artificial insemination:

1. Makes it possible to make extensive use of the best male breeders and apply valuable genetic material even on farms with small livestock.

2. Facilitate the assessment of offspring under various conditions of keeping, thus improving the speed and efficiency of genetic selection.

3. It improves the productivity of livestock and allows you to coordinate breeding in all regions of the country.

4. Allows cross-breeding to change productivity, especially for dairy and meat products.

5. Accelerates the introduction of experimental genetic material and reduces international transport costs for animal introductions.

6. Makes it possible to use deep-frozen sperm after the death of the donor, thus preserving the best lines of male producers.

7. Allows you to use sperm from impotent and oligospermous males.

8. Reduces the risk of spreading sexually transmitted diseases.

9. It is a method of studying many aspects of the physiology of male and female reproduction.

Initially, artificial insemination was used as a method of infertility treatment. But even then, I. I. Ivanov provedthat for the widespread use of artificial insemination, " ... it is necessary to remove it from the narrow circle of infertility treatments." He emphasized that the treatment of infertility is not the main task of artificialinsemination; "...its task, wrote I. I. Ivanov, is determinedby the broad prospects that open up with the development of artificialinsemination techniques forimproving livestock breeds, moreover, with the least waste of time and money."

Artificial inseminationof animals is applicable for all breeding methodsand all types of crossbreedingof farm animals. Itallows you to study the producer in a short time, get a huge amount of offspring from him and, by selecting and selecting, strengthen and consolidate the useful qualities of animals.

Irreplaceable in some areas mule-offspring from crossing a donkey with a mare. It is very difficult to get a large mule by crossing a large donkey with a largemare due to the difference in size and size of the animals. Artificial insemination eliminates these difficulties and, most importantly, regulates the quality of the offspring by selecting, selecting and adjusting thevariability of animals to produce the desired type of offspring.

In artificial insemination, the producer has no contact with the motherstock. Sperm can be obtained without a female-on a stuffed animal. This featureof the method is of great practicalimportance in farmsthat are not affected by someinfectious and invasive diseasesthat cause symptomaticinfertility. But artificial insemination cannot be regarded as the best and universal method of prevention and treatment of all forms of infertility, because it does not replace either feed, premises, or a number of other elements of theagro-veterinary and organizational complex of infertility prevention measures.

The theory and practice of artificial inseminationof agricultural animals consists of six sections: 1) teaching about sperm; 2) methods of obtaining sperm; 3) evaluation and dilution of sperm; 4) methods of preserving sperm outside the body; 5) methods of insemination; and 6) organization of artificial insemination.

Methods of artificial insemination of females.

The choice of insemination method depends on the type of animal and mainly on the type of natural insemination. Thus, in animals with a vaginal type of insemination, sperm is introduced into the vagina or into the cervical canal; in animals with a smalltype of insemination, sperm is introduced directly into the uterus; in birds, sperm is introduced into the oviduct.

All methods of artificial insemination must strictly followthe rules of asepsis and avoid introducing semen contaminated with microbes into the genital tract. When performing artificial insemination, you shoulduse surgically boiledrubber or one-time polyethylenegloves, and treat your hands in the same way as when preparing forsurgery. They should be washed with hot water withsoap and a brush for 3-5 minutes, then wiped dry with a sterile or well-ironed towel and 70% or 96% alcohol. Instruments should be sterilized byboiling or flambing.Catheter syringesshould be thoroughly rinsed with warm saline and alcohol every time they are used; it is best to store them in 70% alcohol. Before use, the catheter syringes are thoroughly washed in two cans (3-4 times each) with a sterilesolution of 2.8-3% sodium citrate, 1% bicarbonate or 1% sodium chloride.

After insemination of each female, thetop of the catheter is wiped with an alcohol swab, the vaginal mirrors are washed and boiled or flambulated.

Females for insemination are placed in the appropriate machine and fixed. It is more convenient to tie the tailto the animal's body. In mares, it is necessary to fixthe hind legs with a slipknotor rope. Then the vulva and the skin around it are washed and wipeddry, after which they are irrigated with a 1:5000 furacilin solution (prepared in saline). There should be a separate tampon for each female. Usedtampons are collected in a basin or bucket, disinfected and destroyed. Inseminate animals in a clean, bright room that must meet the requirements of the "Veterinary and Sanitary Rules for the reproduction of farm animals" and the current instructions for artificial insemination.

The vaginal (epicervical) method of insemination. It is rarely practiced, since it consumes significantly more sperm than with the cervical method. Sperm is injected into the vagina with a syringe-catheter or better with a polystyrene pipette connected to a nylon syringe or canister. This is how rabbits are inseminated, as well as bright and heifers that have a narrow vagina, when it is notpossible to open it with a mirror and enter sperm into the cervical canal under visual control. In order not to get into the urethra, the instrument should be inserted along the upper wall of the urethraat the holes to a depth of 15-18 cm, andat thefeet of 30-35 cm.

Cervical insemination with visual control. It consists of inserting sperm into the cervical canalwith a syringe-catheter or otherinstrument. It is used in cows, sheep and goats. For the convenience of sperm dosing, a special device is attached to the syringe. For artificial insemination of sheep, semi-automatic syringes are also used, which havean automatic device for sperm dosing in the handle. With each pressure onthe rychag, the device pushes a certain dose of sperm through the catheter. After the usual preparationof the instruments, the female fixed in the machine is injected with a vaginalgrain and, under eye control, the corresponding dose of sperm is injected into the cervical canal to a depth of 0.5 - 1 cm to a sheep and 4-5 cm to a cow.

The disadvantageof using a mirror is that it cools down quickly, causing infringement ofthe vaginal mucosa. With a strong opening of its branches, vaginismus occurs, the introduced sperm flows out of the cervix into the vagina. Toavoid vaginismus and ensure reliable insertion of sperm into the cervix, L.Ovchinnikov suggested usinga modified mirror (the mirror has the right edge of the upper branch cut off). Using such a mirror, the syringe-catheter is inserted into the cervix in the usual way for 4-5 cm, then the mirroris removed; the tip of the syringe-catheter remains in the cervix. After 20-30 seconds, the animal calmsdown, increases the motor skills of the genitals, and the heated spermis almost completely sucked in by the uterus (negative pressure is created). Thus, the non-forced introduction of sperm occurs, which is so important in artificialinsemination. If the uterine motility is weak and sperm absorption does not occur, then by lightly pressing the plunger of the syringe, it is gradually pushed out along the entire cervical canal. Practice has shown that the use of an improved vaginal mirror provides deep sperm injection and helps to increase the fertilization rate of cows.зование усовершенствованного влагалищного зеркала обеспечивает глубокое введение спермы и способствует повышению оплодотворяемости коров.

Manocervical (hand-necked) insemination method. In this method, sterile disposable instruments are used: a polyethylene ampoule with a polystyrene catheter and a poly-ethylene glove. Having cut off the cap of the ampoulewith sterile scissors, it is connected to the catheter. Rassemen packed in lined granules is introduced with a pet syringe.

After wiping the vulva and tail root with furacilin solution, the right hand, wearing a plastic glove and moistened with saline solution, is carefully inserted into the vaginaand the vaginal part of the cervix is massaged. Without removing the hand from the vagina,the prepared instrument with sperm is served with the other hand. Under the control of the hand, the catheter is inserted into the cervix, the ampoule is lifted, and by gradual pressure, first on the bottom, then closer to the catheter, the sperm fromthe ampoule is squeezed out into the cervical canal at the moment of its relaxation.

After the introduction of sperm, without opening the ampoule, the instrument is removed fromthe neck and placed on the bottom of the vagina, a hand massage of the cervix is performed, which promotes the movement of sperm into the uterine cavity. Then the hand is carefully removed from the vagina along with the ampoule andcatheter. The manocervicalinsemination method is applicable only for largecows. Small cows, especially first-born cows, as well as heifers with a narrow vagina should not be inseminated in this way. With insufficient asepsis, there is a risk of infectionof the cow's genitals.

Cervical insemination with rectal fixation of the cervix. Many specialists prefer to inseminate animals without a mirror, injecting sperm with a pipette during rectal fixation of the cervix. When packing sperm with unglazed granules, use a disposable polyethylene long glove and a polystyrene or glass pipette. Single-use toolsвания особенно целесообразно примеare particularly suitable for use in farms that are vulnerable to infectious and invasivediseases.

Insemination is carried out as follows. With dry, washed and alcohol-wiped hands, a polystyrene pipette is removed from the bag, a plastic ampoule or a gasoline can is put on it; it is more convenient to attachпить к пипетке соединительной муфтой a small nylon syringe to the pipette with a coupling; then 1 ml of sperm is sucked.

After wiping with a wettampon or a boiled wet sponge, the skin and the edges of the vulva are inserted with one hand into the vagina along its upper wall (so as not to get intothe urethra). The other hand in apolyethylene glove (after moistening) is inserted into the rectum, theneck is gripped and the endof the tube is directed into it. The correct fixation of the cervix, achieved by one of the following techniques, is crucial when introducing a pipette:

The first technique - the cervixis grasped from above with the left hand so that the thumb is on the right side of it, the next three - on the left side of the initial part of it,the little finger controls the external openingof the cervix and the end of the pipette.

The second method - the cervix is held between the index and middle fingers,the thumb is found for the opening of the cervix and a pipette is inserted under its control.

The third method of cervical fixationcan only be performed by very experiencedspecialists. After a few light pressures on the cervix, which provide the vaginal tension necessaryto move the pipette, the fingerof the right hand presses the cervix to the bottom of the bone pelvis. Thenthe pipette is pushed forward under the palm of the hand, and ifnecessary, the end of the pipette is directed with the thumbinto the cervix opening.

After the pipette is inserted (in any way), the cervix is gripped with all the fingers of the hand andgently pulled over the pipette with light rotational movements. The sperm is pushed out along the entire cervical canal. After insemination, thepolyethylene gloves and polystyrene pipettes are destroyed, and the glass ones are treated and stored in a separate metal tube untilsterilized.

For insemination with rectal fixation of the cervix, when the spermis placed in lined granules, a pet syringewith an extension cord is used, and when packing sperm in straws, a specialinsemination tool is used.

The method of fertilization described aboveprevents spillage of semen, since the vaginal mucosais not irritated by the mirror.Injury andinfection of the vagina are excluded, which is oftenobserved when using a vaginal mirror. According to a number of authors, insemination with rectal fixation of the cervix increases thefertilization rate of cows by 8-10 %. However, this method is more difficult to master than others, and requires thoroughtraining.

In industrial settings, one insemination method should not be opposed to another, but rather they should be combined skilfully. Each method has its own advantages and disadvantages. After the introduction of sperm, the abdomenshould be kept on a leash for at least 20-30 minutes to prevent the dischargeof sperm from the cervical canal into the vagina, and then calmly taken to a stall (if necessary). Clitoralmassaging is useful for 10 minutes after artificialinsemination. This method increases the fertilization rate of cows by 5-6%.

If during insemination the animal is disturbed, or vaginismus occurs, as a result of which the injectedsperm is expelled from the cervix into the vagina, it is necessary to repeat insemination after 10 to 15 minutes ("double" insemination).

The uterine method of insemination. It is usedonly in animals with the uterine type of natural insemination (mare and pig). For insemination of maresпользуются преимущественно эбонито, an ebonite catheter is mainly used. Under eye control, the catetheris inserted directly into the uterus to a depth of 10-15 cm using a vaginal mirror. When using a soft catheter, its end is grasped by hand, inserted into the vagina andguided through the cervical canal into the uterus under the control of the finger. When ovulation is used to select the time ofinsemination, along with determining estrus, general arousal, and hunting, they tend to directsperm to the uterine horn in the direction of which the follicle matures in the ovary.

Due to the significant volume of the sperm dose, a 20-gram syringe or special ampoules are used to inject it into the uterus. The ampoule method is used at auxiliary points of artificial insemination. Ampoules with a capacity of 30 ml are used for sperm transport andinsemination. Before insemination, a rubber hose connected to the balloon is placed on the narrow end of the ampoule filled with sperm. On the other side of the ampoule, remove the rubber cap. The ampoule is grasped by hand, inserted intothe vagina, its free end is closed with a finger and sent to the cervix. When the balloon is compressed, the sperm isforced out by air into the uterine cavity.

A.V. Kvasnitsky designed a probe for insemination of pigs, at the free end of which there is a head made of soft rubber; it fits snugly to the walls of the cervical canal andcloses its lumen. For insemination of pigs, this author first proposed a thermosdevice, and then a universal probe UZK-5. Both devices are usedfor fractional insemination of pigs, the essence of which consists in first introducing sperm (undiluted or slightly diluted), then filler (the second fraction), and then air is pumped into the uterus-one or two Richardson balls (the third fraction). With this method of insemination, the diluent fills the uterine horns and pushes the sperm tothe ovaries.

Currently, the POS-5 device is also used for artificial insemination of pigs with diluted spermПОС-5.

Pig semen is heated to body temperature before administration in any insemination method.

Sows are inseminated in a specialcage or directly in the camps. In summer, the cage is placed in a split, over which a canopy is arranged. After insemination, each sowshould be kept isolated in separate machines for 24-30 hours. When inseminated pigs are kept in acommon machine, the animals jump on top of each other. This leads to the backflow of diluent and sperm from the uterus, whichcauses artificially acquired infertility.

Дозы Sperm doses. Решающее значThe dynamics of sexual intercourse is crucial in determining the sperm dose. In artificialinsemination, sperm is introduced directly into the uterus or cervix, bypassing the vagina, soyou should enter as many sperm as they usually get there in natural insemination. In sheep, for example, during natural insemination, about 100-150 million sperm enter the cervix, i.e. approximately 1/20-1/30 of the ejaculate volume (M. P. Kuznetsov). Therefore, it

was proposed to inject 0.05 ml of semen into the cervixof a sheep, and 0.5 ml of semen into the cervix of a cow. High doses usually have no benefits, and reduced ones reduce fertilization.

Sheep при влагалищном осеменеare given 0.1 ml of undiluted semen during vaginal insemination, 0.2 - 0.3 ml of diluted semen; 0.05-0.1 and 0.1 - 0.15 ml, respectively, during cervical insemination. Cows при влагалищном oceare given 1-2 ml of undiluted and 2-3 ml of diluted semen during vaginal insemination, and 0.3 - 0.5 and 1-1. 5 ml,respectively, during cervical insemination.

The success of insemination also depends on the quality of the sperm. The more active their movement, the lower the dose of sperm can be used. Until recently, for all methods of storing sperm from breeding bulls in a single dose (1 ml), at least 25 million rubles were provided for insemination of cows and heifers. active sperm cells. A decreasein the sperm concentration to 12.5 million sperm leads to a decrease in the fertilization rate of heifers by 11.9-20% (A.V.Pozdyakov). Therefore, it is recommended that state stations for artificial inseminationof agricultural animals use bullsemen frozen in liquid nitrogen with a dose after thawing of at least 10-15 million sperm with rectilinear translational movement (mobility not less than 3-4 points). The sameamount of sperm perdose is allowed only when using sperm with a high fertilizingcapacity.

In animals with the uterine typeof natural insemination, sperm is passedalong the lumen of the uterine horns to the eggwires. Therefore, small doses of sperm during artificial insemination do not give positive results. Mares are given 20-40 ml of sperma.

The dose of sperm for pigs with a fractional method of administrationis adjusted depending on the concentrationand activity of sperm. At the same time, the number of motile sperm in a dose shouldbe 3 billion. for basic and 2 billion rubles. for repair queens. In thenon-fractional method of insemination, diluted sperm is used. According to the VISH method, it is administered at the rate of 1 ml per 1 kg of body weight, but the total amount of sperm should not exceed 150 ml. The dose should contain at least 4-5 billion mg. active sperm cells.

The bird is inseminated every 5-7 days using pipettes or adaptedsyringes. The tool is inserted into the left egg duct to a depth of 4-5 cm. Apply sperm with an activity of at least 7 points, chickens and turkeys - 0.025-0.03 ml (about 100 million live sperm), geese-0.05-0.2 ml (30-50 million mobile sperm). Insemination is carried out in the second halfof the day, when oviposition ends.

Time and multiplicities of insemination. Cows that are inthepostpartum period (from 4 to 5 days after delivery, to stimulate sexual function), heifers that have reached the age of 16 months, as well as all inseminated females(from 10 to 30 days afterinsemination, for the diagnosis of the initial stages of pregnancy and infertility).The probing bull is released to the females 2 times a day for 1.5-2 hours in the morning and in the evening. At this time, the animals are carefully monitored. A longer stayof the probe bull among the breeding stock and, moreover, the joint mouthof the ba with cows are unacceptable, since this can quickly cause the bullto inhibit sexual reflexes.

After a hunt is detected, the cow or heifer is immediately removed from the pen so that the probecan find other females in the hunt.

It is convenient to test cows for hunting in a dairy complex with a workshop system. Here, calving cows are concentrated in the insemination shop andkept until insemination and pregnancyare established. In a complex for 800 cows, four probes are kept in the insemination shop (at the point) and usedalternately (two per day). Atthe moment of insemination, the probe is placed near cows. This enhances sexual reflexes in animals andfacilitates their insemination. In heath farms, a pen with a split and a "storage" is arranged onthe opposite side of each section, where repair heifers are placed.

There may be various optionsfor using probe bulls. However, in all cases, the principle of temporary stay of samplers among cows and heifers and control over their use by animal health specialists must be strictly observed. In a number of countries, bull probes with markers are widely used.The marker is a spherical metal box with amoving protrusion in the center. Fill the box cavity with colored paste (depending on the color of the cows). At the moment of the probe bull's cage, the protrusion protruding from the box, coming into contact with the cow's lower back, moves inward, as a result of which the paint flows out.Numerous smears of paint (not considered as a single one) are found on the cow,indicating the presence of hunting in the cow. According to the data of American scientists,a 30-minute morning and evening exchange of two probe bulls with tapsmakes it possible to choose 15% more cows for inseminationthan with visualobservation.

Multiplicity of insemination. If hunting is detected, the cow should be inseminated immediately. A delay in insemination of 10-12 hours or moreis unacceptable. In this case, clearly unfavorable conditions for inseminationand fertilization are created: hunting, asa rule, stops, the cervical canal closes, uterine motilityweakens, mucus becomes viscous, poorlyelastic, and many white blood cells appear in it. The progress and survivability of sperm in the female's genitals significantly deteriorates. All this causes a decrease in fertilization.

If sexual hunting in cows isdetected by a probe bull that is incapable of coitus (leading the preputial sac to the right side, etc.), then the hunt is longer. Therefore, 10-12 hours after the first insemination, the cows should be tested again with a probe for hunting. By this time, most cows have stopped hunting, it remains only in a small part of the animals. Secondary insemination of such cows increases the yield of offspring, which isof great practical importance.

Sheepловой охоты вазэктомированными пробниками с метчиками осеменяют are artificially inseminated once in 4-5 hours after the end of the work on the diagnosis of hunting with vasectomized probes with taps. If conventionalapron-mounted testers are used and sexualhunting is detected once, then sheep are inseminated twice: the first time immediately after detection of hunting and the second time after 24 hours. According to E. F. Lyutov, the best results are achievedwith double detection of hunting and double insemination with an interval of 12 hours.

If stored sperm is used (its survival timeis shorter) and hunting is detected twice, double insemination is performed with an intervalof 8-10 hours.

To reduce the number of artificialinseminations and the duration of the insemination period, it is advisableto allowvasectomized sheep (one ram per 100 sheep) to enter the flocks (dosed) months before the wet season.

Artificial insemination of sheep lasts, as a rule, 35 days, and in case of poor pastures-25-30 days. At the endof artificial insemination, rams are allowed into the flock of inseminated queens for free mating of sheep that have not been fertilized by artificialinsemination. Rams are divided into two groups and used alternately (every other day) only during the day, and at nightthey are removed from the flock.

The multiplicity of artificial insemination of pigs during the stage of arousal of the sexual cycle in different farms is solved differently. Sows identified in the hunt in the morningare inseminated for the first time in the evening, and those identified in the evening - in the morning of the next day. Re-insemination should be carried out after 10-12 hours. In case of a singledetection of sexual hunting, sows are inseminated immediately, thenrepeated after 24 hours.

The first artificial insemination of mares is carried out on the second day (-evening) and repeated until lights out in 48 hours, and in the presence of a pronounced hunt - in 24-36 hours (but no more than 3 times). To reduce the number of inseminations, rational use of sperm and increase the percentage of fertilization, mares are inseminated with rectal follicle control. In this case, insemination with a mandatorytest of mares for hunting by a probe stallion is as close as possible to ovulation (follicle of the fourthstage). The shorter the time interval between insemination and follicle rupture, the greater the chances of fertilization, and vice versa.

During the period of insemination, it is important to strictly observe the feeding, milking, keeping and other internal conditions; any violation of the usual environment can hindersexual function.

Очень важно своевременно провоIt is very important to monitorthe effectiveness of insemination in a timely manner. To do this, daily hunting is detected with a probe in cows from the 10th to the 30th day, in sheep-from the 12th to the 30th,in pigs-from the 15th to the 30th day, in horses-every 1-2 days for 25-30 days after insemination.

An infertile (not fertilizedafter insemination) female starts hunting again on the 15th-25th day after insemination, and such animals should be inseminated again.

Repeated insemination in female domestic animals is advisableonly if they have a hunt. Therefore, after the first insemination, it is necessary to continue the sample of females for hunting and only after identifying the “end” tostop insemination.

Synchronization of the arousal stage of the sexual cycle. It can only be performed in healthy animals andmust be performed against the background of optimal feeding and maintenance. In cattle breeding, the need for such a technique arose in connection with embryo transplantation, which requires synchronous flow of the arousal stage in donors and recipients. The method is also important in beef cattle breeding, where there is seasonal insemination of females. One of the synchronization options is as follows: for 6-15 days, cows and heifers are injected with

a progestogen (progesterone, megestrol acetate, etc.), and then FFA or estrogens are injected. Another option is less time-consuming, when prostaglandin F_{F2a}or its synthetic analogues are used (thedrug is administered twice withan interval of 10-11 days).

Due to the seasonality of breeding, synchronization of the arousal stage in sheep is promising by feeding5 mg ofmeg trol acetate for 10-15 days or injectinga spongesoaked in 3 ml of 1% alcoholsolution of this drug into the vagina for a specified period of time. Then, 15-16 days after the endof using megestrol, 1000 ME of FFA is injected.

Stimulation of sexual function. Morphological and functionaldisorders of the female reproductive system cause infertility and lowfertility. Depressionof the female's sexual processes can be observed fora considerable time. In such cases, there is a need to stimulatethe sexual system. Of all the methods of stimulation for the first month, it is necessary to put not artificial, butartificial factors.

The most important methods of activating the functions of the sexual apparatus shouldinclude improving the conditions for keeping and feeding animals, in particular, includingfull-fledged feed, vitamins, mineral fertilizers, cleanliness of premises, active exercise and proper operation, grazing, and sun exposure. A strong specific stimulatorof the female sexual apparatus is the male. As stimulants, it is better to use operated males (parasectomized, etc.) with highsexual potency. The effect ofthe vasectomized probe on the femaleis realized not only through visual, olfactory, tactile and auditory perceptions, but also through the influence on hernervous system through biochemical stimulation of the sexual apparatusreceptors by secretions of the adnexal sex glands released during coitus.

Often a good effect is obtained from physical therapy. Массаж Ovarian massage is performed through the rectum. After carefully releasing it from feces, the ovary is captured with fingers, stroked and kneaded between theballs. They start from the free edge of the ovary and gradually move towards the ligaments. Compacted areas are kneaded more intensively.

To stimulate sexual function, many different drugs are currently proposed: gonadotropins (FFA, FFA, gravohormon, chorial gonadotropin), neurotropic substances (carbacholine, proserin, furamon),tissue stimulants (suspensions and extracts from the liver, testes, spleen; nitratedblood, colostrum), etc.However, it should be borne in mindthat the use of various gonadotropinscontributes to the formation of cysts, and whenusing FFA, anaphylaxis is also noted.

In cows with suspectedanovulatory sexual cycle, the introductionof surfagon (a synthetic analog ofgonadotropin releasing hormone) ensured ovulation and increasedfertilization (Yu. D. Klinsky). Amnistron administered to pigs 1-2 days after weaning caused hunting in 97.5 %of queens (V. A. Klenov).

Из всех искусственных стимуляторов следует отдать предпочтение тканевым N. A. Pantyushev points out that twice subcutaneous injections of a tissue preparation from the spleen prepared according to the method of Academician V. P. Filatov in a dose of 5 ml with an interval of 7 days cause a full-fledged stage of arousal of the sexual cycle in sheep (July-August). In test rams, this drug increases sexualactivity.

Control questions.

1. At what age do sexual and physiological maturity occur?
2. What factors regulate the manifestation of sexual function in pets?
3. What reflexesmake up the sexual act of domestic animals?
4. What are the specific features of sexual intercourse in domestic animals?
5. List the methods of artificial insemination, their property and insufficiency.
6. Methods of synchronization of the stage of excitation of the sexual cycle in cows.

4-lecture. EMBRYO TRANSPLANTATION

1. The importance of embryo transplantation in the development of animal husbandry.
2. Selection of donors, causing superovulation, insemination of donors
3. Embryo extraction, evaluation, culture and storage of embryos
4. synchronization of hunting between donors and recipients, embryo transfer to recipients

Embryo transplantation is a reproductive technology in which embryos obtained from a female donor or grown in the laboratory (using in vitro fertilization, cloning, transgenosis, etc.) are transferred to the genital tract of the recipient female for further gestation and birth to a mature fetus.

Historical data and current state. The first successful embryo transplant, which resulted in the birth of offspring, was performed on rabbits on April 27, 1890, by Professor Walter Heape of the University of Cambridge (Walter Heape1855-1929); he transferred two 4-cell embryos from a purebred Angora rabbit into the upper third of the fallopian tube (oviduct) of a Belgian champion female, previously paired with a male the same breed. A month later, the recipient rabbit gave birth to the world's first transplants – two long-haired Angora rabbits, along with four native Belgian ones.

Data on successful embryo transplants from the donor's genitals to the female recipient's genital tract, which led to the birth of offspring in domestic and farm animals, are shown in Table 1:

1. Chronology of the first successful embryo transplants obtained naturally from domestic and farm animals

Year, method of transplantation	Type of animal	Authors
1934, surgical	sheep	B. L. Warwick, R. O. Berry, W. R. Horlacher
1949, surgical	goat	B. L. Warwick, R. O. Berry
1950 surgical	pig	**A.V. Kvasnickii**
1951, surgical	cow	E. L. Willett et al.
1964, non-surgical	cow	L. R. Mutter et. al.
1974, non-surgical	horse	N. Oguri, Y. Tsutsumi
1978, surgical	cat	M. D. Schriver, D. C. Kraemer
1979, surgical	dog	G. M. Kinney et al.

Work on embryo transplantation in the 40s and 50s of the last century was carried out by A. I. Lopyrin on sheep, and I. I. Sokolovskaya on rabbits. In 1950, in Ukraine, Professor A. V. Kvasnitsky succeeded in transplanting a pig embryo for the first time in world practice. I. N. Grigoriev received the first calf from a surgical embryo transplant in 1977, and N. I. Sergeev received the first calf from a non - surgical embryo transplant in 1978.

Currently, embryo transplantation is practiced in many animal species, but most widely – in dairy and meat cattle breeding. Commercial application of the method in cattle breeding began in the 70s of the last century.

SELECTION OF DONORS

A donor is a high-value,outstanding animal from which, after hormonal poliovulation and insemination with the sperm of a provenimprover producer, several fetuses are obtained. Only those animals that arecapable of multiple ovulation and provide alarge number of seeds suitable for transplantation over a long period of their use are selected. Asdonors, it is better to use healthycows aged 4 to 5 years witha well-developed mammary gland,suitable for machine milking, and whodid not have any complications of childbirth and the postpartum period. The first stage of arousal of the sexual cycle after childbirth should be synchronous and full-fledged, with pronouncedphenomena: estrus, sexual arousaland hunting.

Embryo transplantationis economically advantageous only when breeding animals of outstanding quality are taken as donors. In some cases, it is recommendedto use pedigreally valuable cows in the final stages of theirproductive life in order to get more offspring from them.

Calling superovulation. Theoretical studies and experience in performing embryo transplants in industrial settings have shown thatго метода в практике необходимы hareliable sources of obtainingfertilized eggs or embryos at the early stages of development are necessary for the widespread use of this method in practice.

There are two fundamental approaches to solving this problem. The first approach is to ensure multipleovulation, orpoliovulation, in cows, repair heifers, and young femalesbefore puberty; the second approach, which is stillunder development , is to find ways to extract eggs directly from the ovariesand then create conditions for their maturation and fertilizationin in vitro. Currently, the first method is mainly used

in practice. Animals, usually in the middle of the sexual cycle, are injected with gonadotropin preparations, which cause increased growth and development of many puffyfollicles and their ovulation against the background of reverse development of the corpus luteum. Superovulation is considered to be achievedif at leastthree eggs have been released (in some cases, 100 or more ovulates in animals). However, the main goal of hormone treatment is to produce 10-20 eggs as a result of surovulation.

Follicle-stimulating hormone preparations have a short half-life and for this reason they are used repeatedly intramuscularly (iv) or subcutaneously (subcutaneously). To induce superovulation, the drug FSH-G (FSH-P, Shering-Plough, US) is used according to one of the following schemes: a 5 mg of FSH in/m or subcutaneously 2 times a day from the 10th to the 13th day of the sexual cycle. A total of 40 mg of FSH is administered per course. Inseminate at a fixed time three times every 12 hours. The first insemination is carried out 24 hours after the last dose of FSH-G is administered; b) FSH-G is administered intravenously every 12 hours from the 10th to the 13th days of the sexual cycle at a dose of: on the 10th day-5 mg in the morning and evening, on the 11th day-2 mg in the morning and in the evening. 4 mg in the morning and evening, on the 12th day-3 mg in the morning and evening, on the 13th day-2 mg in the morning and evening. 28 mg of FSH is administered per course. Inseminate at a fixed time three times: the first time - 24 hours after the last dose of FSH, the second and third times - with an interval of 12 hours (Mapletoff, 1986). When using FSH– SUPER (Agrobiomed, Russia), exogenous gonadotropic stimulation of the gonads of donor cows is recommended starting from the 9th...10th day of the sexual cycle. The drug is administered intramuscularly at a dose of 6 units according to the Armorovsky standard (120 IU) every 12 hours. On the third day, simultaneously with FSH-SUPER, a luteolytic dose of prostaglandin F-2 alpha or its synthetic analog is administered in the morning and evening. 36-48 hours after the injection, cows with signs of sexual hunting are selected for insemination. Inseminate artificially three times every 12 hours. Embryos from donor cows are extracted in the time required to obtain preimplantation embryos of the desired stages, considering the zero day - the day of the first insemination of animals.

After stimulation, donors can form 10 each...20 or more eggs, of which 50...80% are fertilized.

Insemination of donors. For their insemination, they take the sperm of outstanding bulls-producers,verified by the quality of offspring and recognized вузнанных улучшателями продуктивносproductivity improvers. There is evidence that theuse of certain bullsresults in a higher degree of fertilization of donor cows, so bulls should also be evaluated for this indicator. Selection of bulls and work with sperm is carried out in compliance with veterinary and sanitary rules and in accordance with the current instructions for artificialinsemination of cows and heifers. After hormonal treatmentof donors, sexual hunting is detected at least 2 times a day with the help of probe bulls. Approximately 10-12% of animals do not show signs of the arousal stage of the sexual cycle. Inseminationof animals in which hunting is

detected is carried out several times with 12-hour intervals before its end, sometimes it is repeated 3-4 times. Each dose of sperm should contain at least 40-50 million live motile sperm. More often, the method of insemination with rectal fixation of the cervix is used, sperm is introduced into its channel.

Some foreign authors suggest introducing sperm into the uterine body cavity. There are also recommendations to inject one portion of sperm into the left, and the second-into the right horn of the uterus. Fresh sperm remain viable in the female genital tract longer than frozen and thawed sperm. Therefore, iffresh sperm is used, 1-2 inseminations can be performed duringthe hunt. At the same time, a higher degree of fertilization is achieved.It is impractical to inseminate donors in the long term after the end of the hunt,as this may have a harmful effect on the degree of extraction of suitable embryos in the future.

Embryo extraction. Fertilization of eggstakes place in the oviduct. The resulting zygotes are crushed, and most of them in cattle enter the uterus on the 4th day.Fetuses should be extracted fromcows on days 7-8, and from sheep on days 5-6 after the first insemination (before theembryo is released from the transparent shell). Two methods are used to extract embryos: non-surgical and surgical.

In the non-surgical method of extraction зароды, the fetuses of animal necks are fixed in a machine. The rectum is emptied ofits contents and a thorough rectalexamination is performed. Determine how many yellow bodies are located in each ovary. The tail is fixed with aribbon. Perform toilet and disinfection of the external genitalia and perineum. To stop rectal peristalsis, 10 ml of a 2% solution of novocaine is administered epidurally. Various instruments are used to flush fetuses out ofthe uterus.

БольMost authors use a flexible single-pass Foley catheter with an elastic mandrel and an inflatable balloon. The instrument must be sterile. First, the catheter is inserted into the vagina along its upper arch andconducted under rectal control throughthe cervical canal into the uterine horn. For a more complete embryo extraction, it is necessary, without injuring the mucous membrane, to insert the tool as deeply as possibleinto the uterine horn. After thecatheter reaches the requiredposition in the uterine horn, the mandrel is removed and 10-15 ml of air is pumped into the catheter can. In this case, the catheteris fixed in the uterine horn andthe flushing fluid does not flow past the catheter.

After fixing the catheter, the uterine horn cavity is washed with a 50-60 ml Luer syringe. Depending on the size of the uterine horn, portions of 40 to 60 mlof washing liquid are introduced, spending no more than 500 ml on washing each horn. Theuterine filling with the washing medium and the degree of its outflow are monitoredrectally.

For a more completeextraction of the larvae, the tipof the uterine horn is raised and straightened. Some authors recommend carefully pinching the oviduct near the tip of the uterine horn with your thumb and index finger. At the same time, fluid containing embryos is prevented from entering the abdominal cavity. However, practice shows that theflow of fluid into the abdominalcavity from the uterine horn is observed only when there is a high pressurein the uterus, so the oviduct can not be clamped. Before removingthe catheter, remove the air from theca canister. The second horn is also washed in the same way.

В качестве среды для промывания исDyulbecco phosphate-buffered saline solution (PBS) is used as the washing medium.

Thefetuses found were transferred to a medium for short-term storage (Dulbecco medium with 20% calf fetal serum added) using a Pasteur pipette. After evaluating the embryos, they are cultured at 37°C until transplanted or left for storage.

13. Composition of Dyulbecco phosphate-buffer salt solution

Substance	**g per 1 l**	**mmol**	**Substance**	**g per 1 l**	**mmol**
NaCl	8.00	136.87	KH_2PO_4	0.20	1.47
KCl	0.20	2.68	$CaCl_{2.2}H_2O$	0.13	0.90
$Na_2HPO_{4.12}.H_2O$	2.90	8.09	$MgCl_{2.6}H_2O$	0.10	0.49

Хирургическим способом The fetuses are surgically removed with general or local anesthesia. Cut the abdominal wall along the white line or more often in the area of the hungry fossa on the right or left, pull the uterine horn to the surface of the wound, make an incision near its base and insert a special catheter. Then, a special medium is introduced through a needle inserted into the horn cavity at its tip, or through a cannula inserted into the oviduct, which is collected together with the embryos through a catheter. This method produces up to 70% of viable embryos. In rabbits, pigs, sheep, cows, and mares, fetuses canbe extracted directly from the oviduct (within the first 4 days after insemination). However, thesurgical method, according to many experts, has only scientificsignificance. It is labor-intensive and requires large expenditures, and therefore itis currently used onlyin small animals (sheep, goats, etc.). After the operation, the level of milk productivity in the animal significantlydecreases, and there is a risk of losing a high-valuedonor during general anesthesia. It should not be repeated often, as adhesions form in the postoperative period, which causes difficulties in fetal extraction, and then irreversible changes can develop, leading to infertility of donors.

Evaluation, cultivation and storage of embryos. Special studiesshow that the frequency of abnormalities in eggs released during superovulation is higher than in ovulation in animals without hormonal treatments. Therefore, after superovulation,

not all eggs are fertilized, and fertilized eggs do not always developfully valuable embryos that are suitable fortransplanting. In this regard, to achieve high results, fetusesof necks capable of furtherdevelopment in the recipient's body are selected. Methods for assessing the quality andviability of embryos based on morphological characteristics and the results of their cultivation are most widely used.

Morphological evaluation of embryos is performed usingan inverted MBI-13 microscope. At the same time, the correspondence of the stage of development of the embryo to its age, theintegrity and shape of the transparent shell, the uniformity of blastomere fragmentation and the state of their cytoplasm, the size and transparency of the perivitellin space are taken into account. Embryos with signsof dementia, deformities, and underdevelopment are unsuitable for transplants.

After morphological evaluation of theembryos before transplantation, they can be brieflytemporarily stored in a thermostat at atemperature of 37^0C. In this case, they are placed on a watch glass in 0.5 mlof Dul Becco medium with the addition of 20%fetal calf serum or sheep serum. Watch glasses with germs are placed in Petri dishes, at the bottom of which moistened filter paper is placed. Thus, the viability of embryosis preserved and the possibility of more accurate identification of their usefulness is provided.

For embryo freezing, a medium is prepared from the following components(in g/l):: sodium chloride 8,0; potassium chloride 0,2; hydroorthophosphate (disodiumphosphate) anhydrous 1,15; dihydro-orthophosphate (monopotassium phosphate) singlesubstituted 0,2; magnesium chloride containing6 water molecules, 0,1; potassium chloride anhydrous 0,1; sodium pyruvate 0,076; glucose 1,0.20% of fetal calf blood serum is added to this solution and 100 thousand rubles. U / l of penicillin (potassium salt). The medium is preparedunder sterile conditions on the day ofapplication. Part of the medium is used to prepare a working solution (1000 units of penicillin and 2 ml of fetal serum are added to 8 ml of the medium). Then, a series of solutions withdifferent concentrations of glycerol is prepared according to the procedure described in the instructions, and the embryo is saturated with glycerol in a single or multi - stage way. This process is controlled under a microscopeunder sterile conditions at a temperature of 20°C, after which the embryosof shi are immediately frozen in glass tubes or ampoules, plastic straws that are labeled.

Cooling is carried out in several stages: 1) reduce the temperature from 20°C to minus 5-7°C at a rate of 1-10 °C in 1 min; 2) at minus 6-7°C, artificialcrystallization is carried out by touching пинцетом, переохлажденным в жидком the surface of the container with zeros with tweezers supercooled in liquidnitrogen; 3) continue to cool at a rate of 0.3°C in 1 min up to minus 36°C; 4) immersed in liquid nitrogen for rapidcooling to minus 196°C. Frozen embryos are stored in Dewar vessels. For

thawing, containers with zarobreaths are quickly transferred to a water bath with a temperature of 25-37°C and hold until the ice disappears. Together with the cryoprotectant solution, the embryo is placed on a watch glass, pre-evaluated under a magnifying glass, and the cryoprotectant is removed by placing the embryo in pre-prepared solutions of glycerol of decreasing concentration. Then the quality of the embryos is evaluated again under a microscope. Whenbrion em is frozen in straws with a solution of glycerol and sucrose, then after thawing, the straw is shaken several times (like a thermometer). In this case, the stopper covering the straw should be directed upwards. To balance the osmotic pressure and remove the cryoprotector from the embryo, the strawis placed vertically (wad up) in a water bath with a temperature of 25-37°C. Thenthey start embryo transplantation.

Other methodsof embryo culture outside the body have also been developed, allowing them to maintain theirviability up to 24-48 hours. Embryos can be cultured in test tubes, as well as in ampoules and paillettes made of polyvinyl chloride. Up to 4-7 days, they can be stored in a bandaged rabbit egg duct. However the most promising methodis deep freezing of embryos in liquid nitrogen at a temperatureof minus 196°C. Cattle embryos are better able to tolerate freezing and thawing than others;the survival rate is 50-70 %.

Selection of recipients. Recipient - an animal that is transplanted (transplanted) into the uterus of one or two embryos at an early stage of their development. Afterthe transplant, the recipient's bodyshould be provided with optimal conditions for further development of the fetusand the birth of a viable fetus. Recipients are selected inthe number of 6-8 heads for each donor from among animals that do not have a high breeding value. Atthe same time, heifers aged 16-18 months with a weight of 350-380 kg or cows not older than 7 years are used. The animals must be healthy, without signs of metabolic disorders. The success of transplantslargely depends on the physiologyof a full-fledged course of sexual cycles and the correct determination of hunting in recipients. It is necessary to carefully monitor the last two sexual cycles and all further indicatorsshould be recorded in the relevant documentation (calendar of the sexual cycle). Sexual cycles should occur regularly, be full-fledged, with synchronous formation of the arousal stage. Animals with irregular, incomplete sexual cycles, with an abnormal duration of individual phenomena of the sexual cycle arousal stage are excluded from the list ofpatients. Recipients should be in a state of average fatness, with good physical development, and have a large, well-shaped pelvis. Theovaries and uterus should be normally developed, without pathologicalchanges.

Selected recipients must be examined again beforeembryo transplantation. The ovaries should be typical forthe corresponding stage of the sexual cycle, without cysts. Specify the degree of development and positionof the corpus luteum.

Synchronization of hunting between donors and recipients. Synchronization of hunting in donors and recipients activates the function of the ovaries, aligns the stages of the sexual cycle, which allows you to plan the work on embryo transplantation without cryopreservation (freezing). In practice, various schemes for the use of hormonal drugs and other biologically active substances are used. But most often, PGF-2 alpha is used to synchronize the state of hunting: twice, after 10 ... 12 days. 500 mcg of estradiol benzoate is administered simultaneously with PGF-2α. The efficiency of the method exceeds 90 %.

When using frozen fetuses, there is no need to synchronizethe sexual cycleof recipients and donors. In this case, the embryos can be transplanted at the time when thecorresponding days of the sexual cycle naturally occurin the recipients.

Embryo transfer to recipients. Embryo transplantation is performed in both surgical and non-surgicalways. Immediately beforeсадкой еще раз обследуют состояние здotransfer, the recipients ' health and reproductive system are re-examined, and the yellow body is located in which ovary, and whether itssize and consistency correspond to the terms of the sexual cycle. The best transplant site is considered to be the tip of the uterine horn,adjacent to the ovary with the corpus luteum.

A surgical methodfor transplanting zeros. More often used on heifers. You can use quick access with a cut along the white line of the abdomen. The preparation and technique of the operation are the same as for fetal extraction. The uterine horn is pulled up to the incision, its wall is perforated with a blunt needle in the area with the least number of vessels, about 4 cm from the top of the horn. Then, the embryo is introduced through a small wound with a pasterpipette in a smallamount of culture mediumin the direction of the tip of the horn. After that, the abdominal wall is sewn up according to all the rules of surgery.

A more convenient, practical, and fastermethod of embryo transplantation involves incisionof the abdominal wall in the area of the hungry fossa. Animals are operated on ina standing position usingsedatives and local anesthesia. The incision should be located as far as possible inthe caudal direction. The tip of the uterine horn is brought to the incision, holding the fingers bythe wide uterine ligament.The perez embryo is placed towards the top of the uterine horn, as in the operation along the white line of the abdomen; up to 85%of the embryos are implanted.

Non-surgical method of embryo transplantation. It is more suitable forusing it in production conditions. Various catheters are used for this purpose. A device for artificial insemination of Casu in a modifiedform with a tube length of 50 cm and anominal diameter of 2.5 mm is often used. The embryo is prepared for transplantation in a sterile thin tube with a diameter of 1 mm and a volume of 0.25 ml. After attaching the syringe to the tube on the filterside, a columnof culture medium (1 cm high) is filled, then the same column of air and the embryo medium (controlled under binocular loo). After that, the air column and the medium for

cultivation are re-recruited. The medium drawn into the tube reaches the polyvinyl alcohol filter; the filter swells and no longer allows air to pass through, sonothing flows out of the plastic straw. The prepared tube with the embryo is inserted into a sterile device for transplantation. To prevent infection of the device duringtransplanting, a plastic shell is put on it almost the entire length.

Recipients are prepared for embryo transplantation in the same way as donors for non-surgical extraction. Uterine relaxant is used to reduce uterine contractions and reducethe possibility of endometrial damageметрия применяют маточный релак.

The device is inserted into the vagina and when it reaches the cervix, the thin shell is removed. After that, the device is moved under rectal controlthrough the cervical canal and further into the uterine horncloser to its tip (approximately to a depth of 10 cm). Then the contents are pushed out of the tube by movingthe internal plunger and the deviceis quickly but carefully removed from the uterus. The survival rate of embryos is 50%.

After transplanting the animals, they create conditions for feeding and keeping them inaccordance with zoohygienicrequirements, do not allow injuries and strong negative stressful effects. Organize an early reflexologicaldiagnosis of pregnancy, which eliminates the possibility ofstarting a second hunt.Pregnancy and infertility are diagnosed rectally 2 months after the transplant.ременности и бесплодия ректальным способом.

Transplants on the 7th day after fertilizationare more successful, since the embryos at this age are less damaged bytemperature fluctuations. By this time, uterine motility decreases, which reducesthe possibility of embryo expulsion. The effectiveness of transplants decreases under the influence of stress when manipulating the uterus, injuring the endometrium. Embryo transplantation is one of the ways to produce a large number of calveswith productive animals, but there is no guarantee that the resultingoffspring will repeat orexceed the productivityof their parents.

From the obtained transplants, elite bulls-producers were bred, from which 20 thousand or more doses of high-quality sperm were accumulated. Daughters with milk productivity exceeding their peers in weight by 138 kg and in fat by 0.014% were obtained from the two best transplant bulls.

Control questions. 1. What are the principles of selecting donor cows and stimulating superovulation? 2. Which females are used as recipients? 3. What techniques are used to extract fetuses from donors? 4. How to properly transplant fetuses to female recipients?

5-lecture. FERTILIZATION. PHYSIOLOGY OF PREGNANCY.

Training elements:

1.Essence and stages, fertilization.

2. Egg cell promotion. Superfecundation.

3. Pregnancy. Duration of pregnancy in different animal species.

4. Development of the embryo and fetal membranes.

4. Placenta and its varieties. Changes in the mother's body during pregnancy.

6. Terms of launching pregnant cows for dead wood. They ruled the maintenance, feeding, and exploitation of pregnant animals.

Essence and stages, fertilization.

Fertilization is a physiological process that involves the fusion of eggs and sperm, followed by their assimilation and dissimilation, resulting in the formation of a new cell (zygote), which has a double inheritance.

During fertilization, mutual assimilation (assimilatio - mutual absorption) and dissimilation (dissimilatio - dissimilization) of the egg and sperm occur, as a result of which neither the egg nor the sperm exists, but a new, third cell is formed - the zygote (from Greek. zygotos-connected together), not identical to its two primary sources. Therefore, the widely used designation of a zygote as a fertilized egg in biology does not correspond to reality.

A complex fertilization process occurs in the upper third of the oviduct. Bull sperm immediately before fertilization should be located in the abdominal part of the oviduct for at least 6 hours. During this time, they "mature" and become able to fertilize. This phenomenon is called sperm capacitation (incubation). In sheep sperm, capacitation lasts 1 - 1.5 hours, and in boar-2-3 hours. Fertilization can occur only if there is a sufficient accumulation of sperm. Their number varies significantly even in the same animal species. Sperm are waiting for an egg. The latter, like sperm, should "ripen". This process also occurs in the oviduct, where the egg enters during the oocyte stage. There, in the presence of active sperm, it secretes directional bodies and matures. How long it takes for the egg to "ripen" is still unclear. In sheep, apparently, no more than 2 hours.

It is established that for the normal process of fertilization, and therefore, obtaining a viable fetus, it is necessary to connect only full-fledged germ cells. Defective gametes do not enter the fertilization process or enter, but the embryos die at an early stage. In this regard, the time of insemination, the age of germ cells and sperm activity are important.

Fertilization in animals consists of several stages.

The first stage is denudation-characterized by the fact that the egg, passing through the oviduct, is released from the surrounding follicular cells (radiant crown). The main role in denudation belongs to sperm, which, being introduced between the cells of the follicular epithelium, secrete enzymes, mainly hyaluronidase. Due to these enzymes and unknown factors, hyaluronic acid, which is part of the gelatinous substancethat binds the cells of the radiant crown, is diluted. Scatteringof coronal ray cellsis not a specific feature, and it can occur under the

influence of sperms of animalsof a different species. Thus, when pigs are inseminated with a mixture of bull and boar sperm, bull sperm releases the egg from follicular cells, and only boar sperm enters it. денудации способствуют также механиMechanical obstacles caused by the villi of the egg's mucosa also contributeto the denudation process.

For fertilization, it is not necessary to completely release the egg from the cells of the radiant crown. There is only enough space for the sperm to penetrate through the transparent shell of the egg into the peri-yolk space. This process, which is the second stage of fertilization, is more specific in terms of species. At this time, the maturation of the eggcell ends (the release of the second directional body). The nucleus containing the haploid number of chromosomes istransformed into a female pronucleus.

At the third stage of fertilization, one or, more rarely, several sperms penetrate through the yolk membrane of the egg and into its cytoplasm. This is already a strictly specific process,since only sperm of its own kind can enter the egg. In this case, not all sperm penetrates, but only its head and neck. Once introduced into the cytoplasm of the egg, the sperm undergoes major changes.плазму яйцеклетки, спермий претерпева The sperm head rapidly increases in size tenfold; due to the assimilation of the egg's cytoplasm, it reaches the size of the egg's nucleus and turns into a male pronucleus, which, like the female pronucleus, has a half set of chromosomes.

At the fourth stage, the pro-nuclei (egg and sperm nuclei) gradually converge, come into close contact, quickly decrease in volume and completely merge. This process, the main one in fertilization, is still insufficiently studied. A qualitatively new cell (zygote) is formed, the nucleus of which contains a diploidnumber of chromosomes. The resulting zygote, therefore, has a double inheritance. It receives apowerful incentive for further development and begins to split up quickly. After the first divisionof the zygote, two blastomeres (daughter cells) are formed; both blastomeres give four granddaughters, and four granddaughters give eight great - granddaughters, and so on.In mammals, there is no such pattern: the number of blastomeres in them, even in the initial stages, is not always even. Unlike the division of single-celled organisms, the cells formed as a resultof zygote division do not diverge, but remain connected; in the first period, the total size of the embryo does not change,so the division of the zygote is called fragmentation. Crushing of the cow's zygote lasts about 8 days. During the first 4 days, crushing occurs in the egg chamber, and then in one of the uterine horns. As early as 48 hours after ovulation, the zygote consists of two blastomeres, 72 hours later - of three, 84 hours later - of six, and 96 hours later it enters the uterine horn in the morula stage. The zygote is equal in size to the egg cell or slightlyexceeds it, since with each fragmentation, as the number of blastomeres increases, the size of each of themdecreases accordingly.

The outer layerof blastomeres adjacent to the transparentshell is called the trophoblast (feedingleaf); blastomeres enclosedin the trophoblast formthe embryoblast (germ leaf).

Polyspermia (re-fertilization). The penetration of two or more sperm cells into the cytoplasm of an egg cell is called полиспеppolyspermia. Of the

hundreds of millions of sperm that enter the female's genital tract during coitus, only thousands reach the fringe.

Normally, after one sperm enters the egg, others are not allowed to pass through due to the so-called zonal reaction. In aging eggs, the zonal reaction is disrupted, which makes it impossible for sperm to enter the egg, and sometimes, under the influence of certain conditions, the egg nucleus merges with several sperm. This probably occurs when sperm that have approached the egg simultaneously enter it.

Polyspermia disrupts the course of embryogenesis, leads the zygote to death, or, according to some authors, causes the development ofugly fetuses (parasitism, dicephalism, etc.).

In physiological polyspermia in mammals, sperm that do not fuse with the nucleus only seem to activate the zygote for fragmentation, similar to the body's response to the introduction of a foreign protein.

Promotion of the testicular cell. The effectiveness of insemination depends not only on the sperm, but also on the fate of the eggcell after its isolation from the follicle. At the time of ovulation, an eggcell surrounded by a radiant crown (follicular epithelial cells) вместе с фолликулярной жидкостью выis released into the abdominal cavity along with follicular fluid.

Due to the close connection ofthe ovary with the ovary, the egg cell usually falls on the branches of the fringe.In addition toanatomical conditions, dynamic properties of the fringe and egg duct contribute to this process. Thus, in monkeysк моменту овуляции сокращаются мыш, the muscles of the oviduct and uterine mesentery contract by the time of ovulation. The fringe, as a result of filling it withsalt with blood, becomes elastic andcools the ovary, as if preparing a bed for the secreted egg.

In mares, pigs, dogs, female bears, ferrets, and some other animals, the ovary is enclosed in a fringe, or fold, of the oviduct; this creates a relationship in which the released egg, as a rule, must falldirectly on the fringe. In otheranimals (cow, sheep, goat), the fringe isrelatively poorly developed and cannotprotect the ovulatory area of the ovary, so it is impossible to explain the penetrationof the egg into the oviduct solely by the erectile state of the fringe. Some authors explain this process by fluid flows from the abdominal cavity to the uterus. V. S. Gruzdev considers vibrations of the cilia of the fringe epithelium and the oviduct to be the causative agent of these currents. Their flickering movements directed into the uterine cavity distill fluid from the abdominal cavity into the uterus, and the resulting currents carry the egg cell that has fallen into the abdominal cavity. The same opinion is shared by K. K. Skrobansky, who explains the occurrence of fluid currents also by a contraction of the abdominal press, which increases intra-abdominal pressure at the time of ovulation.

According to medical observations, in most cases of tubal pregnancy, the egg cell is released by the right ovary, and the fetus develops in the left tube. This

circumstance allowed us to assume that after ovulation, the egg cell can "wander" through the abdominal cavity, and then get into one or another oviduct. Special experiments served as the basis for the introduction ofconcepts about the external and internal "wandering" of the egg or zygote (migration externa et migration interna). The first is that the egg cell, after it is released from the ovary, floats for some time in the capillary slits between the intestinal loops and only later penetrates the uterine cavity through the lumen of one of the tubes. Internal "wandering" is expressed in the movement of the zygote (possibly the embryo) from one horn to another through the body of the uterus and can be explained by the contraction of the uterine muscle.

The timing of egg cell movement through the oviducts is likely to vary greatly. Special experiments and clinical observations allowus to assume that the passage of eggs through the egg ducts in all animalslasts 1-3 days. In cows, the egg passes through a third of the egg duct during the first 6-12 hours after ovulation.

Further progress of the egg occurs slowly - about 0.1 cm in 1 h. After ovulation, the egg is capable of fertilization within 4-6 hours.

In birds, this period is only 20-25 minutes (A.D. Kurbatov et al.). If fertilization has not occurred, the egg dies and resolves. The lifetime of eggs in some animals and the entry of zygotes into the uterus are shown in Table 12.

Multiple fertilization, or superfecundation (superfecundatioaecundatio). This is the fertilization of several egg cells during the same sexual cycle, but with sperm from different manufacturers. It is often observed in multiple animals (dogs, pigs, cats), less often in mares and cows.Superfecundity developed as a result of insemination by producers belonging to the same breed and the samecolor as the male often goes unnoticed; it is detected when several producers who participated in the insemination of the female belong to different breeds and even species. Thus, due to an oversight at the stage of arousal, purebred dogsmay have puppies with the characteristicsof two or three breeds, several colors, etc. Along with purebred dogs. There are cases of superfundationin pigs, when piglets of different colors are born; in mares, when a normally developed foal and a mullet are born simultaneously. Currently, in animalhusbandry practice, superfecundation is used to increase the fertilizabilityand vitality of the offspring. For this purpose, in natural insemination, coitus with two males is practiced with an interval of 10-15 minutes.

Pregnancy is a naturalconsequence of the full sexual cycle of the female body. After ovulationwith the maturation of the egg cell, and especially after fertilization, theresulting zygote becomes a source of impulses for a kind of restructuring of the mother's body. The embryo with its provisional organs is included in the chain of organs of the mother's body and specifically affects its organs and neurohumoral system.

In cows, sheep, mares, dogs, and cats, the main source of progesterone in the first half of pregnancy is yellow bodies, and from the second half it is formed in the placenta. Direct proof of this is the fact that in these animals, removalof the corpus

luteum in the first halfof pregnancy causes abortion, and at the end of pregnancy, abortion does not occur not onlyafter removal of the corpus luteum, but even both ovaries. In goats and pigs, placenta is not involved in the synthesisof progesterone; yellow bodies secrete this hormone throughout pregnancy. Therefore, ovariectomy of goats and pigs at anytime of pregnancy leads to abortion.

Pregnancy (graviditas) is the physiological state of the female bodyduring the fruiting period. It begins from the moment of fertilization and ends with the birth of a mature fetus. In practice, the beginning of pregnancy is considered to be the day of the last (fecund) insemination.

Pregnancy can be singletonand multiple when one ormore fetuses develop in the uterus, respectively; primary, occurring in a female individual for the first time in life, and repeated, if itis repeated.

Along the course, pregnancy is distinguished: physiological,characterized by the normal state ofthe fetal and maternal organisms; pathological, when it is accompanied by a violationof physiological processes in the body of the mother andthe developing fetus.

Duration of pregnancy in different animal species.

The duration of pregnancy in animals of different species dependson the species characteristics: the smaller the female, the shorter the gestation period is usually (Table 14). The term of fruiting is influencedby the conditions of keeping and feeding the mother, the breed, and other factors. In some animals (sable, mink, roe deer, etc.), pregnancy is prolonged due to diapause, which is characterizedby the termination of embryo development for a sufficientlylong period. After the endof diapause, placental communication is established and fetal development is completed. In mink, diapause lasts 2-45 days. And in sable, it can last up to 7 months. Diapause should be considered as a physiological mechanism that ensuresthe birth of offspring in favorableconditions.

14. Duration of pregnancy (days)

Type of Animal	In Average	Duration	Type Of Animal	In Average	Duration
Sigir	285	270-310	Phil	660	615-660
Biya	336	320-355	Tuya	357	335-371
Chychka	114	110-120	kytosўтос	307	300-315
Ky, echki	150	145-160	Los	225	-
Kuen	30	28-33	Bugu	225	195-243
It	63	58-66	Ayik	200	-
Mushuk	58	56-60	Tulki	52	49-57
Evvoi kuen	51	50-52	Suvsar	46	36-78
Olmahon	35	-	Nutria	132	128-137
Dengiz chychkasi	60	59-62	Kunduz	25	23-27

Pregnancy in the vastmajority of cows lasts 270-290 days, in sows - 110-118, in mares of the Russian heavy truck breed - 311-350 days.

To determine the time of delivery, specialists have long used pregnancy calendars. As early as the beginning of the 20th century, the calendar of d. And Chernyaeva took into account possible fluctuations in the duration of pregnancy in domestic animals. However, in subsequent years and up to the present time, they are guided bythe average duration of fruiting, whichsignificantly increases the number of erroneous forecasts. Thus, in pigs, the average duration of pregnancy is considered to be 114 days. However, only 19.4-25.6% of sows (no more than a quarter of the population) give birth during this period, and the rest - sooner or later. 35% of Kholmogorskaya cows give birth on the 282nd-286th day after insemination, 37 % - earlier and 28 %- later. The situation is similar in animalsof other species. Consequently,the focus on the average duration of pregnancy isdisorienting for specialists. It should be taken into account that pregnancy, like all other physiologicalprocesses, has fluctuations in time (minimumand maximum values), on the basis of which only theexpected delivery time can be predicted.

The fetus imposes certain specific requirements for each pregnancy periodon the mother's body. When laying the systems and organs of the fetus, there is a great need to provide them with substancesnecessary for the formation of a new organism. Almost all substancesthat enter the fetus are of the same type as the substances of the mother's body. Each molecule of protein, carbohydrate, and mineral metabolism is first assimilated by the mother's tissues and only then delivered to the fetus. Therefore, all the elements of the fetus are formed from the elementsof the mother's body, and if for some reason the mother's body does not receive the substances necessary for the fetus with food or cannot assimilate and process them into compounds suitable for the fetus, thefetus's needs are met by impoverishing the tissues or organs of the mother's bodywith these compounds.

The process of satisfyingthe needs of the fetus generates mutual influence between the fetus and the mother's body. This mutual influence isthe driving factor that determines the growth and development of the fetus and itsprovision organs, and stimulates those changes in the maternal body that arenecessary for the embryo. The stronger the mutual influence between the fetus and the mother(up to certain limits), the deeper itis.

The development of the fetus depends on itsability to live, the condition of the mother and the number of fetuses developing in the uterus. For example, in multiple pregnancies, as a rule, the placenta of male fetuses is more developed than that of female fetuses. Male fetuses in multiplepregnancies are larger in both size and weight compared to female fetuses. Any strengtheningor weakening of the functions of the organs of the maternal body, of course, has a correlative effect on the condition and development of the fetus, and vice versa. Therefore, the development of the embryo depends not only onthe heredity accumulated in the egg and sperm, but also on the functionalstate of the maternal organism. Overexploitation of animals (milking before delivery,heavy work, intensive training), inadequate feeding, diseases of the digestive,cardiovascular and other systems never succeed in obtaining a high-valueproduct, even from outstandingproducers. This provision providesa basis for breeders to start caringfor young animals not from the day of birth, but from the day when the parent pairsare prepared for insemination.

Development of the embryo and fetal membranes. Thereare four stages in an individual's development:

1. the blastocyst (vesicle), characterized by feeding the blastocyst from royal jelly and the presence of bookmarks typical of all vertebrates;ных;

2. embryonic (germ) - registration of signs of the animal family, accompaniedby intensive absorption of royal jelly and growth of the maternal part of the placenta;

3. fetal (fetal) - the growth of organs, the completion of the designof the body outlines characteristic of this species, and nutrition as a result of the metabolism between the circulatory systems of the mother and fetus;

4. post-fetal - from birth to physiological maturity.

The embryonic period usually ends in the first third of pregnancy, and in some cases not at the same time, so during the fetal and post-fetal periods there are organs of different ages in the body. The earlier an organ is laid, the earlier its growth ends in the fetal and post-fetal periods of life.

Under unfavorable conditions of the mother's existence, the growth of individual organs during the fetal period may be delayed, which leads to a violation of harmony in the proportions of the body, causing, for example, the birth of embryos (short, big-headed individuals).

Normally, the growth of fetal organs depends on the timeand size of the organ laying. Therefore, the growthof some organs almost ends in the fetal period, while others grow intensively in the post-fetal period. Thus, studies have shown that the length of the spine of newborns is 36.8-38.9% of the length of the spine of adults; the growth of the remaining part stretches for as much as 2 years after the fetal period. The length of the tubular bones of a newborn lamb reaches 50-60% of the lengthof the same bones of adult animals.

The mass of the embryo also increases rapidly during the embryonic and fetal periods. In some phases of pregnancy, the daily increase in fetal mass can reach 25-30 % of itstotal mass. The rate of growthlargely depends on the ability of fetal tissues to absorb water, which in some phases of pregnancy is up to 98% of the fetal weight.

Grafting the embryo. Afterfertilization, even when the zygote passes through the oviduct, a large numberof cells (100 or more) are formed inside the transparent shell, whichbegin to differentiate (determine). Due to the unevendivision of cells between the trophoblast andthe embryoblast, a cavity appears in which fluid accumulates, and the tumorenters the blastulaphase. Multiplying cellsof the embryoblast grow along the wall of the blastula cavity, as a result of which a secondlayer of cells arises from the embryoblastunder the trophoblast, forming the wall of the yolk vesicle (endodermal cavity); at the same time, the main mass of blastomeres is grouped at one of the poles and serves as the fetal germ. In this form, 3-4 daysafter fertilization, the embryo, enclosed in a transparentshell, enters the uterus. After some time (in largecattle on the 10th day after fertilization), it is released from the transparent shell, and the trophoblast acts as the outer shell. Trophoblastcells have

proteolytic properties; thanks to them, at the site of contact of the embryo with the uterine mucosa, its epithelium melts and turns into a kind of milk-like mass.

In domestic animals, the embryos do notgerminate in the thickness of the mucous membrane. Located along the horn, they also cause a reaction of the uterine mucosa, but less pronounced, in the form of partial separation of the epithelium,increased hyperemia and secretion ofthe uterine glands. Datafrom special studies and everyday clinical observations suggest that the localization of embryo vaccination depends on the biochemical activity of its tissues and the reactionof the maternal organ to the presence of a fetal bladder. Proof of this can be the strong development of boils in the horn-fecundum, often the absence of them in the free horn, as well as cases outsideof uterine pregnancy.

For grafting the embryo, the uterine mucosa must be appropriately prepared: the embryois probably hidden in areas of the uterus that are more favorable for itsdevelopment. In particular, this should explainthe fact that, for example, in mares, when they are inseminated in the first days of the postpartum period (before the endof uterine invasion), the embryo usually does notsettle in the uterine horn that previously servedas a placenta.

The proteolytic properties of trophoblastare determined by the actionof a special trypsin-like enzyme produced by it. In turn, the mother's body synthesizes anantienzyme that neutralizes the proteolyticproperties of the trophoblast.

Development of fetal membranes. After being released from the egg shell, the steplastulagreatly increases involume due to the accumulation of protein-rich fluid in the yolk vesicle cavity. This fluid is probablyabsorbed by the trophoblast fromthe uterine cavity and serves as a nutrient material for the embryo. Already in the first weeks of embryonicdevelopment, the germ nodule is separated fromthe extraembryonic parts of the fetal bladder.Subsequently, due to the intensive proliferationof trophoblast cells and, as it were, the indentation of the isolated embryonicplate into the thickness of the fetalpatch, a trophoblast fold appears above the embryo. Further growth of trophoblast cells leads to the fact that the elevation formed aroundthe embryonic nodule from the trophoblast foldisolates the embryo; for the same reason, the embryonic site takes a central position, and the trophoblast fold, converging above it, leavesonly a small opening (the umbilicus of the amnion); through it, the embryo communicates with the uterine cavity. During subsequent reproductionof trophoblast cell elements, the opening in the fold above the embryo narrows and grows together. As a result of atrophy of cells in the umbilical regionof the amnion, two membranes are formed from one shell (trophoblast): the outer one (trophoblast) and the inner one (water). As the embryo grows, the ratios change so that theamniotic membrane, covering it from all sides in the area of the umbilical ring, passes into the skin of the fetus During the same period, a large number of villi are formed throughout the outer surface of the trophoblast. Each villi consists ofepithelial cells and connective tissue. After the appearance of villi, the trophoblast becomes a prochorion. when в blood vessels grow into the villi, this membrane is called the chorion. By this time, the embrian intestinal cavity, which was connected to the yolkvesicle, is partially or completely isolated. The space betweenthe chorion and amnion walls is filled with a viscous transparent liquid. During thisperiod, the outer

shellis already spread out to a considerabledistance in the uterine cavity, and the fetal bladder, for example, of a calf, reaches a lengthof 30-40 cm.

When the fetal bladder is carefully examined, the following parts can be distinguished in it. embryo, yolkvesicle, amniotic membrane, amniotic membrane cavity, trophoblast(chorion, choroid) in the form of thin-walled blind sacs extending to the sides, into the hornsof the uterus.

Initially, the blind sacs are filled with a slime-like mass-magma, apparently produced by trophoblast cells or penetrating from theuterine cavity. Later, with the developmentof respiration, a urinary membrane grows into the prochorion cavity, replacing magma, so the fruit is surrounded by water, partiallyor completely urinary and vascular membranes.

The water membrane (amniotic membrane, amniotic membrane; amnion - cup) is formed from the trophoblast by the formationof a fold and its lacing. This is the innermost shell of the fetus: in all animals, it is included in the vasculature. In the fetuses of large and small cattle,pigs and horses, the amnion is formed on the 13th - 16th day after fertilization. The wallof the water shell, surrounding the fetus from all sides, merges with the skin of the fetus in the area of the umbilical ring, forming an opening in this area for the passageof urine. There are whitish-grayish spots (plaques) the size ofa pinhead or lentil seed, grouped mainly near the umbilical cord. They areaccumulations of epithelial tissue.

In the m a r e , the water shell tightlyfuses with the inner leaf ofthe urinary shell, forming an allantoamniotic sac. A characteristic feature of the monodactylic allanto-amnion is the abundance of powerful thick-walled, mostlyobliterated vessels. The contentsof the water membranes are a slimy, slightly viscous liquid. At the beginning of pregnancy, itis transparent, laterit becomes yellowish, yellow or brown, and by the end of fruiting it becomes light again, and in cows it becomes cloudy. In it, you can find hair, scales of epithelium, and in case of fetal death - meconium.

The chemical composition of amniotic fluid is variable. Protein, mucin, urea, tracesof keratin, salts, sugar and fat were found in it. Thisfluid also contains hormones.

Data on the morphology of the amnion epithelium and a number of experimental studies indicating a different concentration and chemical composition of the amniotic fluid in comparison with the lymph and blood of the fetus and mother, even in relation to substances such as hormones, indicate that the amniotic fluid is the result of active (not simple diffusion, osmosis) secretory activity of the amniotic epithelium.

A mare during pregnancy of 1 month has 40-50 ml of fetal fluid, in 2 months. - 300-500 ml, in 3 iu. -1.2 liters, in 4 months - 3-4, in 5 months-5-8, in 6 and 7 months-6-10, in 8 months-6-12, in 9 months - 8-12, in 10 and 11 months - 10-20l.

A cow also increases the volume of fetal fluid with pregnancy: at the end of 1 month-30-60 ml, at 2 months-200-450, at 3 months-750-1400 ml, at 4 months-2-3.5 liters, at 5 months - 4-5, at 6 months - 4-7,5, in 8 months-8-12, in 9 months - 12-20 liters. In the first half of pregnancy, the fetus moves freely in the cavity of oneshell, since its size increasesfaster than the mass of the fetus increases. In the second halfof fruiting, the situation gradually changes: dueto a significant increase in fetal weight,

the fluid layer between the fetus and the wallof the shell is greatly reduced, which prevents the free movement of the fetus in the amnion cavity and it is forced to bend the limbs and spine at the end of pregnancyin order to occupy the minimum volume.

The water envelope with its contents can be regarded as a factor that ensuresthe uniformity of pressure on all areas of the delicate tissues of the developingfetus;the amniotic fluid also serves as a bufferthat softens and prevents mechanicaleffects on the fetus from themother's intestines, as well as from the outside, through the abdominal walls. These two pointsensure the normal formation of fetal organs. At the same time, the surroundingfetal fluid reducesthe uterine irritation caused by the fetal limbs during fetal movements. It maintains a uniform intrauterinepressureand promotes normal blood circulation in the vessels of the placenta and umbilical cord.

The presence of cells of the integumentary epithelium and hair inthe fetal intestine indicates that the amniotic fluid is ingested by the fetus for nutrition and-water balance regulation.

In pigs, the amnion beginsto form approximately one week after fertilization of the egg. By day 17-18, the water envelope is fully formed and the embryo is surrounded by it. As the pregnancy period increases, the following fluid content in the amnion is established: 41-46 days-22-31 ml, 55-65 days-49-82 ml.The amount of amniotic fluidreaches a maximum by the 80th dayof pregnancy, then decreases with the approachof labor. On the 41-46th days of pregnancy, it contains 2.9 - 5.0 mmol of urea, and on the 55-65th days - 4.0 - 5.9 mmol. At the same time, the near-water liquid contains 86-107 and 92-93meq of chlorine, 117-135 and 116-121 of sodium, 11.5-22.7 and 7.4-10.4 mEq of potassium, respectively. The amount of sodium and chlorides in the amnion fluid is similar to their concentration in the sow's blood serum, and the level of potassiumis analogous to its content in the fetal blood serum.

Amniotic fluid containssubstances that act myotonically. With the development of pregnancy, the tonic effect of amniotic fluidincreases and reaches its maximum bythe time of delivery. The tonic effectof amniotic waters on the uterine muscles is explainedby the presence of many biologically important substances in them: proteins, macro-and microelements, especially carbohydrates. The amniotic fluid of cows isthe oldest natural source of the most valuable estrogenic hormones: estradiol (the most active), estrone and estriol, each of which hasa tonic effect on the reproductive system and the entire body as a whole.

Usually, the amniotic fluid is free of infectiousagents. However, the possibility of microflora penetration through an intact fetal bladder is not excluded. Finally, amniotic fluid plays an important role inthe birth process, helping to expand the cervix and moisten the birth canal.

The urinary membrane (allantois; allantoides - sausage - shaped) is formed from the primary intestine (bladder)of the embryo by protruding its wall through the umbilical openingstandE. Allantois - the bladderthat has grown beyond the abdominal cavity of the embryo and spreadsbetween the remainder of the yolk vesicle, water and vascular membranes.

The contents of the urinary tract are germ urine. Part of the urinary fluidof the bone may be a transudalvolume of blood vessels. The urinary fluid contains ammonia

and sodium urate, urea, grape sugar and salts. Its reaction in ungulates is neutral or alkaline, in carnivores-acidic. The urine of piglets and calves contains the same amount of folliculin as the mother's urine. The urinary membrane plays an important role in the developmentof the fetal circulatory system.

The urinary membrane is connected to the bladder by the urinary duct-urahus. It departs from the top of the bladder and, together with the umbilical arteries, goes to the umbilical ring. After passing through it, it becomes part of the umbilical cord, atthe peripheral end of which, funnel-like expanding, it passes into the allantois.

In mares, donkeys, carnivores, and rabbits, the urinary membrane is placed in the form of a blind sac between the water and vascularmembranes, coveringthe amniotic membrane from all sides. As a result of this arrangement, allantois distinguish between the outer leaf adjacent tothe papillary membrane (allanto-chorion) and the inner leaf in contact with the aqueous membrane (allanto-amnion). At the same time, the fetus enclosed in theallanto-amnion can move freely together with the latter in the urinary cavity and is held onthe umbilical canal, as on a leg. This circumstance predisposes to the birth of a fetus in the amniotic membrane without its rupture.

Initially, the urinary fluid is light; later it becomes yellowish and becomes light brown by the end of pregnancy.Its density varies in the range of 0.85-1.27. In a mare at the beginning of foaling (about 3 months.), the amount of urinary fluid reaches 400-800 ml, by the 6th-7th month- 3-6 liters, before delivery-7-15 liters.

In cows, sheep and goats, the urinary membrane, starting from the urachus, is divided into two graduallynarrowing blind sacs enclosed inparts of the choroid that have the shape and size of the uterine horns in which they are located. The middle part of the urethralmembrane is adjacent to the right side of the amniotic membrane in the form of a semi-cancerous sausage-shaped bladder that protrudes beyond the water membrane and penetrates into the hornsof the choroid. Here it loosely connects with theposterior surface andforms gradually thinning and blindly ending processes in the apices of the horns of the vascular wall, as if piercing it.

The amount of urinary fluid in the middle of pregnancy variesbetween 2-4 liters; by the end of it, 4-8 liters are considered normal. In sheep and goats, the amount of liquidby the end of pregnancy is 50-500 ml; its color is lighter than in largeruminants.

In the pig, the urinary membrane is close to the ruminant allantois in shape and character of its connection with the parotidand vascular membranes. Its blunt ends radiate evenly away from the fetus; along the uterine horn, they protrude a few centimeters beyond the ends of the sucralmembrane, forming parchment-likeblind bags, through the wall of which urinary fluid shines through. On these appendages of the urinary membrane there are well-defined constrictions.

By the time of delivery, the amount of urinaryfluid decreases or iscompletely absorbed.

Choroid (chorion) andplacenta. The most superficial membraneof the mammalian fetus isthe chorion. At the beginningof pregnancy, the primarychorion (prochorion) is formed from the trophoblast, characterized by the fact thatvilli develop on its entire surface. Each villi consists of a layerof epithelial cells and a

connectivetissue base. With the growth of allantois,which leads fetal vessels to the chorion, theterminal arterialand venous branches of the umbilical nipples grow into these villi, thereby turning individual parts of the prochorion into the chorion.Consequently, a significant part of the villi of the prochorion undergoes reduction, and those that are basedon blood vessels form the fetal part of the placenta (placenta fetalis), designed to connect with the peculiarly altered areas of the uterine mucosa, calledринской частью плаценты (the placenta uterina.

Плацентой The placenta is a complexof tissue formations that develop from the vascular membrane of the fetus and the uterine mucosa to connect the fetus withthe maternal organism that provides nutrition to the fetus. The more strongly developed the placenta, the more intensively the fetus develops. With weak vascularization, the viability of fetuses and newborns decreases, and young animals develop poorly andgrow.

According to the placenta during childbirth, you can judge the development and growth of the newborn, about pathological processes in the uterus, about the congenital inferiority of parental couples who inherit the weak development of the placenta, which is the most important organ of the fetus.

In multiple pregnancies, the placental surface area of each twin decreasesdepending on the number of fetuses developing in the uterus. This decrease is partially compensated by a more powerfuldevelopment of the placenta in multiplepregnancies: the mass$^{of\ 1\ cm2}$ of placenta nearthe nest is larger than the same piece of placentain one placenta. Metabolic processes in the placenta in multiple pregnancies are higher than in singleton pregnancies.

The structure of the placenta has a numberof specific features. For example, in a m a r e , the chorion is like a layer of theinner surfaceof the uterine uterus. The area of the chorionlocated in the fruit-bearing horn, as a rule, is larger than inthe horn free of the fetus. A chorion filled with air or fluid alwaysexceeds the volume of the uterus from which it is extracted. This is due to the presence of a large number of folds on it, which are in close contact with the foldsof the uterine mucosa.The inner surface of the chorion is fused with the outer layer of the urinary membrane; theouter surface is velvety and evenly covered throughout with small, slightly branching villiabout 1.5 mm long. Eachcell consists of one layer of epithelium and connective tissue base, whichcontains one arterial and venous capillary.

For the perception of villi by the entiresurface of the uterine mucosa, depressions (crypts) are formed,representing the protrusion of one layer of epithelium into the thickness of the mucous membrane; according to some authors, the functions of crypts are performed by the uterine glands.

The location of the villi along the entiresurface of the chorion makes it possible to attribute the placenta of the mare to the type of scattered placenta disseminata, and by the nature of nutrition to consider it as an embryotrophic placenta, since the connection between the fetus and the mother is carried out bymeans of the embryotroph (“royal jelly”) - a secret of the uterine epithelium perceived by the cells of the chorionic villi for transmission to the fetus.

The terminal branches of the fetal umbilical vessels are separated from the mother's circulatory system by two layers of epithelium (one-chorial, the other - the

coveringof the uterine mucosa), which makes it possible to call sucha plate epitheliochorial.The relationship between the components of theepithelial placenta is weak. At the birth of the fetus, chorionic villi are simplypulled out of the crypts, without causing damage to the uterine mucosa and blood vessels. Therefore, the maternal placenta of the mare belongs to the type of non-falling off-p. adecidua.

In a cow, the vascular membrane has the appearance of a two-horned sac. One of these horns, located in the fructifier, is large, while the otheris significantly smaller. The areaof the chorion lying in the body of the uterus is narrower than the rest of the chorial sac. The inner surface of the ruminant chorion is loosely connected tothe water and urinary membranes and is easily separated from them. The outersurface is mostly smooth, and only in places of contact withuterine calculi are areas of the fetal placenta located on it. Each fetal placenta consists of grouped, strongly branching villi, richly supplied with bloodjuices; large arterial and venous branches from the renal vessels approach the placenta.The total number of placentas ranges from 80 to 100. To perceive the villi of fetal placentas, maternal placentas develop on the uterine mucosa, which are overgrown uterine boils (warts). During pregnancy, enlargedboils reach the size ofthe egg and protrude into the lumenof the uterus in the form of mushroom-shaped formations sitting on a pedicle. Their bulk is formed from a dense networkof blood vessels. The surface of the maternal placenta is covered with many crypts(depressions), which include the villi of fetal placentas. Strongly branching villi give the placenta avelvety appearance. Placentas of the horn-fetal placenta are larger than placentas of the horn free of the fetus. (Sometimes it does not form a placenta and the chorion is located only in the horn-the placenta.) At the endof childbirth and closer to the cervix, the placenta size decreases. The structure of the placenta belongs to the type of multiple (placenta multiplex). In general, it consists of a large number of small placentas. By the nature of the connection, it should be attributed to desmochorial (connectivetissue) placentas, since the epithelium of thefetal placenta liesdirectly adjacent to the connective tissue of the crypt, which does not have an epithelial cover.

Such relationships create closer contact between the fetal and maternal placentas and contribute to fusion and retention of the fetal membranes during labor.

In the caruncles of non-pregnantanimals in the first month of fruiting, the glands are absent, but they are present in other areas ofthe uterine mucosa. Thecaruncle is based on fine-fibrous connective tissue rich in cellular elements; its surface is covered with a single-layer prismatic epithelium.

During the 2nd month of pregnancy, tubular glands appear in the thickness of the caruncle. Chorionic villi, which previouslyevenly covered itssurface, begin to grow at the point of contact of the chorion with the caruncle and undergo reverse development in theremaining places. At the beginning of the 2nd monthof pregnancy, epithelium is released from the surface of the caruncle into its connective tissue thickness, forming a series of continuous strands. Then, spaces appear between the cells of the epithelial strands, which cause the formationof peculiar glands (crypts) from these strands. By the end of the 2nd month of pregnancy, chorionic villi penetrate the lumen of the caruncle glands. The villi and its receptacle are covered with the same single-layered epithelium, among the cells of which there are a large number of

giant,rounded, slightly oval-shaped, and large, chromatin-rich nuclei. Between the cells of the villi and cryptthere is a layer of protein fluid - embriotrof.

At the 3rd month of pregnancy, the crypts grow very large: they branch out and give a kind of network of passages that merge into larger "output" areas. Crypt epithelium becomes multi-rowed and incorrectly polymorphic. The crypts reach the base of karunkul. All their branches are filledwith overgrown chorionic villi. The villi are based on several cro-venous capillaries formed by flattenedendothelial cells. The villi epithelium is larger than the crypt epithelium.

At the 4th month of pregnancy, quite large blood vessels form in the thickness of the villi, the branches of which turn into capillaries at the endsof the villi. There are regressive phenomena on the part of the caruncle, consisting in the peeling of the epithelium, asa result of which the epithelium in the area of the villi basecomes into direct contact with the connective tissue base of the crypt. In the future, the regressive process extends to the crypts, the periphery of which is freedfrom the epithelial cover.

At the 5th month of pregnancy, the entiresurface of the caruncle is stripped of its coveringepithelium, the crypt surface is more exposed, and the villi epithelium is located directly on the connective tissue base of the crypt for a considerable length. Along with this, in some areas, both villi and crypts retain their epithelium. Professor F. M. Lazarenko et al. believe that cattle have a typicalmixed form - desmochorial and chorioepithelial types. However, it changes during pregnancyandcannot be attributed to the desmochorial or epitheliochorial type at any stage of pregnancy.

The camel's vascularenvelope is the same shape as that of ruminants, and the placenta is built like that of a mare.

The placenta of small ruminants belongs to the type of multiple, desmochorial. The differences from the placenta of large ruminants are that the chorionic villi are grouped into a hemispherical head, and the uterine boils form in the center of the depression with rising edges for the perceptionof fetal placentas.

Хорион The pig's chorion has the shape of an elongated sac tapering to the ends. As in ruminants, its inner surface is in contact with the water and urinary membranes. On the10th day of development, an amnion is formed in the pig embryo, and on the 15th day, an allantois is detected, which by the 20th day fills almost the entire chorionic cavity. By day 30, the entire chorionic cavity is occupied by allantois; at the 2nd month of development, allantois perforates the chorion. The processes of the allantoisthat were released as a result of a chorionic rupture are parchment-shaped shells containingurinary fluid. Villi are scattered over the entire surface of the chorion, like in a mare, but in some areas they are grouped into small bundles, resembling miniatureplacenta cows (chorial nodules).Consequently, the pig placentais shaped like a diffuse placenta (someauthors consider it to be transitional to multiple placentas, since villi are grouped into small placentas). By the nature of the connection between the maternal and fetal parts, the pig placentais epitheliochorial. The maximum size of chorial nodules is in the central part of the fetalbladder; their size decreases towards the periphery, and the ends of the chorion are freeof them. On this basis, the chorion is divided into "active" and "inactive" parts andthe pig placenta is regarded as zonalchorioepithelial (B. S. Volzhenin)

In carnivores, the chorionis an elongated formation with obtusely terminating poles.Peripheral areas of the chorion are free of villi; the latter are concentrated only in its middle part, forminga varicose zone in the form of a band or tubule encirclingthe fetal bladder. The placenta of carnivores is therefore called zonal (placenta zonaria). It usually has a brown orgreenish color due to the depositionof bilirubin. When the fetal part of the placenta is attached to the mother, the epithelium of theuterine mucosa melts. The villi of the fetal part of the placenta, growing deeply into the thickness of the mucous membrane, are adjacent directly to the endothelium of the uterine vessels. On thisbasis, the placenta of carnivores is classified as endotheliochorial. Due to the close connection of the fetal part of the placenta with the mother, the latter is torn off during childbirth (placenta decidua), whichis accompanied by a violation of the integrity of the vessels of the uterine mucosaand causes more or less significantbleeding.

In rodents and primates, the placental part of the chorion has the appearance of a disk and is called placenta discoidea. The villi of the fetal part of the placenta, turninginto crypts, sink into blood-bearinglacunae, so the placenta of rodentsis classified as hemochorial.

Thereare two distinct parts of the mammalian placenta: 1) placenta uterina -- maternal and 2) placenta fetalis-fetal.

The maternal part of the placenta can be:

отпадающей (plac. decidua -inprimates, rodents, and carnivores. In the processof embryo grafting, the placental portion of the mucous membrane is so destroyed under the influence of the enzymaticaction of chorionic villi that, as a result of the dissolutionof the mucosal tissues and the dense fusion of the placental part of the chorion with it, the villiof the fetal placenta are immersed in special lacunae in which maternal blood circulates; as a result of such a close connection, the circulatory system of the primate fetus it is separated from the mother's blood onlyby structural elements of chorionic villi;

non-matching (plac. adecidua) - in most farm animals.

According to the nature of the connection between the fetal andmaternal parts of the placenta, the following forms are known:

achorial (lint-free) (kenguru, female whale);

epitheliochorial (mare,pig, camel);

desmochorial andepitheliochorial (cow, sheep, goat);

endotheliochoric (carnivores);

hemochorial (monkey, rabbit, guinea pig).

Placentas are distinguished by the location of villi:

plac. disseminata - scattered (mare, donkey, camel, pig).

plac. multiplex - multiple (ruminants).

plac. zonaria - zonal (carnivorous).

plac. discoidea-discoid (primates, mats, and rodents).

According to the nature of fetal nutrition, placentas are divided into histiotrophic ones, in which the fetal part of the placentaabsorbs nutrients formedas a result of thinning and dissolvingtissues by chorionic enzymes (primates, rabbits, guinea pigs, carnivores), and embryotrophic ones, when the maternal part of the placenta produces a

special secret-embryotroph (royal jelly), absorbed by the fetus. villi of the fetal part of the placenta (monocots, ruminants, pigs).

Relationships of fetal membranes in multiple pregnancies. In all animals with multiple pregnancies, each fetus has completely separate water, urinary and notinfrequently vascular membranes.

In a cow with multiple pregnancies, acommon vascular membrane can form, but with separatezones of vascular expansion for each fetus, which branch off from the fetus and branch out inthe corresponding placentas. Often, in twins, the vessels of one fetus are anastomosed with the vessels of the other fetus. Through such anastomoses, the organs of one fetus can exert an endocrine influence on the development of another fetus. Therefore, withdifferent-sex twins, the male fetus is born as a full-fledged individual, and the female fetus often has underdeveloped genitals and heifers are born withoutfruit (freemartins).

In sheep and goats with multiplepregnancies, a common vasculature is not uncommon, but anatomosesare noted as an exception, so hermaphroditism orfrimarthinism is almost not observed in sheep (Figure 53). In goats, freemartinism is registeredmore often.

Vascular membranes in pigs with an increase in the number of fruitsbegin to come into close contact witheach other, then they are pressed into each other, but their fusion is very rare. The area of placental connection inpiglets varies greatly, and this undoubtedlyaffects the growth of fetuses. In addition, the development of embryos depends on their placement in the uterus. When twisted, fruits often die due to malnutrition.

P. E. Ladan found three fetuses in the common chorion, but in separate amnions, and only in one case met two fetuses in the common amnion (monoamniotic twins). Some of the fetuses located in the common chorion, as a rule, died. In the" multiple " chorions, the author always found same-sex fetuses.

Already from the first month of pregnancy, the fetal bladdersbegin to press one into the other as the chorion is filled with the urinary membrane. Later, the free ends of the allantois sometimes almost reach the amniotic membrane ofits neighbor, thereby reducing thesurface activity of part of the chorion.

The vascular membranes of carnivores are always isolated and isolated from one another by theinterampulae of the uterus.

The umbilical cord (umbilical cord). Pupovina (funiculus umbilicalis) - a cordconsisting of umbilical vessels, urachus and remnants of the yolk sac. There are central and peripheral parts of the umbilical cord. The central part is enclosed in a water shell. It is formed by two umbilical arteries and one or two veins. Next to the vessels are the umbilical vesicle(the remainder of the yolk sac) and the urinary duct, which connects the cavities of the bladder and urinary membrane. The space between individualelements of the umbilical cord is filledwith embryonic tissue (Wharton's jelly).

The peripheral part of the umbilical cord extends from the amniotic membrane to the vascular one. It consists of the umbilical vessels dividinginto peripheral branches, theumbilical vesicle, and the expandingpart of the urachus (urachus funnel)passing into the urinarytract.

The length of the foal's umbilical cord is 70-100 cm; the central part of the cord is usually 1/3 of the total length. Between the vessels of the umbilical cord (two arteries and one vein), the remains of the umbilical vesicle remain until delivery. The vessels of the umbilical cord form several spirals along the course. In the umbilical ring, they are so tightly fused to the abdominal wall that during labor, they are usually buriedoutside the abdominal wall or directly at the umbilical ring.

In calves, the length of the umbilical cord is 30-40 cm; its central part is thickened due to the growth of the skin of the abdominal wall adjacent to it. The peripheral part is missing. The umbilical cord vagina is densely covered with small epithelialvilli,which give its surface a velvety appearance. The umbilical vesicle disappears in the secondmonth of pregnancy. The vessels do not form loops and twists. At the exit from the abdominal cavity, the umbilical arteries are usually connected by a well-definedanastomosis. In the umbilical ring, the arteries are loosely fused to its edges, so that during childbirth they may breakin the abdominal cavity;the umbilical stump may be slightly retracted inwards. In the umbilical cord of large and smallruminants, there are two veins that already merge into a common trunk in the abdominal cavity.

The length of the umbilical cord of lambs and goats is 7-12 cm.

Длина пуповины The length of the umbilicalcord of piglets is 20-77 cm. During childbirth, it can be stretchedalmost 2 times. Like a mare, it is based on one vein and two arteries. In the last third of pregnancy, the umbilical cord vessels often twist, making 8 turns each.

В мочевой и околоплодной жидкости жеребят, телят, Yellow-brown or red-brown tortilla-like bodies of various sizes are often found in the urinary and amniotic fluid of foals, calves, goats and lambsкообразные тела желто-бурого или крас. They are smoothand shiny on the outside, with rounded edges. The surfaceof the section is layered or homogeneous. Под микроскопом видна мелкозернисThe fine-grained nuclear-free structure of these bodies is visible under a microscope. They arise from hypertrophied folds of the vascular and urinary or vascular and amniotic membranes. Sometimes they can be seen sitting on a leg in the urinary cavity or nearthe fetal membrane; in some cases, they are unlaced and float freely in the liquid. There is an opinion that the "lobes" are formed not fromthe folds of the skin, but by the deposition or growth of a peculiar mass. There were casesof detection of free "lobes" in the fetal oral cavity. These formationsare devoid of physiological significance andrepresent an anomalyof embryonic development.

KEEPING PREGNANT ANIMALS

During fruiting, when the female's organs begin to serve not only the mother's body, but also the developing fetus, the animal should be given special attention and special maintenance and care. Due to the fact thatthe rules of feeding and keeping pregnantanimals are discussed in the course on zoohygiology and feeding, this section can be limited to a brief list of preventivemeasures against diseases that develop during pregnancy and in the postpartum period.

The room for pregnant women should be clean, dry, bright, spaciousand well-ventilated; the machines should be made wide, their length should correspond to the size of the animals, so that they can lie comfortably; the floor in the machines should be wooden, with a flatsurface. Cold floors predisposeto rheumatism (especiallyin women), and sloping posteriorly cause overloadingof the pelvic limbs and the development of edema. The slope of the floor towards the head complicatesthe activity of the lungs and heart due to compression of the diaphragm. To avoid abdominal injuries, the doorsare wide, without thresholds, and the passageways are free, without sharp turns. You can not make steep decks at the entrance to the stable, cowshed, pigsty.

According to the time of pregnancy, females should be kept in different rooms.

Animals are fed according to special standards, compiled on the basis of accounting for the duration of pregnancy. Regardless of the animal species, the feed should contain sufficient protein,which is necessary for building fetal tissues. It is very importantto include mineral feed (calcium and phosphorus salts) and vitamins in the diet. In winter, especially at the endof pregnancy, it is necessary to include in thediet of pregnant cows hydroponicgrass or flour from spruce and pine needles, which, in addition to a large amountof quarantine, contains vitamin C, vitamin B group, provitamin D, calcium, iron, phosphorus, zinc, cobalt and other components. In the absence of coniferous flour, you can give needles. Do notgive bulky and easily fermented food, give cold water to animals in a warm room.

It is necessary to practice regular thorough cleaning and washing of contaminatedskin areas. One of the essential conditions for propermaintenance of pregnant women is exercise. Without it, fetal water accumulates in excess, edema of the extremities and abdomen, atony of the uterus and other changes predisposing to difficult childbirth and postpartum diseases occur. Special courtyards are enclosed for large and small cattle and pigfarms for daily walks of pregnant animals. Pasture keepingunder the supervision of experienced shepherds is also not contraindicated for them, and in winter - active exercise (for cows - 5-6 km).

Primiparous animals are trained in advance to massage and touch the mammary gland. Dairy cowsare allowed in such a way that the dry-weather period lasts at least 2 months. Special attention is paid to the treatment of various lesions of the mammarygland, since staphylococci, streptococci and other microorganisms that donot harm the adult body and are localized on insignificantareas of the gland can be very virulent for the newborn.

6-lecture. DISEASES OF PREGNANT ANIMALS.

Training elements:

1.Rules for keeping pregnant animals.

2.Vaginal prolapse in pregnant animals.

3. Premature contractions and attempts.

4.Storage of pregnant animals.

5.Abortions. Postabortem complications, their treatment and prevention of abortions.

Ruled whenkeeping pregnant animals

During fruiting, when the female's organs begin to serve not only the mother's body, but also the developing fetus, the animal should be given special attention and special maintenance and care. Due to the fact thatthe rules of feeding and keeping pregnantanimals are discussed in the course on zoohygiology and feeding, this section can be limited to a brief list of preventivemeasures against diseases that develop during pregnancy and in the postpartum period.

The room for pregnant women should be clean, dry, bright, spaciousand well-ventilated; the machines should be made wide, their length should correspond to the size of the animals, so that they can lie comfortably; the floor in the machines should be wooden, with a flatsurface. Cold floors predisposeto rheumatism (especiallyin women), and sloping posteriorly cause overloadingof the pelvic limbs and the development of edema. The slope of the floor towards the head complicatesthe activity of the lungs and heart due to compression of the diaphragm. To avoid abdominal injuries, the doorsare wide, without thresholds, and the passageways are free, without sharp turns. You can not make steep decks at the entrance to the stable, cowshed, pigsty.

According to the time of pregnancy, females should be kept in different rooms.

Animals are fed according to special standards, compiled on the basis of accounting for the duration of pregnancy. Regardless of the animal species, the feed should contain sufficient protein,which is necessary for building fetal tissues. It is very importantto include mineral feed (calcium and phosphorus salts) and vitamins in the diet. In winter, especially at the endof pregnancy, it is necessary to include in thediet of pregnant cows hydroponicgrass or flour from spruce and pine needles, which, in addition to a large amountof quarantine, contains vitamin C, vitamin B group, provitamin D, calcium, iron, phosphorus, zinc, cobalt and other components. In the absence of coniferous flour, you can give needles. Do notgive bulky and easily fermented food, give cold water to animals in a warm room.

It is necessary to practice regular thorough cleaning and washing of contaminatedskin areas. One of the essential conditions for propermaintenance of pregnant women is exercise. Without it, fetal water accumulates in excess, edema of the extremities and abdomen, atony of the uterus and other changes predisposing to difficult childbirth and postpartum diseases occur. Special courtyards are enclosed for large and small cattle and pigfarms for daily walks of pregnant animals. Pasture keepingunder the supervision of experienced shepherds is also not contraindicated for them, and in winter - active exercise (for cows - 5-6 km).

Primiparous animals are trained in advance to massage and touch the mammary gland. Dairy cowsare allowed in such a way that the dry-weather period

lasts at least 2 months. Special attention is paid to the treatment of various lesions of the mammarygland, since staphylococci, streptococci and other microorganisms that donot harm the adult body and are localized on insignificantareas of the gland can be very virulent for the newborn.

In the treatment of pregnantwomen, do not use strong drugs (aracolinus, pilocarpine, etc.), as wellas high doses of laxatives, in particular medium salts.

Prolapse of the vagina (eversionof the vagina, Prolapsus vaginae). The disease isthe result of intussusception of the vaginal tube with the protrusion of the formed fold through the genital fissure. According to the degree of prolapse, clinically distinguished: incomplete, partial prolapseof the vagina (prolapses vaginae partialis),- expressed in the displacement of a part of the vaginal wall protruding from the vulva in the form of a fold; complete vaginal prolapse (prolapses vaginae totalis), when the entire vaginaltube and the cervix and body of the uterus enclosed in its fold extend beyond the vulva.

As a rule, vaginal prolapse is observed in the second halfof pregnancy. It is often observed in cows and goats, less often in mares, sheep, pigs, and other animals, and is causedby a relaxation of the fixingapparatus of the female genital organs (stretching of theuterine mesentery andintervertebral tissue) in combination with anincrease in intra-abdominal pressure.

The disease occurs mainly due to errors in the maintenance and feedingof animals. Predisposing causes: insufficient nutrition and exhaustion of the animal dueto disorders of the digestive system, general diseases, feeding coarse or easily fermented feed; in goats, vaginal prolapse is oftenobserved with osteomalacia; insufficient exercise during stablemaintenance of animals; keeping females in stalls with a strongly sloping posteriorly floor, which contributesto the displacement of the uterus into the uterus. pelvic cavity; multiple pregnancies in single-fetus animals, causingsprained ligaments and increased intra-abdominal pressure; old age. In high-priced animals, due to a decrease in the generaltone of tissues and stretchingof the ligamentous apparatus, individual parts of the sexual apparatus are more easily displaced.

Clinical signs. When часthe vulva falls out for an hour, the slit in the upper part of the vulva gapes and a red mass covered with a mucous membrane, ranging in size from a chicken to a goose egg, protrudes through it. In the initial stages of the disease, prolapse is detected onlyin a lying animal; later, with the relaxation of the paravaginal fiber, the fold of the mucous membrane does not retract in a standing animal. In some animals, partial vaginal prolapse recurs during eachpregnancy, disappearing after delivery. Partial vaginal prolapse does notaffect the course of labor, because during fetal removal, the prolapsed fold of the vaginal wall is pulledback into the pelvic cavity andstraightened.

Complete prolapseof the vagina can occur asa complication of partial prolapse or, if there is a predisposition,develop immediately during attempts, with tympanum, rapid labor pains and attempts. A large spherical mass protrudes from the vulva, covered with a bright pink shiny mucous membrane. In the future, venous congestion gives the mucosa a dark bluehue; it becomes gelatinous (edema), and is easily exposed to traumatic injuries. In some places, itis marked by erosion and

cracks, throughwhich bloody fluid seeps. At the peripheral endof the exposed vagina, the cervix is palpated, the mouth of which is easilyrecognized bythe mucus plug of pregnancy present here. Sometimes, along with the vaginaширенный мочеиспускательный канал , the bladder also turns out through the enlarged urethra. In these cases, a double swelling protrudes from the vulva: the upper part ismoist, the lower, smaller part is the bladder; on its surface, the holes of the ureters are visible, through which (if they are not affected) urine is released in drops. Defecation and urination aredisrupted.

Treatment. If the partial prolapse of the vagina occurred shortly beforebirth and the fold protruding from the vulva is small, they are limitedto preventive measures. They change the diet:they include mainly concentrated, easily digested feed.The animal should be placed in a stall or machine with a slope of the floor towards the head to relieve intra-abdominal pressure in the pelvic area; the tail is bandaged and tied to the side. It is necessary to monitor the condition of the rectum, and if its ventral wall has formed a blind sac, then as feces accumulate in it, they must be periodically removed by exploration (mechanically). This is sometimes enough to eliminate not only the complications, but also the prolapseof the vagina.

If conservative measures do not give an effect, the fallen part of the vagina should be set and strengthened. Previously, it is cleaned,lubricated with boric vaseline or other weakly disinfecting ointment. The dorsal part of the vulva is tightened with 2-3 sutures with rollers.

With complete vaginal prolapse, spontaneous recovery does not occur. Under the influence of external influences (drying out, contamination with feces, bedding), the vaginal mucosa becomes necrotic, which often causes sepsis. Therefore, in case of complete loss, it is necessary to immediately straighten and strengthen the vagina.

Sacral anesthesia is performed, narcotic drugs or neuroplegics are administered (for immobilization). The animal should be placed or placed so that its pelvis is significantly higher than the level of the head (to reduce intra-abdominal pressure on the pelvic area). It is more convenient to simply lift small animals by their hind legs. After thorough cleaning of the fallen vagina and surrounding tissues, the damaged areas are lubricated with a solution of iodine, carbolic acid or lapis. Highly edematous and easily ruptured mucosa is irrigated for tanning with astringent solutions (2-3% alum, 2-5% tannin, 0.1-0.2% potassium permangant solution, etc.).

The vagina is set in one of the following two ways:

1) the entire fallen part of the vagina is wrapped with a towel (or napkin) moistened with a disinfectant solution. Grabbing the vagina from all sides with both hands, gradually push it into place. With severe edema, the swollen mucous membrane breaks. In these cases, a good effect is obtained from a pressing massage. The entire surface of the towel-wrapped vagina is squeezed for a long time with both hands. As a result, the volumeof the protruding part decreases, the tissues lose tension and reductionis significantly facilitated.

2) the hand, clenched into a fist and wrapped with a napkin, is applied to

the area of the vaginal part of the cervix; pressure on it, the vagina is smoothly inserted into the pelvic cavity. This technique is more effective. In small animals, the prolapsed vagina usually shifts into the pelvic cavity by itself, if the female is lifted by the hind limbs.

Vaginal reduction is only the first stage of medical intervention. A further, more difficult task is to strengthen the vagina.

Conservative methods укрепления влагалиof moisture strengthening. To strengthen the vagina, there are a significant number of pessaries. One end of them rests against the cervix or in the vaginal vault, and the other is tied to the girth by means of a system of shorts.

The disadvantage of all types of pessaries is the irritation of the vagina by a foreign body introduced into it: the animal begins very violent attempts, destroying all this equipment or leading to a rupture of the vagina. Therefore, it is preferable to use methods that strengthen the perineum and sexual cleft.

If the vagina falls out a few days before delivery, metal or rope loops are used to hold it at the site of reduction (Fig. 78). However, the hinges slide off easily.

Surgical methods for strengthening the vagina. A good effect is obtained by applying 5-6 stitches with rollers to the vulva. It is especially important that the sutures are strong in the dorsal part of the vulva. The needle is inserted at a distance of 1-4 cm (depending on the type of animal) from the edges of the genital fissure, and removed no closer than 0.5 cm from the entrance of the vulvar skin intothe mucosa, so as not to damage the latter. Ligature material is-chosen strong, as the seams must withstand significant pressure. 79, In 2), at the end of the double ligature from which the needle was detached, the roller is fixed with a castration loop, and on the opposite side, each free end of the ligature is circled around the roller, after which they are tied. In any case, it is not recommended to tighten the seams too much.

Another option is to conduct stitches through all the tissues of the vulva. This is how seams are made of thick aluminum or tinned copper wire. It is convenient to apply a wire seam using a thin trocar. Having punctured both labia, the stiletto is removed from the sleeve. The wire, one end of which must first be rolled up in the form of a spiral that performs the function of a roller, is inserted into the lumen of the trocar sleeve so that its free end comes out of the sleeve from the side of the support plate. Holding the wireby the rolled-up end, remove the sleeve and twist the free endaround the portage. Instead of using the wire described above, you can pass a thick soft ligature through the trocar sleeve, fixing its end with wire, and makea seam with rollers.

V. I. Maksimov and D. P. Ivanova proposed a pouch suture with rubber tubes. P. Minchev recommends strengthening the vagina bystitching its upper wall to the walls of thepelvic cavity. To do this, cut the hair on the croup along the line fromthe tail cavity to the mucklock, treat the skin in the usual way and perform anesthesia. The vulva, vestibule andvagina are irrigated with a disinfectantsolution. A large needle is inserted into the vagina with a thick catgut or a thin bandage, atthe end of which a 4-5 cm long bandage is tied. The needle from the vagina is brought out

through a small sciatic opening, which is well felt above the small sciatic notch in the pelvic wall. After pullingthe threads, a bandage roller is tied to their outer end with a support. If necessary, sutures are applied on both sides of the croup and left for 9-10 days,during which time the vagina mergeswith the pelvic wall and thereby preventsrelapse. Instead of rollers, you can use large buttons.

You can also strengthen the vagina with the help of a modified Fless gate or a fixator by A. N. Akhmadeev and M. G. Mirolyubov.

In goats, vaginal prolapse is usually accompanied by severe irritationof the vulvar tissues. The sutures should bearranged sothat almost the entire genital fissure is covered,with the exception of a small opening at the lower corner for urine drainage. Inrare sutures, the vaginamay fall out again above or below the sutures due to tissue stretching.

At the beginning of labor, the suturesare removed, because during the removal of the fetus, they can be torn out along withthe tissues, and after the healing of lacerations, scars are formed. Regional anesthesiais also advisable after setting and strengthening the vagina, especially during attempts.

Premature contractions and attempts. They are observed mainly in mares, less often in other farm animals, and are mainly caused by violations of the rulesof keeping animals (cold watering,rapid changes in the air temperature inthe room, feeding with bulky boxes) and especially the rules of operation. In mares, premature attempts can occur throughout the second half of pregnancy, and in cows-more often 3-4 weeks before delivery.

Clinical signs. There is general restlessness, sometimes anincrease in body temperature, increased pulse and respiration. Along withthe behavior characteristic of mild colic, contractions involving the abdominal muscles are detected. Rectal examination of the uterine muscles can tracethe alternation of contractions and relaxation. Unlike normal ones. childbirth with premature attempts does not have the whole complex of harbingers. In mares, premature attempts maylast for 2-12 hours, then they gradually or abruptly stop. More often, attempts are intensified and cause an abortion.

In cows, premature attempts with subsequent successful completionof fruiting can last up to 3 days. At the same time, sometimesa more or less significant area of fetal membranes protrudes into the vagina. With the cessationof attempts, the cervix closes, and the prolapsed fetal membranes arepinched in it; part of them that has penetrated the vagina is necrotized, andyet the pregnancy ends in normal calving. In twins, after the expulsion of one fetus (prematurity or miscarriage), the second fetus can develop further and be born mature (incomplete abortion).

Sometimes, after calming the animal and completely stopping the attempts, the placental connection becomes incomplete, an abortion occurs with the expulsion of the non-donor, an unchanged miscarriage, and its mummification or maceration may occur.

The forecast is questionable.

Treatment. The animal is moved to adark, isolated room with soft bedding and a sloping floor. Sometimes attempts stop after careful short-term wiring of the animal. Hot poultices of hay dust are placed on the sacrum and lower back. Cows are

prescribed alcohol by mouth (in narcotic doses); mares - chloralhydrate - 30 g (intravenousinjections and enemas are contraindicated); subcutaneous morphine injections-0.1-0.4 g; cows and mares-lowsacral anesthesia-1-2%solution of novocaine-10-20 ml.

After examination of the vagina in order todetermine the state of the cervix and-feel through the rectum of a livefetus, all manipulations with organs in the pelvic cavity should be stopped. If the fetus is dead, remove it from the uterus as soon as possible.

Laying of pregnant women (Paraplegia gravidarum). The disease is accompanied by a complex of lesions, manifestedby a disorder of the functionsof the locomotor organs, but without clear clinicalsigns. As a result, neither the location nor the nature of the disease process can be determined.

The etiology of the deposit has not been clarified. It is predisposed to: insufficient or one-sided feeding; lack of exercise; keepinganimals in narrow machines with smooth andsloping posteriorly; stretching of the ligamentousapparatus, myositis,neuroplegia, injuries, etc.

Залеживаются перед родами чаще коCows and goats are more likely to lie down before giving birth, and mares are less likely to lie down, mostlya few days or weeks before giving birth in the second half of winter; in summer, there is almost no lying down; it can take on a massive characterdue to general starvation or lack of individual nutrients in the body.

The essence of the processes during sedimentation is reduced, apparently, to adecrease in the tone of the muscles of the croup and hindlimbs with simultaneous weakening of the ligamentous apparatus of the pelvis andspine (general muscle flabbiness). These phenomena are caused by trophic disorders (starvation, low content of certain nutrients in the diet) or dueto insufficient exercise.

Clinical signs. There is difficulty in getting up; the animal lies down for a long time and finally completely ceases to rise on its limbs. Sometimes the disease occurs unexpectedly, for example, after slipping or lying down normally, the animal no longer rises. Often, the cowcrawls from one place to another, and either does not react to threats,blows, attempts to put it on its limbs by force, or makes weak efforts to stand up.

Prognosis the closer the birth, the better. When the disease develops at the end of pregnancy, the animal usually recovers quickly after childbirth.ности животное, как правило, после роThe disease,which appeared long before delivery, is accompanied by a disorder in the activityof the gastrointestinal tract, bedsores, complicated bysepticemia.

Treatment. Prescribe symptomatictreatment. In the first days of the diseasein cows, a good effect is obtained from intramuscular injections of 0.5-1 ml of 0.5% alcohol solution ofveratrin into the croup area at 2-3 points on each side (only 4-6 ml); injections canbe repeated in 1-2 days.At the same time, it is necessaryto massage the limbs and croup 2-3 times a day andtry to lift the animal (4-6 people) using a rope circled around the torso (lifting cows with ropes placed under the chest and stomach does not work). The greatest effort of people should be directed to lifting the pelvic

part, since the cow relies primarilyon the hind limbs when getting up. D. D. Logvinovrecommends usingI. I. Magda paralumbal anesthesia.

If, despite the measures taken inthe first days of illness, the animal does not get up, in most cases recovery can be expected only after childbirth. To preventsores, massage the limbs, sides and croup is used, carefully turnthe animal (to avoid inversion of the uterus) 2-3 times a day from one side to the other; regularly change the litter, monitor the activityof the digestive tract.The diet should consist of concentrates and vitamin-richfeeds. At the sametime, injections of vitamin concentrates- retinol, calciferol, and vitamin B complex-are administered intravenously with 200-300 ml of a 20% glucose solution. In some cases, recovery of cows was observed when malt or sprouted oats were added to the feed at 50-100 g 2 times a day. Fish oil is useful, as wellas calcium and phosphorus salts.

Abortions. Postabortem complications, their treatment and prevention of abortions.

Abortion (abortus from Latin abortoi - erysipelasprematurely). This is termination of pregnancy, followed by embryo resorption, mummification, maceration,etransfection, or expulsion ofa dead, unalteredfetus (miscarriage) or an immature live fetus (premature baby) from the uterus.

Abortions are oftencomplicated by genital diseases that lead to infertility, reduced productivity, loss of performance, and sometimes even death of the animal. Infectious abortions are particularly dangerous, as the disease can quickly spread tohealthy animals. However, practice shows that thelargest number of abortions is of non-infectiousorigin. The study of infectious and invasive abortions is not included in theprogram of the midwifery course. Therefore, we limit ourselves to a brief summary of these issues.

D. Hammond identifies three main causes of abortion: 1) genetically determinedinferiority of the embryo transmitted by the parents; 2) abnormalities caused by chemicals entering the mother's body; 3) harmful effects or incompletevalue of uterine secretions priorto embryo vaccination.

Currently itis advisable to subdivide abortionsof agricultural animals according to theiretiology into three types: 1) non-infectious; 2)infectious; 3) invasive.

In each typeof abortion, two forms are distinguished: 1) idiopathic abortion (idios - special,independent, own), which is characterized bya more or less pronounced specificityof the pathogenic factor directly affectingthe fetus or its provision organs; 2) symptomatic abortion, which serves as a sign of the mother's illness or errors in her maintenance, feeding.

The pathogenesis of abortion is always reduced to a violation of normal-relations between the mother's body anddeveloping fetuses dueto the abnormal condition of the fetus and itsmembranes, diseases of the reproductive system, as well as other organs and the bodyas a whole. Depending on the properties of the pathogenicfactor, as well as the state of the bodyand its reactivity, various variations inthe clinical course of abortion occur.

Abortions usually occuras a result of the action of various stress factors on the body of pregnant females: food, physical, chemical, traumatic, transport,biological, etc. When stress occurs, if the body was notable to ensure the normal course of the

adaptation syndrome, the stage of exhaustion occurs and the pregnancy isinterrupted. In addition, under stress, there is a reduction in the production of gonadotropinhormones and, accordingly, a weakening of the hormonal function of the ovaries. As a result of severehormonal disturbances in the regulationof the sexual system, pregnancy is interrupted. The increased concentration of epinephrine and deoxycorticosteroids observed under stress weakens orneutralizes the action of oxytocin and placentalestrogens, so the deceased fetus often remains in the uterine cavity for a longer or shorter time.

Clinical signs. Abortionsare both complete and incomplete. Incompleteный abortion (Abortus incompletus) occurs only in multiple pregnancies, in which some of the fetusesor fetuses die, and the rest are carried out and will be born on time.Complete abortion (Abortus completus) canoccur both in multipleand singleton pregnancies and is manifested by the death of all fetuses.Complete or incomplete abortions are clinically manifested by the following outcomes: embryo resorption, expulsion of the preterm fetus, dead fetus, mummification, maceration or petrificationof the miscarriage.

Abortion with embryo resorption (latent abortion –Abortus latentus) - termination of pregnancy without obvious clinical symptoms.

Complete latent abortion is usually observed at the beginningof pregnancy, when the fetal tissues are easily resorbed and no traces of a previous pregnancy remain in the uterus. Sometimes the deceased embryo, along with the fetal membranes, is expelled during estrus, acts of defecation andurination completely unnoticed by the caring staff.

A number of authors refer to this phenomenon as "fetal mortality". This namedoes not reflect the essence of the phenomenon. If, by analogy, this name is applied to organisms that die at a different age, then it will be necessary, in addition to embryonic, to distinguish fetal, newborn, suckling, sexually mature mortality, etc.

N. A. Martynenko and a number of other scientists have established that the death of embryos most often occurs duringcritical periods of pregnancy. The first of them is the beginning of zygote fragmentation, accompanied by depletionof the reserves available in the egg, and the appearance of oxygen starvation of blastomeres located inside the morula.Normally, the crisis is eliminated during the transition ofthe morula to the blastocyst, whenas a result of the distribution of blastomeres along the periphery, it becomes possibleto feed by osmosis. The second criticalperiod occurs when the blastocyst leaves the transparent shell. An unprotected blastocyst becomes immunogenic. Having no reliable contact with the uterine mucosa, it is deficient in obtainingnutrients.The third critical period is associated with the beginning of pregnancy, when the immune reactivity in the mother's body increases. In addition, yolk nutrition at this time no longer satisfies the embryo's need, and placental communication is justbeginning to be established. As a result, it turns out that during the first month after fertilization, оплодотворения в один из критических every third adult dies at one of the criticalperiods.

The dead embryo is destroyed in the uterus by enzymes, followed by ICA-binding of decay products. In this case, the yellow body in the ovary is preserved

until complete lysis of the embryo tissues and its membranes. As a result, recovery of sexual cycles is delayed, which is an indirect sign of terminationof pregnancy in the early stages. If the embryo in a cow died later than 11-13 days of age, the stage ofawakening of the sexual cycle is extended by 17-25 days (N. I. Polyantsev).

Usually, latentabortion is established postfactum: mares are oftenfound to have no signs of previouslydetected 1-2-month pregnancy after repeated examination after 2-3 months.ности.

In pigs under unfavorableconditions of keeping in combination with poor or inadequate feeding, sexual cyclicity often ceases after insemination; their behaviorbecomes characteristic of pregnant mothers, but after 45-75 days, the stages of arousal appear again. The long balancing stage after insemination and the subsequent resumptionof sexual cycles are often symptoms of a complete latent abortion.

In case of incomplete concealed abortion, mummified miscarriages will be born along with viable piglets. In pigs, latent abortionsoccur before the 20th dayof pregnancy without pathological changesin the uterine mucosa. During abortions in later stages, degenerative changes are found not only in the chorio of thenon-dead fetus, but also in the uterine wall.

In sheep after the use of FFA (in multiple pregnancies), incomplete hidden abortions occur beforethe 20th day of pregnancy, which is explained by a lack of growth hormone; whentwo zygotes from other sheep are transferred to the uterus of a sheep, they develop normally.

Abortion with expulsion of the premature baby. ПротIt proceeds like a normal birth; it is possible to observe the whole complex or part of the precursors of labor, which is why many authors call this abortion preterm labor. If the entire surface of the baby's skin is covered withhair, you can expect that it will remain alive. However, the prognosis should always take into account the etiological factor of abortion,which can cause profoundchanges in the fetus (infection).

The baby should be quickly drained,placed in a warm room (25-30°C), wrapped in a warm blanket, koshmoi, overlaid with hot water bottles. It should be fed frequently and exclusively with fresh colostrum and mother's milk, heated to body temperature.It is useful to infuse the mother's blood into the infant according to F. F. Muller.

In the absence of a sucking reflex, it is usually not possible to feed the baby. If for some reason it is impossibleto use the mother's milk, it is necessary tofinda wet nurse for this purpose and apply to her.

In case of artificial feeding, it is necessary to take into account the composition of the mother's milk. When replacing mother's milk with milk from animals of other species, the composition of the latter should be brought closer tothe composition of milk from animals of this species beforeadding missing nutrients to it. So, before feeding a foal, cow's milk should be diluted twice or 1/3with boiled water and add sugar. Puppies and kittens can be fed whole cow milk; piglets are given artificial "pig milk".

Abortion with the expulsion of the dead fetus (youhave a miscarriage). The most common outcome of an abortion. If the embryo dies during the period when organs

and tissues are already formed, it, as an alien inclusion forthe body, causes a reaction from the uterus,which results in the appearance of contractions and the expulsion ofthe fetal bladder withinthe next 3 days. In the uterine cavity, asa rule, the environment is aseptic, so when the fetus dies in the absenceof putrefactive and pyogenic microbes, and the reactivity of the uterus is weak, the corpse can remain in the uterus without obvious signs of decomposition for up to 2-3 weeks.

Fetal death can be judged by thefollowing signs; fetal movements are not noticeable; the mammary glands swell and colostrum appears in them; milk yield decreases in dairy animals, the quality of milk changes (milk curdles when boiled, acquires the properties of colostrum).

Complete abortion with expulsion of prematurityor miscarriage is the most favorable outcomeof pregnancy termination. If the zoohygienicminimum is observed, the animal usually recovers quickly and can become pregnant again. After the abortion, the mareis released from work for at least 7-10 days,and the same conditions should be created for aborted queens of other species as for women in labor.

Abortion with mummification of the fetus (Mumificatio fetus). With reduced reactivity of the uterus (atony), the deceased fetus can linger in its cavity and mummify.

Mummification - drying of the fetus. This abortion outcome can occuronly if there are a set of conditions that prevent the possibility of penetrationof putrefactive and pyogenic microorganisms into the uterus. It should be borne in mind that mummification often occurs during idiopathicinfectious abortions (brucellosis, salmonellosis, etc.).

A favorable condition for mummification is the absence ofcommunication between the uterine cavity and the external environment, i.e. mummification can occur with a well-closed cervix, which preventsmicroflora from entering the uterus from the vagina. Sometimes the fetus andthe uterine cavity remain in an aseptic state, even if the cervix sometimes opens slightly, but it is important that at this moment the integrity of the fetal membranes is not disturbed and microbes do not get out of the vagina.

Mummification is more often observedin cows and small cattle, less often it is found in mares. In pigs, fetal moominification is often combined withnormal fetal development (incompleteabortion). Accordingto our research,up to 14% of fetuses in pigs undergo moomination; according to other authors, even more.

The process of mummification consists in the fact that after the death of the fetus, and sometimes, apparently, even before its death, amniotic fluid begins to dissolve. After that, the fetal tissues are also dehydrated; they decrease in volume, become more dense and,finally, hard.

The surface ofmummified fruits is usually smooth and shiny. If the fetus has developeda rough coat, then after an abortion, the hair is often preserved and well retainedby the mummified skin. Fetal membranes can turn into parchment-like leaves that fit snugly to the fetus; sometimes theysoften (macerate), merging with the viscous, patois-like, brown, without agroin, sticky mass accumulating in the uterus.

Simultaneously withthe decreasein the amount of fetal water, the uterus gradually shrinks, tightly covering the fetus. The fetus shrinks, shortens, which leads

to a change in its shape; it iscompressed mainly along the length (shortening of the uterine horn), so it looks humped. Sometimes the fetal tissues calcify, turning into a stonybody.

Usually, the reason for suspicion of maceration is the periodic discharge of white or brown masses from the genitals with simultaneous deterioration of the general condition of the animalor without a general reaction. Avaginal examination reveals hyperemiaof the mucous membrane of the vagina and cervix, and sometimes opening of its canal. Isolation of mucosal masses with separate bones from the neck confirmsthe presence of macerated fruit.

Treatment. Cows are injected under the skin with 2.5 ml of 1%synestrol oil solution, 8-10 ml of pituitrin, 50-60 units of oxytocin or other uterine agents, and cervical anesthesia is performed. Artificially dilate the cervix and thoroughly liberally wash the uterine cavity with aseptic solutions.шихся тканей и сегментов скелета плода Hypertonic (5-10%) solution of table salt should be preferred for washing out of the uterus of decomposed tissues and segments of the fetal skeleton.

The prognosis is doubtful for life and usually unfavorable forfertility, since the animal is either not fertilized in the future, or itdevelops a habitual abortion. Ifmaceration occurred in the initial stages of pregnancy and fetal remains were not long in the uterine cavity (no deep endometrial changes), then the ability to reproduce maybe preserved.

Abortion with putrefactive decomposition of the fetusда (Putrescentia fetus, emphysematous fetus). If an abortion is accompanied by thepenetration of putrefactive microbes (anaerobes) into the fetal tissue, the corpse very quickly undergoes putrefactive decomposition with the release of hydrogen sulfide, hydrogen, ammonia, nitrogen, carbon dioxide and other tissue decomposition products. Gases accumulate in thesubcutaneous and intermuscular tissue, in the thoracic and abdominal cavities of miscarriage.Its body increases in volume, its contours aresmoothed out, and it takes ona bag-like shape.

An increase in fetal volume and the accumulationof gases lead to severe-stretching and sometimes even rupture of the uterus. Abnormally high tension of its walls and general intoxication of the mother's body weaken orcompletely paralyze the muscles of the uterus and abdominal press. In most of these cases, the mother dies of sepsis.Putrefactive microorganisms enter the uterus more often through the cervix (by genital route), but the possibility of spreading the pathogen infectionand hematogenic pathway is not excluded.

Clinical signs. Выражены Weak attempts are expressed or they are absent, the general condition is very depressed. Ruminants often havetympania, atony and hypotension of the pre-ventricles, and mares have colic.Vaginal examination establishes dryness of the birth canal ordischarge of ichorous masses; the cervix isclosed. During palpation, areas of fetal skin withoutwoolly cut are established.Detection of subcutaneous emphysema, determined bycrepitation during fetal palpation, is of crucial diagnostic importance.

The prognosis for the maternal organism is very doubtful, since fetal rot is usually accompanied by severe symptoms of intoxication andclinical signs characteristic of the septicopyemic process.

Treatment. As soon as possible, the uterine cavity is cleared of decomposed fetus and its putrefactive decay products; the latteris achieved by using substances that reduce the uterus (pathogenetic therapy, etc.).The conditionof the mother's body, weakened by intoxication, is improved.

Removing the fetus by simple stretching is usually not possible; increasing in volume, it does not pass through the pelvic cavity. When force is used, the present fetal organs are opened and the birth canal is injured. To reduce the volume of the swollen fetus, deep incisions are made in different directions on its skin and other tissues, and if necessary, its body cavities are opened with the eventrationof internal organs. Through large and deepincisions, gases accumulated in the fetal tissues are released, and its size decreases. At the end of the operation, theuterine cavity and external genitaliaare abundantly irrigated with an aseptic solution. The place where the operation was performed (floor, walls, tables, etc.) is thoroughly decontaminated. Allinstruments used in obstetric care are sterilizedby prolonged boiling. Fetal membranes, as well as ropes, napkins and other (non-metallic) paraphernaliaare burned.

With putrefactive decomposition of the fetus in dogs and other small animals, theonly radical measure is total amputation of the uterus.

Special attention is paid to the self-protection of the operator and his assistants. Before removing the fetus, it is necessary to tan the skin of the hands up to the shoulder with alcoholand taranin (5:100), lubricate the damaged areas with an iodine solution and cover with acolloid, then carefully rub 10% ichthyol ointment on vaseline, and preferably on lanolin. It should be remembered that cadaveric infection is extremely dangerous; if care is not taken, its pathogens can enter the body throughinsignificant skin injuries and lead to a rapid development of the septicopyemic process, which often ends in a fatal outcome for the obstetrician. The diagnosis of fetal mummification isbased on the following criteria:

- the absence of signs of expectedchildbirth or the cessation of growth atthe beginning of pregnancy;
- the absence of sexual cycles inthe normal general condition of the female;
- detection in the uterus during rectal examination of a solidbody covered with the uterus;
- a well-defined corpus luteum (in cows), always detected in one of the ovaries.

A mummified fetuscan settle in the uterus, sometimes for years. Usually, animals with such a fetus areculled because of infertility, sothe maximum period of stay of this fetus in the uterus is not set. Expulsionof moominated fetuses is more likely to occurduring the arousal stageof the sexual cycle; in multiple pregnancies, they remain together withthe normally developing fetuses until delivery. In pigs, sheep,and goatsнередко поочередно выводятся нор, normally developed fetuses are often alternately produced during childbirth and mummified ones are expelled.

Treatment. Dilation of the cervix (anesthesia according to A.D.Nosdrachev or sacral) and intrauterineinfusions, injections of synestrol, oxytocin or pituitrin are recommended. During the expulsion of the mummified fetus, obstetric careis limited tomoistening the birth canal with mucousmembranes, a solution of soap, and infusing

fluids into the uterine cavity to relieve pressure on$_{\text{the pd 0d}}$from the uterine walls and facilitate its movement along the birth canal.

Abortion with maceration of the fetus (Maceratio fetus). Fetal maceration is characterizedby softening and dilution of its tissues in the uterus. It is more often observedin pigs, cows (trichomoniasis), rarely in mares and animals of other species, and occurs mainly when fetal death is accompanied by the developmentof catarrhal or purulent-catarrhal inflammation of the uterus in the absenceof putrefactive microorganisms. Sometimes uterine inflammationis primary, it causesfetal death and subsequent maceration ofits tissues.Maceration is mainly an enzymatic process. The melting of tissues beginswith the fetal membranes or with the esophagealorgans. The initialmaceration often stops; the process ends with mummification, and the fetus is evacuated ina macerated state. In the latter case, along with mummifiedindividual parts of the trunk, thereare broken bones of the fetal skull face, especially the jaws, melting of internal organs, and othersigns of enzymatic processes.

Maceration usually ends with the complete melting of all the softtissues of the fetus; amushy or mucous brown, yellow-brown,sometimes white mass accumulates in the uterine cavity,which containsscattered segments of the skeleton. Over time, a significant part of the fluid contents of the uterusresolves, and the bones remain in it indefinitely. If the animal is in heat, the uterus is released from the contents, especially when it is douched. More often, maceratedsoft tissues of the fetus, along with bones, are periodically released fromthe external genitalia.

Sometimes maceration is complicated by an inflammatory process that involves all layers of the uterus.Perimetry can grow together with the serous membrane ofthe intestine, bladder, parietal peritoneum, etc. When theuterus is suppurated, it can become perforated, causing its contents to enterthe abdominal cavity, the intestinal lumen, or through the fistula of the abdominal wall into the external environment. Often, thepenetration of purulent-putrefactive microorganisms causes the deathof an animal from septicemia or pyemia.

In twins, one fetus may macerate while the other continuesto develop normally (incomplete abortion). We observed the expulsion of a maceratedmiscarriage in a cow, and after 2 months it produced a normal calf.

The diagnosis is not difficult. One of the first symptomsof maceration is the cessation of the growth of signs of pregnancy. Through the rectum, it is possible to feel the fluctuation of the uterus. In cows, the placenta is not palpated, because after the detachment of the fetalpart of the placenta, the tissues undergo reverse development - they partially orcompletely dissolve. Ifyou can reach the ovaries with your hand, a yellow body is felt in one of them.

Idiopathic non-infectious abortions

Idiopathic non-infectious abortions can occur in animals of alltypes.

Alimentary abortion (Abortus alimentarius). It occurs both as a result of the general starvation of a pregnant animal, and as a resultof a high-quality incomplete diet or eating substandardfeed.

There are suggestions that the state of fatness of the mother does not affect thedevelopment of the fetus. This opinion is certainly erroneous. With obesity and

especially with emaciation of the mother's body, its resistance weakens, and metabolic processes are disrupted. Some authors observed infertility, and at autopsy-mass resorption of fetuses in pigs with malnutrition. Intensive protein feeding, as wellas a lack of protein and minerals in the diet(calcium, phosphorus, iron, potassium, manganese, iodine, etc.), can not only predispose, but also serve as the main cause of mass abortions. In aborted mares, as a rule, an unfavorableratio of calcium salts and phosphorus in the bloodis established. Many authors attach great importance to calcium metabolism, which plays a significant role in the development and growth of the fetus and in the normal state of the mother's autonomic nervous system.

In some cases, the dailysupply of 30-40 g of chalk or kos flour to pregnant maresduring phosphorous starvation sharply reduced, and sometimes completely stopped, abortions on the farm. It should be borne in mind that the assimilation of calcium depends not only on its content in the feed, but also on a number of other factors, in particular on the conditionsof keeping animals. Compliance with zoohygienic rules (good indoor conditions, fresh air, exercise, etc.) has a positive effect on calcium metabolism.

Abortions often occur as a resultof insufficient retinol and tocopherol. Retinol is of great importance for the morphology and function of epithelial tissue in general. Therefore, it canbe assumed that avitaminous abortions arecaused by degenerative changesin the endometrial and chorionic epithelium with disruption ofplacental functions. Inavitaminosis, abortions occur in the second half of pregnancy, except in winter.

B. A.. Kudryashov established desquamationof the uterine gland epithelium in animals withagipovitaminosis. P. E. Ladan found freezing of the uterine mucosal epithelium in pigs with polyhypovitaminosis. Studies of chorionic miscarriages conducted by L. G. Subbotina suggest that abortions with eruption offetal bladders with underdevelopedchorionic villi should often be regarded as a symptom of avitaminous abortion.

If pregnancy with Avitaminosis ends in childbirth, the offspring often die in the first days of life from lung, gastrointestinal and other diseases, and calves, in particular, have congenital blindness.

Lack or absence of tocopherol in the feed, as a rule, causes hidden abortions. Observations of practitioners and special studies haveso far shown that in such cases, sexual cycles are not disrupted and even fertilization occurs, but the embryo already in the initialstages of development dies andis dissected or mummified. Less often, with E-beriberi, abortion is noted in the last third of pregnancy. In pigs, E-avitaminosis leads to low fatcontent, resorption, and mummificationof fetuses.

In order to prevent vitamin deficiencies, it is necessary to feed sprouted grain in the amountof 200-500 g of large and 50-100 g of small grains to pregnant animals every day or every other day. The greatest amount oftocopherol is found in oil from wheat germ.

A good therapeutic andpreventive tool is the inclusion of redfat, green fodder, carrots, alfalfa, and high-quality hay (vitaminnoe hay) in the diet.

In sows, abortions withembryo resorption and expulsion of miscarriages and prematurity occur when thiamine, riboflavin, pantothenic acid, and cyanocobalamin are deficient.

Alimentary abortions are oftenobserved during grazing of pregnant animals on pastures covered with frost, during a sharp transition from pasture to stable keeping, when drinking coldwater.

The negative effect ofpoor quality feed on the courseof pregnancy is explained by intoxication from the gastrointestinal tract, reflex effect on the nervous system of the mother, or as a consequence of the specificactionof certain substances (ergot). Abortion by feedingrancid cake has much in common with abortion due to E-avitaminosis. At the same time, the fetus also begins to lag behind in development without noticeable pathological changesand, finally,dies. But abortions when feedingrancid cake are more often observed in the middle of pregnancy or during the establishment of a placental connection.

It is very important to observethe feeding regime. Incase of premature feeding, animals do not eat food well, and in case of late dachas, they worry, eat greedily, do not chew enough, which worsens the assimilation of food,causes tympania, colic,catarrh of the gastrointestinal tract and otherdiseases. All pregnant animals should be able to drink plenty of water. An important method of preventing abortions is the use of automatic watering cans. Of these, animals drink frequently (almost every hour) in small portions (asneeded), which prevents digestive disorders and colds.

Clinical signs. In alimentary abortions (due to generalstarvation, hypocalcemia, etc.), symptoms are non-specific. There is an eruption ofprematurity or miscarriages in the second half of pregnancy.Macrocopically, no pathological changes in the fetal membranes, as wellas in the organs and tissues ofmiscarriage are detected, so such abortions are often recorded as traumatic. During abortions, due to a lack of iodine in thediet of pigs, the fetuses do not develop bristles.

The diagnosis is made taking into account the crucial importance of the results of diet analysisand blood serum testing for total protein, carotene, acidicbone, calcium, and phosphorus.

Toxic abortions. They should bedivided separately, since the mechanism of action of toxins and foreignchemicalsis significantly different from the factors that lead to alimentaryabortionsdue to metabolic disorders. Intoxications often occur due to the use of substandard feed.

Pregnancy is interrupted by eating food containing nitrites, pesticides and other toxic substances, as well as certain plant species (yew, juniper). The consumption of significant amounts of phytoestrogen-rich foods (clover, alfalfa, corn) also leads to abortions. Therefore, feeding them in large quantities should be avoided during the first half of pregnancy.

Abortions can cause alkaloids and glucosides, so they should not be used to treat pregnant females; it is also necessary to ensure that animals do not eat plants containing these compounds (potato sprouts and tops, aconite, honeysuckle, evergreen,lentil, lupine, field mustard, buttercup erect-horned, sorghum, vetch, Sudan grasswheat, mannikin, flax, etc.).

Climate-based abortions. They appear under the influence of physical and chemical stressors on pregnant females. Thus, under the influence of high air temperature or sudden changes in the lightregime, the embryo dies and resolves in pigs, sheep, cows andrabbits. Pregnancy can also be interrupted during acclimatization in imported females.

It is known that temperature stress that occurs when the bodyis exposed to high or low temperatures not only changes the hormonalstatus of the body, but also causes chromosomalaberrations in the zygote. Thus, the maintenance of pregnant pigs in a heat chamber at a temperature of 37^0C reduced the survival rateof embryos from 81.6 to 35.7%.Dairy cows are particularly sensitive to heat stress due to the high level of metabolism caused by lactation. It is no coincidence that in places with hot climates, the peak of embryo death occurs in the summer months. Especially dangerous is the high temperatureof the air in combination with high humidity.

Traumatic abortion (Abortus traumaticus). It is noted as a result of bruising of the abdominal walls; sudden movements, jumping over barriers, slipping, falling, especially with a bruised nose (trigeminal nerve); rough rectal and vaginalexaminations; artificial insemination of a pregnant female;long and fast driving, especiallyon uneven, bumpy or slippery roads; hard work; fright (mental trauma).

In cows, traumatic abortions are observed after running through narrow passages, especially if there are 1-2 goring animals in the herd.Pregnant animals should be watered on pasture in specially designated areas,allowing animals to drink in smallgroups.

In horses, abortions are often observedwhen pairs of animals are selected for work without taking into account their temperature.

In pigs, traumatic abortions(often incomplete hiddenones) occur during group maintenance,during the struggle for the best placeto stay, and during feeding.

Traumatic abortions usually occur in the last thirdof pregnancy. In case of excessive exploitation, poor conditions of keeping, incompletefeeding of animals (especiallyemaciated and below-average fatness), traumatic abortion occurs in the initial stages of pregnancy andoften occurs in a latent form.

The course of an abortion can vary depending on the severity and nature of the injury, and especially on the reactive state of the mother's body. Injuries associated withdamage to the uterine walls, overexploitation, andabuse usually result in abortion, followed by expulsion of the pretermor dead fetus. Expulsion of the fetus begins in 4-12 hours, less often on the 2-3 th day after the injury. However, with a bruise accompanied, for example, by a hemorrhage between the maternal and fetal parts of the placenta, or with a minorinjury, but complicated by an inflammatory process, abortion can take a prolonged course; gradually increasing pathoanatomical changes do not immediately negativelyaffect the physiological processes in the fetus. In such cases, the fetus dies andis cured a few weeks or months after receiving an injury that disrupted the normal relationship between the fetus and the mother. Although rare, the fetus can alsobe mummified, macerated, or putrefied during a traumaticabortion.

Conclusions aboutthe traumatic nature of abortion should be made with great caution, since trauma is harmfulsometimes only when thereis a predisposition to

abortion in the form of fetal bladder abnormalities, maternal diseases, dietary errors or "vulgar" infection(Escherichia coli, diplococci, staphylococci, streptococci).Traumatic abortion has no characteristic clinical signs. When examiningmiscarriage and fetal membranes, bruises are sometimes detected under the skin and in the fetal tissues, smallhemorrhages on the chorion, and an admixture of blood in the amniotic fluid.The frequent absence of obvious signs of trauma in the fetus, even with strong blows inflicted on the mother, is explained by the bufferingproperties of amniotic fluid.

Habitual (repeated) abortion (Abortus habitualis). This is a type of symptomatic and idiopathic abortion. It occurs in animals of alltypes, but is especially common in mares and cows. The essenceof habitual abortion is that in some females, eachsuccessive pregnancy isregularly interrupted at approximately the samestage, despite keepingthe animals in completelynormal conditions. As a rule, aprenatal abortion occurs in the secondhalf of pregnancy.

Specific causesof habitual abortion are infantilism, scarring, and degeneration of the endometrium and myometriumdueto past inflammatory processes. Sometimes,it seems, it is caused by endocrine and neurogenic factors or related breeding.

The diagnosis is made on the basis of taking into account the courseof previous pregnancies, childbirth, and postpartum diseases. Examination ofthe vasculatureof the respiratory tract reveals areas free of villi (in ruminants - the absence of plaquesin one of the horns or a small number of them), sometimes hypertrophyof villi, their cystic orfibrotic degeneration. In some cases, prenatal abortion is not accompanied by changes in the fetus and fetal membranes; then accurateanamnestic data are crucial for diagnosis.

Prevention. Animals with habitual abortions areculled from the breeding stock or left on the farm as conditionally fit forreproduction. When such a female is pregnant, it is necessary to pay maximum attention to her care. Improvedmaintenance conditions, complete release from work(mares), inclusion in the diet ofexceptionally good feed, sprouted grain can sometimes lead to a successful completionof pregnancy in animals predisposed to habitual abortions.

Infectious and invasive abortions. The cause of an infectious abortion may not always depend on the detection of a particular bacterialpathogen. The manifestation ofinfection largely depends on the epizootic situation in the farm, especially on the conditionof the animals found in it and theirliving conditions.

Infectious diseases includebrucellosis abortions in cows, sheep and pigs, salmonella abortions in mares, campylobacteriosis, mycosis andsome others.

Infectioussymptomatic (sporadic) abortions include all cases of termination of pregnancy that occur as a result of the mother's infection with an infectious disease. Symptomaticabortions are observed in cases ofequine infectious anemia, tuberculosis, foot-and-mouth disease, anthrax, influenza, pleuropneumonia, sapa, bovine distemper, and other infectious diseases.

Idiopathicinvasive abortions have been reported for trichomoniasis, toxoplasmosis,and trichosomiasis.

Invasivesymptomatic abortions are noted in hemosporidiosis and helminthic infestation as a result of intoxication and general weakening of the body.

7-lecture. PHYSIOLOGY OF CHILDBIRTH AND THE POSTPARTUM PERIOD.

Training elements:

1. Physiology of the genus.
2. Preparation of animals for the genus, obstetric care during childbirth.
3. Postpartum period, genital involution.
4. Rules for caring for newly-made animals.

Physiology of the genus.

The fetus as an object of childbirth. Duringnormal labor, the fetus of farmanimals has a longitudinal position, a head or pelvicpresentation, an upper position, and a straightenedarticulation of the head and presenting limbs. Such relationships are considered correct; they ensure the normal course of labor, since large areas of the fetus coincide with wide areas of the pelvic lumen.

The fetusof agricultural animals has three bulky divisions that complicate the course of labor:the head, shoulder and pelvic girdles. Thelargest widthof the skull coincides with the line connecting the topsof the frontal arches (in horses, pigs, and dogs) or the frontal processes (ruminants). The maximum width of the shoulder girdle is between the shoulder joints, and the width of the pelvic girdle is betweenthe maculae.

The greatest height in the headregion is measured by the distance from the parietal bones (in ruminants - from the frontalbones) to the angle of the lower jaw; in the shoulder girdle - from the withers to the sternum; in the pelvis - fromthe sacral vertebrae to the pelvic junction.

If you mentally draw a straight line along the body of the fetus throughthe end points of its three widest parts, then this line, with the correct position and location of the fetus, will be in the upper third or slightly higher than the middle of the heightof the head, shoulder and pelvic girdles.

The most unyielding part is the head, as the bony sutures of the skull of a mature fetus (with the exception of the carnivorous fetus) ossify. The shoulder girdlemay be reduced in volume due to the elasticityof the chest, and the pelvis - due to not yet ossifiedjoints of the bones forming it.

childbirth

Harbingers of childbirth. As theend of fruitingapproaches, the mother's body undergoes a numberof changes, the significance of which lies in its adaptation to the implementation of the birth act.

Harbingers of labor include: the transformation of an ordinary female pelvis into a "generic" one, which is expressed in the relaxationof its ligamentous apparatus. All pelvic ligaments become loose; their lengthincreases by 1/3 or¼. Usually, the

sciatico-sacral ligament is felt as a dense, unyielding string when pressed in the area of the subclavian fold. If you grab this ligament with your fingers and pull it away before giving birth,it moves easily; sometimes its contours are smoothed out so that it is not felt. The depression between the base of the tail and the sciaticprotuberance increases ("sacral sinking"). Usually, the pelvis becomes "rotund" 12-36 hours before the start of fetal excretion, but sometimes the ligaments relax only before delivery or 2-3 weeks in advance. before giving birth. Relaxedligaments can regain their usualdensity and elasticity, and just before giving birth, they can relax or remain tight for a second time.

-enlargement and swelling of the labia; their skin becomes smooth, wrinkles arecorrected;

-dilution of thick, sticky vaginal mucus before delivery. The mucosal plug that covers the cervical canal dissolves and is released in the form of "leashes", which are heavythreads of transparent mucushanging from the external genitalia. Oncethe liquefaction of vaginal mucus and "leashes" are observed for 1-2 days before delivery. Incows, "leashes" sometimes appear at the endof the 4th or 5th month of pregnancy;

-colostrum discharge usually 2-3 days before delivery, but may be earlier, during or only after delivery; a decrease in body temperature by 0.4-1.2°C 12-50 hours before delivery with its tendencyto increase duringthe last month of pregnancy; shortening of the cervix, detectedduring rectal examination, witnessthe beginning of its opening and theonset of labor in the mare in 12-24 hours, in the cow-within the next 2-3 hours;

-preparation of "birthing nests" by small animals.

It should be borne in mind that each of the mentioned harbingersseparately and even the opening of the cervix cannot serve as reliable indicators of the rapid onset of labor. Forcorrect prediction, it is necessary to take into account the entire complex of labor precursors.

The course of labor (general provisions). The forces that remove the fetus from the uterine cavity are contractions of the uterine muscles (contractions) and the abdominal press (tugs). These contractions are undulating and alternate withextensions. Contractions and attemptsare accompanied by irritationof the nerve elements of the uterus, pelvic region and other areas of the body associated with the femalegenital area (Head zone); they cause severe pain in the woman in labor. Labor pains and attemptsare also called labor pains. Contractions, attempts and pauses between them are expedientadaptations that causethe birth of a live fetus. The absence of pauses between contractions (uterine tetany) leads to fetal death due to oxygen starvation due to squeezing of blood vessels and restriction of blood supply to the placenta.

According to the strength and durationof contractions, there are: opening contractions(preparatory); contractions andcontractions that lead out (generic); and subsequent contractions.

Opening contractions are characterized only by contraction of the uterine muscles. Starting with a short bout (calculatedin fractions of seconds), opening bouts are followed by long pauses (20-30 minutes). Over the course of the labor process, contractions increase and lengthen (up to 2-5 seconds), and the pauses

between them become shorter (1-5 minutes). By the force of preparatory contractions, the cervical canal opens, and the fetus with fetal membranesmoves to the exit.

Labor pains and attempts (excretory) consist of contractions of the uterine and abdominal muscles. Contractions and attempts are frequent, very strong, long (up to 5 minutes), and pauses are short (up to 1-3 seconds). They exert significant pressure on the fetus and push it through the birth canal.

Схватки Postpartumcontractionsoccur after the birth of the fetus,contribute to the separation of fetal cells(afterbirth) and the expulsion of them and the remnants of fetal water from the uterus. Contractions are brief (2-3 seconds) and are interruptedby long pauses.

According to the nature of contractions, attempts andchanges in the genitals, there are three stages of labor: opening, generic and subsequent.

At the stage of opening (preparatory)проис, undulating contractions of the muscles of the internal genital organs occur,starting from the tubes and ending with the cervix. Contractions exert pressure on the fetus and fetal waters, as a result of which they shift in the direction of least resistance, i.e. to the cervix, causing the opening of its canal. In the opened canal, the presenting areas of the fetal membranes with fetalwaters trapped in them are inserted andevenly pressed on the walls of the canal. Under the influence of this pressure, the cervix opens so much that its contours are smoothed, merging with the wall of the uterus and vagina. Parts of the fetal membranes that have penetrated through the cervix enter the vagina and even beyond the vulva, acting as a hemispherical fluctuatingbelly. At this moment or a little earlier, the fetal membranes are torn due to strong pressureand a part of the fetal waters (first waters) is forcibly spilled out through the hole formed. Rupture of the fetal bladder endswith the preparatory (opening) stageof childbirth. The beginning of the disclosure stage, and sometimes the entire stage, occurs without obvious clinical signs. Often it is possible to observe only a slight restlessness of the animal and general alertness.

Стадия Birth stageдение , fetal delivery. Simultaneously with the introduction of the fetal bladder into the cervix, the present fetal organs also penetrate. After the rupture of the fetal membranes, the fetus with a fluid flow is introduced into the pelvic canal and causes irritation (by pressure) of the birth canal receptors and contraction of the abdominal press. The pressure on the fetus reaches the maximum. The fetus is wedged into the birth canal; the present organs are pushedinto the vulvar cleft ("incision" of the fetus). Subsequent contractions of the uterus and abdominal press push the presenting organs through the vulva gap ("eruption" of the fetus). After that, the removal of the fetus usually ends quickly, its umbilical cord breaks off. Fetal membranes remain in the uterine cavity. During the period of fetal development, the animal is highly agitated, anxious, moves its legs, standsup, lies down and quickly jumps up, looks back at the stomach, archesits back in an arc, and generally behaves as if with colic. Some animals do not show signsof anxiety during childbirth.

The subsequent stage. After the birth of the fetus, the animal calmsdown, there is a pause lasting several minutes. Then the uterus begins to contract again, but withor without comparatively weak abdominal involvement.Contractions continue until the fetal masses(afterbirth) are expelled.

Changes in the position, positions and locationof the fetus during labor. During pregnancy, the fetus of largeanimals is in a longitudinal position, head or pelvic presentation, in a lower or lateral position and with a bent penis. During labor, these relationships change and the fetus enters the pelvic cavity in the upperposition and in the straightened (elongated) articulation, taking the form of a wedge or cylinder with a cone-shaped presenting part.

The penile position changeseither as a result of reflex irritation of the fetus with carbon dioxide accumulating during attemptsуглекислотой, либо в результате рефлек, or as a result of a reflex reaction to mechanicalexpansion of the fetus from the pelvicbones and intrauterine pressure.

The position of the fetus changes mainly, apparently, under the influence of contractions of the uterus and abdominal walls. Contractions of the uterus, occurring in a jerkymanner, move the fetus up. This is also facilitated by the simultaneous self-twisting of the uterus due tothe short location of its muscles. Finally, when the fetal bladder is inserted into the pelvic lumen, especially when the first waters flow out, the wedge-shaped fetus moves forward, comes intocontact with the obliquely placed side walls of the pelvic entrance androtates around its axis.

The mechanism of the birth act. Forproper delivery care, it is necessary to have a clear understanding of its mechanism, of the forces that contribute to or hinder the progressof the fetus. All female organs are involved in the birth act, so when providingobstetric care, it is necessaryto take into account the functional state of the heart, lungs, nervous system and other body systems. However, for the sake of clarity, we will consider here only the main points of the birth act.

The uterus functions like any other hollow muscular organ, such as the heart or bladder. It can be compared to a rubber bag, the walls of which are capable of active contraction and are tied at the free end (neck). The cranial end of this sac is freely located in the abdominal cavity, while the caudal end hasa fixation point in the neck and continues posteriorly in the form of a tube (vagina). The uterine muscles, havinga different direction,are still located so that the attachment points of themain groups of fibers are localized in thearea of the internal opening of the cervix. The contraction of the fibers of the non-pregnant uterus leads to a shortening of the horns and body of the uterus and generally its tightening to the cervix. This is especially easy to notice during rectal examination of non-pregnantanimals or during laparotomy.

During labor, the contractions of the uterine muscles, which consist in pulling the cranial part of the uterus to the cervix,are accompanied by pressure on the fetus and the surrounding fetal waters, fromwhich it meets resistance of equalstrength. The pressure created inthe uterine cavity due to the presence of fetal water is distributed equallyin all directions. In this case, the liquid rushes towards a smallerresistance, which is the neck. Thus, conditions are created in which the fetal bladder begins to press on the cervix, expanding from the inside, and the uterine muscles stretch it from the outside. The uniform pressure of fetalwater enclosed in the fetalbladder leads to a gradual openingof the cervix and smoothing of its contours. If for some reason there is not enough fetal water (lack of water) or the fetalmembranes break prematurely, the process of opening the cervix is disrupted. The weakeningof cervical resistance is

facilitated by changes in its muscles,which become weaker by the time of deliverydue to the replacement of muscle fibers with dilated and newlydeveloped vessels.

Cervical dilatation cannot,however, be explained by mechanicalfactors alone. Observations show that this process takes place in different forms.In primiparous primates, theopening of the cervix begins at its inner opening and gradually extends to the vaginal part. In repeat births, the opening beginswith the vaginal part of the canal. The same pattern is characteristic of the mare and partly of the cow. Therefore,the dynamics of cervical dilatation depends not only on mechanical, but also onother causes.

Clinical practice shows that when the uterine muscle tone increases, the cervix becomes flabby, and vice versa. Such phenomena can sometimesbe detected during rectal examination of the uterus of large animals, especially during estrus.

The work of the uterine muscles, reinforced by the abdominal press (contractions of the abdominal muscles, bending of the spine, tension of the diaphragm), exerts very strongpressure on the fetus, reaching 2.3 kg per 1 cm^2 in large animals (about 640 kg on the entire surface of the fetus) and 78 kg on the exit from the pelvis.

The uterine cavity decreases with each contraction. The muscle relaxation that occurs during a pause does not restorethe uterus to the volume that it had before the next contraction, since, in addition tocontraction, musclelayers are displaced in the muscles (retraction), which causes a thickening of the wall and a decrease in the uterine cavity without increasing the tone of muscle fibers. Violation of retraction, especially with weak contraction of the uterine muscles and rapid abdominal activity, predisposes to invagination and even complete eversion of the uterus. A similar situation is obtained when the fetus is rapidly pulled out during a pause: whenit is pinched in the lumen of the birth canal, it acts asa pump port during stretching, creating a "void" (negative pressure) in the cranial part of the uterus. This space does not disappear due to the lack of contraction of the muscles that have lost their retractionability. The retraction properties of the uterine muscles make it possible to complete the removal of the fetus and fetal membranes, since contractions alone cannot promote the fetus throughout the entire length of the birth canal.

After the rupture of the fetal membranes with a wave of the first fetal waters, thefetus also leaks. Pinched in the lumen of the oraltract, it forms a kind of plug that prevents the outflow of the liquid contents of the uterus. As the attempts increaseпотуг с каждым продвижением плода , fetal water is released with each movement of the fetus, but some of it remains in the uterus, providing an equalpressure on the fetus. When fetal waters are released prematurely, childbirth is difficult; to facilitate them, intrauterine infusions of saline solutions must be used.

Changes in the pelvic lumen dependingon the position of the female giving birth. As already noted, by the time of delivery, the relationship between the pelvic bones is somewhataltered. Due tothe relaxation of the ligamentous apparatus, the lumen of the generic pelvis can increase in height. However, changes in the pelvic canal also depend on the position of the female. The pelvis and itsligamentous apparatus serve as a place ofattachment of the muscles of the croup and hind limbs. Books include m. m. biceps femoris, semitendinosus, semimeminosus, and glutaeus

medius. These muscles in an animal that is in a standingposition are tense and, due to the mobility of the sacral bone, shift its caudal end downwards,thereby reducing the lumen of the pelvic cavity. If the animal is lying on its stomach withits limbs bent or on its back, the ratios change. The croup muscles areweakened; they do not pullthe loins to the bottom of the pelvis and, therefore, do not preventthe sacral bone from deviating and the pelvic lumen from increasing. In this position, the abdominal press is not changed by themass of the entrails and fetus. Naturally, the supine position of the animal is more favorablefor the flow of the birth process than the birth "on its feet".

Separation of the placenta. The volumeof the straightened chorion is larger than the uterus, since itforms a large number of folds during pregnancy. Duringchildbirth, especially after fetal removal, muscle contraction and retraction decrease theuterine cavity, resulting in even larger vascular folds. Inthis regard, the connection of the villi of the fetal partof the placenta with the crypts of the maternal placenta is disrupted. The separation of villi is also facilitated by uterine anemia, which reducesthe tension of the crypts, as well as the cessation of bloodcirculation in the fetal part of the placenta, which causes a drop in the turgor vorsin. The placenta is often dislodged; its placental part is locatedinside. The speed of placental separation depends on the natureof the placental connection, on the structure of the placenta (see "On the specific features of genera"), and on the conditions of animal existence.

Help with normal childbirth

Childbirth is a physiological process, so it can take place without externalintervention. In naturalconditions, the mother instinctively bites through the umbilical cord, licks the baby, and pulls the fetal bladder out of the birth canal when it is delayed (carnivores).

The role of birth attendants is to monitor and assist, but not to activelyinterfere. Practice shows that the more active the intervention in a normalbirth, the easier it is to cause complications. Often, the hand called to help destroys the mother's body. Therefore, intervention in thecourse of labor should be carried out only if there are directindications for it and with strict compliance with therules of asepsis and antisepsis. The first and most important requirement in this regard is the cleanliness of the hands of the staff of the department. They are washed with warm water and soap and sprayed with pre-prepared disinfectantsolutions. In case of abnormal childbirth, special training is required to provide assistance.

Care for normal childbirth, regardless of the type of animal, consists of a number of preventive measures aimed at preserving the health and productivity of the mother and the life of the newborn. When the fetal head and the present part appear, thedoctor should monitor the condition of the perineum and, in cases of stretching, hold it with his hand to preventruptures. Ifthe fetus remains in the birth canal after the head and legsleave, it is advisable to pull it by the legs and head, grabbing themsimply with your hands or rope loops. These manipulations are mandatory during pelvicdelivery, since after the pelvic girdle exits, the umbilical cord can be pinched when the fetus is wedgedinto the pelvis, which threatens to kill the fetus from

asphyxia due to the cessation of placental respiration and aspiration of amniotic fluid.

Fetal extension is performed by a maximum of two people; this operation is performed exclusively during attempts. One of the essential aspectsof childbirth is considered to be the ability to determinetheposition, position and location of the fetus by the present organs. The normal course of labor with head presentation is characterized by the following signs: the forelimbs protrude from the birth canal, the plantar surfaces are directeddownwards, and the head lies onthe extremities. In pelvicpresentation, only the limbs stand out with the soles pointing upwards. This position should not be confused with the head position in thelower position. Pelvicpresentation in this case is recognized by the presence of hock joints.

Priority measures for the care of a newborn should be considered: placing it on a clean,ironed sheet; freeing its airways from mucus; bandaging the umbilical cord; drying the skin; wiping with a clean sheet ortowel; drinking colostrum:

In a newborn, immediately wipe the nostrils and mouth with a clean cloth, towel or gauze to remove mucus and amniotic fluid. For weak newborns with signs of asphyxia, it is useful to give a position with an elevated pelvis.

The newborn often keeps in touch with the mother through the unbroken umbilical cord. It should be tied ata distance of 8-10 cm from the abdominal wall and then cut at a distance of 1-1. 5 cm belowthe ligature. Use athick thread tura soaked in a 5% solution of carbolic acid, lysol, creolin, and iodine(a thin one cuts the umbilical cord). If there were no cases of navel inflammation in newborns on the farm, or if the umbilical cord broke no further than 10-15 cm from the abdominal walland does not bleed, it should not be re-tied. The umbilical cord is immersed forseveral seconds in a cup with an iodine solution or other disinfectant solution.

After ligation of the umbilical cord, the newborn is wiped dry, as fumes from the wet surface of the skin cause hypothermia and illness. Leaving a newborn with wet skin even at 10-15°C canbe fatal for him. For wiping, use a well-ironed sheet, pieces of clean cloth, bundles of straw and hay. Rubdown enhances the functions of the respiratory organsand encourages the intestines toperistaltic contractions, so it should be carried out vigorously. It is advisableto place the newborn calf next to its mother, who simultaneously licks its skin and dries it. Licking thenewborn by the mother accelerates the separation of the afterbirth, increases the tone of the uterus, and increases the secretory activity of the mammary gland. If the newbornis covered with purulent masses or brownish-yellow, with blooms, plaque, licking the fetusshould not be allowed.

Usually, newborns make attempts to get up and reach for the same breastmass. But before you allow them to beremoved, you need to make sure that there is nomastitis and wipe the nipples with a warm 3% solution of boric acid or wash them with boiled water.

If the mother does not have colostrum, the newborn is given colostrum from other animals or artificial colostrum (calves - 1 liter of freshmilk, 15 g of fish oil, 10 g of table salt, 2-3 fresh chicken eggs;calves-cow's milk, twice diluted with boiled water, 2 tablespoons of sugar per 1 liter).

Postpartum period, genital involution.

The postpartum period is the time from the end of labor (expulsion of the afterbirth) to the end of involution of the genital and other organs of the woman in labor, i.e. the period of recovery to the state in which they were before pregnancy. In all animals, the postpartum periodends with a new pregnancy or infertility. The duration ofthe postpartum period depends onthe species characteristics of the animal, but primarily on the conditions of existence during pregnancyand after childbirth. Infarm animals under normalliving conditions, the postpartum period ends within 3 weeks, no later than a month.

In the postpartum period, the entire body is reorganized, as the body temperaturerises, the pulse and breathing rate increase, and the blood pressure decreases compared to the prenatal state. All thesedeviations are leveled off during the first days of the postpartum period. Uterine involution consists of further retraction of its muscles, fatregrowth, and resorption of muscle fibers formed duringpregnancy. This process is accompanied by the formation of a significant amountof glycogen. The lumen of the uterine arterial vessels decreases,a significant number of them become desolate and regenerate; their walls dissolve, being replaced by connective tissue. The folds of the perimetrium and endometrium gradually straighten out. Endometrial defects formed during theseparation of the afterbirth are epithelized by the proliferation of glandular epithelium and non-damaged areasof the mucous membrane.

In the first 3 days after delivery, the uterine wall thickens (up to 4-5 cm in large animals), the volume of the uterus decreases by 2-3 times. Over time, the wall is thinned againtончается, укорачиваются растянувши, the stretched uterine ligaments are shortened, and the uterus returns to its original position. With a decrease in the uterus, the cervical muscles also contract. The cervix is usually completely closed after the end of uterine involution.

The entire mucous membrane, and especially the part of it that served asthe maternal placenta, is destroyed and removedfrom the uterus in the form of lochia (postpartumcleansing). The composition of lochia also includes contents formed in the uterine cavity during regeneration ofthe mucous membrane, blood from ruptured umbilical cord vessels, remnants of fetal water and placental particles. In the first days, the leaves of the blood present in them have a red-brown color; drying on the skin of the vulva, the viscousdischarge turns into brownish crusts. Inthe future, they become lighter, the reddish hue is replaced by yellowish; then a transparent colorless mucus is released. Expirations occurring later than 12-15 days after delivery in animals of all species are a sign of postpartum complications.

The vagina and vulva already in the first days (in the absence of injuries) after childbirth take on a normal appearance. The transformation of the "generic" pelvis into a normal one ends on the 4th-5th day. However, the time of compaction of individual ligaments may stretch for 10-15 days or more, and sometimes the sacral mobility may remain for the same period. Recovery of the abdominal configuration is completed within the first 2-3 days. Later, by measuring the volume of the abdomen, it is possible to establish a slightdecrease in it. Edemaresolves in the first 5-6 days.

The involution of the ovaries, uterus, and other organs is significantly accelerated by providing animals with active exercise and communicating with a probe,starting from the 3rd day after delivery.

After normal births, the animalquickly develops the stage of arousalof the sexual cycle, so самок all female farm animals need to be inseminated in the first month, and rabbitsneezes - even in the first hours after delivery. Theabsence of the arousal stage 3 to 4 weeks after delivery or the failure of insemination in the presence of hunting and other phenomena of the sexual cycle is always a consequence and a sign of some form of infertility. If the postpartum period is prolonged (weak uterine involution, no stageof arousal 21-23 days after delivery, etc.), such animals should be carefully examinedand the causes of this abnormal phenomenon should be immediately eliminated.

Maternal care inthe postpartum period. After giving birth, the mother should be in a dry room, without drafts, as she often sweats and can be exposed to colds.After 1-2 hours, the woman in labor is given warm water to drink and rubbed with straw bundles; theroot of the tail is bandaged. In the first days, the animal is given high-quality, easily digestible feed (vitaminhay, bran) in small quantities, so as not to cause diseasesof the gastrointestinal tract due to the inabilityof the intestines to new conditions.

The mother should be regularlymonitored and subjectedto twice-daily thermometry. As a rule, her vulva skin is washed 2 times a day, followed by irrigation with a disinfectant solution until thelochia are removed. Douchingof the vagina is contraindicated, since the birth canal has the propertyof self-cleaning.A goodgeneral condition and appetite, as well as a normal body temperature, serve as an indicator of the successful course of the postpartum period. To prevent the penetrationof pathogens, care is taken to ensure that there is always a clean, plentiful bed of straw under the woman in labor. After 3-4 days, a woman in labor with a normal body temperature shouldbe given active exercise in the fresh air; in the absence of it, various complications are inevitable. The postpartum period is completed faster ifyou combine active exercise with sun exposure and dosed communication with the maleprobe. You can use animals for work only after the postpartum involution is over; they are gradually drawn into the work.

8-lecture. PATHOLOGY OF THE GENUS

Training elements:

1. Causes of abnormal labor.
2. Preparation for obstetric care.
3. Weak contractions and attempts.
4. Strong contractions and attempts.

5. Narrow vestibule and vagina.
6. Dryness of the genital passages. Incorrect position, position of the fetus. Incorrect location of the fetus.
7. Auxiliary operations to the genus.

Preparation for obstetric care.

It is important to choose one of the listed treatment approaches correctly and if it does not work, quickly switch to another one.

Almost all obstetric procedures are performed under the control of touch, asopposed to surgical procedures, which are usually performed under the control of vision. Forthis reason, the obstetrician needs to have knowledgeof topographical anatomy, confidence in the correctness of thediagnosis and a clear treatment plan.

The success of obstetric care depends on making the correct diagnosis; timely intervention; choosing the appropriate method of surgery and performing itstrictly and skilfully.

The correct diagnosis (determination of the stage of labor, causes of abnormal labor) can be established on the basis of anamnesis data and the results of a studyof the woman in labor.

Anamnestic data that allowus to identify primary and repeated pregnancy, itsduration, the time of labor onset, rupture of the fetal membranes, discharge of amniotic fluid, and features of theanimal's behavior before and during labor, make it possible to predict the nature of complications of the birth act.

The study consists of assessing the general condition of the woman in labor (temperature, pulse and respiration, general reaction to the environment) and determining the state of her birth canal. When examining the birth canal, attention is paid first of all to the timeliness of the birth act (the presence ofharbingers of labor), then to the degreeof cervical dilation, dryness or humidity of the mucous membraneof the uterus, the integrity of the birth canal, especially afterthe intervention of non-specialists. Severe edema and dryness of the birth canal are an indicator of rough or prolonged manipulations in them.

Finally, the crucial factor in choosing the method of careshould be the identification of the position, position and location of the fetus, as wellas its condition. It is more convenient to examine the animal in a natural (standing) position, preferably with the pelvis raised.

The study is conducted by an obstetrician after preparing for surgery. He inserts his gloved hand or treated and liberally greased with fat into the uterus and carefully, gradually, methodically palpates the birth canal, fetalmembranes and fetus. During the examination, care is taken not to let the hand get into thespace between the uterine mucosa and the fetal membranes; theposterior ones should play the role of a kind of layer between the uterus and the hand,protecting the uterine mucosa from excessive irritation and injury.

WEAK CONTRACTIONS AND ATTEMPTS

Weak contractions are characterized by short duration and insufficient intensity of contractions of the uterine muscles, and weak attempts - of the abdominal press.

According to the time of occurrence and the nature of anomalies, two types of weak contractions and attempts are usually distinguished:

primary weak contractionsthat begin with the opening of the cervix and are accompanied by primaryweak attempts;

secondary weak contractions and attempts that occur during labor after previous normal or often too violent contractionsof the uterus and abdominal press.

Primary weak contractions and attempts, as a rule, are caused by errors inthe animal's maintenance during pregnancy, in particular, general or qualitative starvation, lack orlack of exercise during stablemaintenance, hernias, dropsy of the fetal membranes, multiplepregnancies, and degeneration of the uterine muscles after inflammatoryprocesses. Sometimes they are observed as aconsequence of congenital abnormalitiesof the uterine muscles, more precisely, the incorrect locationof muscle fibers. In this case, the contractile forces under muscle tension act incoherently,as a result of which individual groups of fibers neutralize each other. There are other factors that affect the tone of the uterine and abdominal muscles, such as diseases that weaken the bodyand cause reflexive uterine atony.

Primary weak contractions and attempts are observed more often in cows, goats andpigs, mainlyin old animals, in the spring and winter period. Secondary weak contractionsand attempts, in contrast to primary ones, are the result of acute muscle fatigue after intense but fruitless attempts (with obstruction of the birth canal,too large fetus, incorrectarticulation, etc.).

Clinical signs. With primaryweak contractions and attempts, despite the precursors, all phases of labor are delayed and poorly manifested clinically. With secondary weak contractions and attempts, the dynamics of the birth act is disrupted during the period of fetal excretion.

If there is no active medicalintervention, both primary and especially secondary weak contractions and attempts endwith sedation of the animal, complete cessation of contractions of the uterus and abdominal press. The fruit dies, undergoes putrefactive decomposition, maceration, and less oftenmummification. Due to the introduction of pathogens of diseases through theopen cervix, this anomaly often endsin septicopyemia.

Weak contractions and strugglesthat lead to prolonged labor,placental detachment, and fetal death can be complicated by afterbirth retention,uterine prolapse, or prolapse.

Help. In large animals, it is necessary to carefully remove the fruit by pulling on the adjacent parts. With primary weak contractions, it is necessary to encourage the uterine muscles to contract. For thispurpose, it is often enough to lightly massage the

uterus by stroking its mucous membrane with a hand inserted into the birthcanal, and when there is an experienced assistant, even through the rectum. In smallanimals, uterine arousal is achievedby massaging the uterus through the abdominal walls.

Infusions of hot, sterile solutions of neutral salts or slightly disinfecting fluids into the uterus sometimes have a good effect.Oxytocin or pituitrin is administered intravenously from the medic of menthic drugs; the dose of o is 10 units per 100 kg of the mother's weight.It is advisable to introduce 200-400 ml of 20% glucose solution.

In pigs, intramuscular injections of estrophan at a dose of 0.8-1 ml per 100 kg of body weight or 2.5 - 3 ml of mammophysin per 100 kg of body weight, 20 - 40 ml of 20-40% glucose solution give a good effect.

In dogs, it is possible to "squeeze" the fruitswith a towel by tightly bandaging the abdomen in the direction from the diaphragm to the pelvis.

With secondary weakness of contractions, fetal stretching or administration of uterine agents is carried out only after removing obstacles that caused a delay in fetal excretion. In addition, to extract the fetus, you can use the techniquesof surgical acupuncture.

VIOLENT CONTRACTIONS AND ATTEMPTS

Violent contractions arelong and very strong contractions of the uterus or abdominal press withor without very short pauses.They can be caused by the use of certainmedicinal substances (ergot and its preparations); incorrect positions and location of the fetus; irritatinguterine receptors, and sometimes,apparently, external impulses (from theintestines, croup).

Course. If uterine contractions encounter an insurmountable obstacle (incorrect position of the fetus,narrowing of the cervix), then after prolonged tension, the muscles relaxand the attempts stop. The fetus dies asa result of prolonged oxygen starvation (compression of the uterine vessels). Sometimes the uterus ruptures.

Violent attempts with a normalposition and location of the fetus can lead to uterine prolapse. They, in particular, interfere with the work when providing obstetric care (they strongly squeeze the hand and generally make surgical intervention difficult).

The diagnosis is established on the basis of taking into account the peculiarities during the birth act and the nature of attempts.

Treatment is symptomatic. Often, the animal calms down after a 10-to 15-minute ride or when it is placed in a raised croup position, which reduces the contact and pressureof the uterus on the pelvic bones and reduces irritation. It is sometimes possible to weaken the contraction of the abdominal press by pulling the skin on the

back into a fold or by applying a sandbag tied in the middle to the sacrum (so that it hangs down on both sides of the sacrum).

In cows, sacral anesthesia with a 1% solution of novokain in a dose of 15-20 ml, novocaine blockade according to V. V. Mosin, tocolytics (intramuscularly hanegif 10 ml, etc.), alcoholic anesthesia works well. In mares, in additionto nocaine therapy, 200-300 ml of a 10% chloral hydrate solution can be administered intravenously. N. N. Mikhailovrecommends subcutaneous administration of 0.01-0.02 g of atropine sulfate (in the form of a 0.1-1% solution) or 1-2 ml of a 1% solution of platifillin in case of violent contractions or tetany of the uterus.

NARROWNESS OF THE VULVA AND VAGINA

Narrowness of the vulva. It is congenital, occurs in primiparous animalsas a result of Scar contractions after wounds, abscesses and severe inflammatory processes, or occurs due to an incompleterotation of the normal pelvis into the birth pelvis.

Clinical signs. Предлежащие The present parts of the fetus (head or limbs), sometimes part of the fetal bladderprotrude from the vulva. At the same time, more voluminous areas of the fetus rest against the perineal wall, protruding it. In some cases, the narrowingof the vulva is so significant that in large animals only 2-3 fingers can be inserted into the genital slit. Severitydue to scar contraction can be easily detected by the scar. Usually, in response to fetal resistance, the effort increases so much that it tears the perineum.

Help. It is necessaryto complete the labor act faster and preventperineal rupture. This is achievedby smearing the vulvawith sterile oily substances or soapsolution and pulling the fetus with the help of 1-2 people (at the same time holding the perineum with your hand from above to relieve pressure).

If it becomes obvious thata perineal tearis imminent, it is advisable to dissect it along the suture line to preventa laceration. Atthe end of the labor act, the perineal mucosaand skin are sutured or plasticsurgery is performed. When the perineum is torn, the edges of the wound should be revived by excision andsewed up in the same way as after dissecting theperineum.

Narrowness of the vagina. Narrowingof the palate can be a consequence of scar contractions as a resultof former injuries and injuries, wall splices,and the development of connective tissue fracturesdue to ulceration. In first-born animals, the birth act is sometimesdelayed due to congenital or acquired hypertrophy of the hymen. Obstacles thatdelay labor can be identified by hand examination.

Help. Hypertrophied hymen is incised with a scalpel in the upper part; lintels and adhesions are dissected with scissors or torn to avoid bleeding. If the wedged fetus is pinched, they try to pullit out bythe adjacent parts, hoping for stretching of

the passageand rupture of strictures, but also taking into account the possibilityof deep injuries, eversion of the vagina and uterus.

NARROWING OF THE CANAL AND CERVICAL SPASM

Narrowing of the cervical canal. They often occur pas a resultof scar contractions, neoplasms,malformations, and chronic cervicitiscomplicated by the replacement of muscle layers with connective tissue followed by its hyalinization or calcification (see the corresponding section ofgynecology).

Clinical signs and diagnosis. Strong attempts in the presence of allthe harbingers of labor should cause suspicion of narrowing of the cervix. The problem is solved by a vaginal examination, during which it is necessaryto exclude twisting of the uterus, weak or premature attempts. Examinationthrough the vagina can reveal changesin the cervical tissue in the form of scars or compacted areas. Sometimes the cervical canal is completely overgrown or a small edema remainsin its place.

Forecast. If the narrowingis limited to the vaginal part of the cervix, the birth may end with smallcervical ruptures. Cases of complete vaginal prolapse are not uncommon. Complete overgrowth of the cervix can lead to a rupture of the uterus or the terminationof fruitless attempts, followed by fetal death.

Care is providedby both conservative and operative methods. The first include hot irrigation of the cervix (up to 45°C).C) solutions, hot poultices in the sacrum in combination with mechanicaldilation of the cervical canal with the fingers. Opening of the cervix facilitates the useof sacral anesthesia, presacral anesthesiaaccording to S. G. Isaev or blockade according to A. D. Nozdrachev, ointments that relaxthe muscles (for example, Extract. Belladonnae 1,0; Adipissuilli 3,0-4,0).

With limited expansion of the cervix and wedging of the present parts of the fetus into its channel, you cantry to remove the fetus by force and mechanicallypush the walls of the cervix toa degree that allows the passage of the fetus. It is necessary to take into account the possibility of life-threateninginjuries and bleeding to the animal, soit is advisable to perform a caesarean section.

In cases of scar contractions, despite the dangerof surgical intervention, which consists in bloody expansion of the cervix, this technique should be considered radical.

Cervical spasm. Sometimes, due to pathologicalprocesses in the genitalapparatus or damageto the nerve elements serving it, anabnormal phenomenon is observed: the more the uterus contracts, the more tightlythe cervical canal closes. As a result, the normal course of labor is disrupted. Often, weak attempts are taken for cervical spasm.

Help. It is recommended to wait for assistance and allow the animal to rest.оказанием помощи и предоставить жиAnesthesia (according to A.D.

Nozdrachev and others) and measures used for narrowing the cervix can give positive results. Sometimesattempts to mechanically expand the cervix only increase the spasmodiccontractions of its muscles.

DRY DELIVERY

Due to the premature discharge of amniotic fluid and urinary fluid as a resultof spontaneous or artificial rupture of the fetalbladder before the full openingof the uterine neck, the birth canal may not be wet enough.

Help. To make it slippery, the birth canal is lubricated with oilysubstances;slime fluids (soapy water, etc.) are poured into the uterine cavity, replacing amniotic fluid. Forcible extraction of the fetus by pulling gives goodresults only after the introduction of slime solutions into the birth canal and inthe case of the use of force, exclusivelyduring attempts. Haphazard and rapidstretching of the fetus bythe presenting parts often leads to eversion of the uterus and vagina due to the lack of a water layer between the fetus and the tightly covering mucous membrane.

DISCREPANCY BETWEEN THE SIZE OF THE FETUS AND THE MOTHER'S PELVIC CAVITY

The pathology of labor dueto improper relations between the fetus and themother's pelvis is more often observedin cows, so all the main provisions of the maternity care technique are described in relation to this type of animal. For animals of other species, in order to avoid repetitions, obstetric equipmentis prescribed only in the formof supplements reflecting its specificity dueto species characteristics.

Overdevelopment of the fetus. When thefetus is overgrown, its sizedoes not correspond to the lumen of the mother's pelvis. The causes of increased fetal growth are not well understood. Large fetuses oftendevelop as a result of coitus between a female and a nonconforming breed producer. Small dogs, wheninseminated by large males, produce large pups. Largefetuses are also obtained, as a rule, in multi-fetal animals (dog, pig, sheep and goats of some breeds), when there is only one or two fetuses in the uterus. Some breeds of animals have a predisposition tothe development of large fruits (krupnoplodnost).

Diagnosis. By vaginalexamination, the correct positions, location and position of the fetus and the discrepancy between the size of the fetus and the lumen of the mother's pelvis are established. In the order of differential diagnosis, they try to exclude fetal deformities.

Help. The fetus is removed bya maximum of 5 to 6 peopleunder the strict supervision of the obstetrician's hand(to avoid deep injuries).The birth canal should be liberally lubricated with petroleum jelly or oil. Alternately pull first one limb and then the other to give the fetal shoulder girdle an oblique position and thereby facilitate the passageof the shoulder joint by the columnar part of the ilium (further

posteriorly, the expandable pelvic area begins). When extending one limb, it is usefulto simultaneously hold or even push the other limb into the uterine cavity (Figure 87). The same technique is used whenextracting a large fetus located in the pelvic presentation. When the pelvic girdle is pinched, the fetus is placed in a lateral position so that the widest part of its pelvis (between the maclocks) coincides with the height of the pelvic cavity,which is always greater than its width. When pulling the fetus with the use of force, it is useful to strengthen the woman in labor on her back. To extract the injured fetus, in some cases it is necessary to use eye or sharp hooks,which cling to the choanae, oval openings, and sacrum (with pelvicpresentation), regardless of the damage to the fetus. In pigs, large fruits are extracted by means of a special loop or hook that touches the choan. As a last resort, a caesarean section or fetotomy is used to extract a large fetus.

Narrowness of the pelvis. The narrowness of the pelvis means the discrepancy between its lumen and the general constitution of the body. At the same time, there are difficult births. In farm animals, mainly congenital narrowness of the pelvis occurs as a result of prematureuse of the female forreproduction. Less often, pelvicnarrowness is caused by the pathology of its bones (rickets, periostitis, fractures).

The diagnosis is made on the basis of examinationof the pelvic cavity by palpation and internal pelvimetry with measurement of the presenting parts of the fetus.

Help. The birth canal is liberally lubricated with oily substances, andthen the fetus is extracted. With narrowing of the pelvis due to former fractures,periostitis, especially if some parts of the bones protrude into the lumen of the pelvis, you should be afraid of rupture of the uterus or crushingof its tissues (between the passing fetus and the pelvic bones). When removingthe fetus, the point of application of force isselected in such a way as to exert a minimum of pressure on the site of narrowing. This is achievedby alternately stretching one or the other limb, as in the extraction of an overdeveloped fetus. If the sharp ends of the bones protrude into the lumen of the pelvis or it is very narrowed, it is advisable to immediatelyproceed to a fetotomy or cesareansection.

Neoplasms in the pelvic cavity. Tumors in the birth canalthat obstruct labor are sometimes detected in cows and dogs, and very rarelyin other animal species. Difficultiesin childbirth can be caused by bartholiniumgland cysts, papillomas, fibroids, fibromyomas, leiomyomas, myxosarcomas, angiomas in the uterus, and leiomyomas, sarcomas, and carcinomasin the uterus. Pushed through the birth canal, the fetus meets resistance from the tumors located in its path, sometimes tears them off or,taking the tumor with it, turns the vagina and uterus.

Help is a radical operation.

INCORRECT LOCATION OF THE FETUS

Turning the head to the side. This can be a consequenceof improper obstetric care, when they try to pull the fetus by the legs that protrude from the birth canal, especially if the cervix has not yet opened sufficiently or there are scarring constrictionsthat limit the degreeof its expansion. Fetal neckextension may be delayed in cases of rapid labor and fetal weakness, or rare congenitalankylosis of the neckvertebrae.

Diagnosis. The inversion of the fetal head to the side is judged by the delay in the birth act, the eruption of two anteriornostrils, of which one protrudes less, exactly the one in the direction of which the head is wrapped. Palpation confirmsa sad presentation, and the neck is palpated. Guided by the latter,the shark must penetrate as farinto the uterus as possible to determine the boundaries of the fetal head that can be reached by the hand. Sometimes the head, whenplaced laterally, is rotated around its axis, with the result that the lowerjaw is turned up and the forehead is turned down.

Прогноз The prognosis depends on how far the hand can reachinto the uterus, and on the degree of infringement of the fetus in thepelvic cavity.

Help. After applying loops to the forelimbs, the fetus is pushed into the uterus. With a slight twist, it is sometimespossible to remove the fetal headby grabbing it by the eye sockets with your fingers. It is more convenient to straighten the head witha vertical loop applied to the lower jaw. When pulling the rope, it isnecessary to support the head by the lowerjaw, ears, or eye sockets; withoutsuch precautions, turning the head may be complicated by twisting the neck. If it is impossible to reach the mouth or eye sockets of the fetus with your hand, try to attacha double loop, which turns into a reliable obstetric one-bridle after correcting the position of the fetus. To apply a loop, you must: 1) draw a double rope around the neck; 2) pass the free endsof the rope through the formed loop; 3) lower one of the loops located on the neck through the back of the head to the front of the fetus; 4) adjust the location of the loops and the degree of their fixation by tension; the head is removed into the birth canal by the above techniques. To pull up the fetal head as an extrememeasure, you can use hooks that are attached to the ears, eye sockets, skin and neck muscles together with the occipital-osticligament.

Lowering the fetal head down. The reasonsfor lowering the fetal head down on the chest are the same as when itis turned upside down.

Diagnosis. Palpation establishes the mane, nape and forehead of the fetus. Dependingon the degree of inversion,the following variants are possible: the fetal headrests against the bottom of the mother's pelvis with the nasal bones - frontal-parietal presentation of the head; with a more significant bend of the neck, the head rests against the bottom of the pelvis of theoccipital presentation and,finally, in prolonged cases, especially in foals, the head can be adjacent to thethe bent neck of the fetus is wedged into the pelvis - cervical presentation.

Help. In frontoparietalpresentation, it is often enough to put your hand under the lower jaw of the fetus and bring your head into the pelvis. In other, more complex cases, the operation consists ofa set of techniques. It is good, for example,to put a noose on the lower jaw, and then pull it with a rope and at the sametime push back the head, grabbing it by the eye sockets or ears. This combination of two oppositely directed forces often produces desirable results. To remove the head, you can use a Kuna stick (Fig. 90). In extreme cases, use hooks that cling to the neck of the fetus along with the occipital spinous ligament. Sometimes, to facilitate subsequent manipulations, it is necessary to firstconfuse one or both fetal limbs in a closed way.

Tilting the fetal head back. ВстреIt is rare and is a very serious complication, often accompaniedby deep uterine injuries.

Diagnosis. Palpation establishes fetal head presentation, tracheal rings, and pulsating carotid arteries. Sometimes, moving your hand forward, you can feel the head of the fetus.

Help. Carefully straighten the tilted head while pushing the fetus away. For the most part, especially if the fetus is injured, it is more profitable to immediately startfetotomy by cutting off the head.

Fetal neck twisting. When thehead is wedged into the pelvis in the lower position of the fetus (the lower jaw is directed upwards), twisting of the neck is observed mainly after the unsuccessfulremoval of the head wrapped to the side, less often as a spontaneous phenomenon in dead fetuses. If the fetus is dead, fetotomy is preferred in the formof removing part of the head or cranial part of the limb (to make room). To give thecorrect position to the fetal head, they tryto rotate it around their axis, sometimes achievingthe goal by turning the mother whenfixing the fetal head (according to the principle ofuterine rotation).

Incorrect placement of the foal's head. In a foal with a long and mobile neck, head twistsare very easy. Usually his head is pulled back so far that it is impossibleto grab it with your hand. In addition, foals often have ankylosis of the joints of the cervical vertebrae. Ifthe foal's head is bent down, it can remain at the level of the chest or fall down.

Correcting the position of the head in the second case is always more difficult; it often gives a complication in the form of twisting the neck. To get to the foal's head

wrapped on the side, a rope is circled around its neck, then, pulling up the neck with a rope, they bring the pelvis and head closer to the exit.

Small foals canbe tried (as a last resort) to be removed without first correcting the position of the head, in the expectation that it,moving due to the long neck posteriorly, will be located in the area of the hungry fossa of the fetus and will be pressed into it when passing through the wide pelvic cavity of the mare. With the lower inversion and throwing of the fetal head, the technique of straightening it in mares is much more difficultthan in cows. To do this, you have to use loops and hooks according to the principle already described.

Inversion of the head in fruits of small animals. When the head turns in lambs and goats, they do the same as in the fruits of cows. If the hand does not pass through-the oral tract, try to hook the fetal head behind the eye socket or cheek; the front part of the head is pulled up to the entrance to the pelvis and at the same time push the fetus behind the protruding limbs. In pig fetuses, out of the incorrecthead positions, only lowering it down is observed. Correct this position with fingers and wirehooks attached to theeye or ear canal of the fetus.In pups, the inversion of the head (which is rare) is correctedby combined manipulations from the ownerand through the mother's abdominal walls.Carpal presentation of the limb. Incorrect locations of one or both fetal limbs often delay the birth process. This complication is usually easily eliminated. But sometimes it causes severe consequences, depending on the degree of wedging of the fetus into the pelvic cavity.Incorrect positioningof the limbs occurs when the uterine contractions are weak or the fetus does not respond to the course of labor, as a result of which the fetus is wedged into the birth canal in the same location in which it was in the uterus during pregnancy. Carpal presentation of thelimb is characterized by the fact that the forelimb, bent at the shoulder, elbow and carpal joints, increases the volume of the fetal shoulder girdle and either prevents the fetus from entering the pelvis, resting on its bottomwith the carpal joint, or wedges into the pelvis and ispinched in it.

Diagnosis. There is a delay in delivery. With unilateral flexionof the extremity, one knee protrudes from the birth canalwith the sole of the hoof facing down. Using the hand, you can identifythe head and carpal joints of a properly positioned and bent limb.

Help. Fetal extraction withoutpreliminary correction of the incorrectposition of the limb is contraindicated: if you pull hardon the carpal joint, you can injure the tissues of the birth canal with the elbow protuberance.

Before straightening the limb, first of all, fix the leg and head that are correctly positioned, then sequentially grab the metacarpal bone or fetter joint and,finally, the hoof. Sometimes, to bring the hoof closer to the pelvis, it is necessary to tighten the limb with a rope attached to the metacarpus or forearm, near the carpaljoint. The limb

is strongly bentat all joints and gradually retractedinto the pelvic cavity. At the same time, the fetal trunk is pushed into the uteruswith a stake reinforced between the fetal limb and neck in the area of the shoulder muscle.

You can also pull the leg bythe hoof, while pushingthe carpal joint into the uterus. If a dead fetus is wedged into the pelvis, it is advisable to dissect the carpal joint.

Flexion of the limb inthe elbow joint. When the fetal limb is not fully extended, it bends at the elbow and shoulder joints (Figure 93). The humerus assumes an upright position and increases the volume of the breast; this creates an-insurmountable obstacle to the removal of the fetus and predisposes to severe injuries to the birth canal whenit is removed without firstremoving the penis.

Diagnosis. Slight protrusion of the presenting limbs: in the calf, the hooves are located at the level of its nose, and in the foal-in the inter-maxillary space or under the head.

Help. The body of the fetusis pushed into the uterus, while the fetus is strongly pulled by the legs. The humerus bone isdissected in the medullary fetuses.Brachial presentation of the limb. Brachial presentation, i.e. bending of the limb under the abdomen, developsindependently or as a complication of thepostural presentation of the limb and canbe unilateral or bilateral.

The diagnosis is made based on the results of palpation of the presenting head and brachialjoints of the fetus.

Help. If the fetus is not yet wedged into the pelvic cavity, grab the leg by the forearm and pull it up to the entrance to the pelvis. Then, with simultaneous pushingof the trunk into the uterus, the kneecap is transferred tocarpal presentation. In the future, correct it with the already described technique.

When the arm fails to bend the elbow joint, the leg is wrapped with a rope, its ends are brought out, and the loop is fixed onthe forearm. By pulling on the rope, while simultaneouslypushingthe elbow joint away with the hand, the limb can betransferred to carpal presentation. With unilateral brachial presentation of the limb, you can try to forcibly remove the fetus by pullingit out by the right leg, head, and rope passed with a loop guide between the chest and the bent limb. When dealing withмертdead and highly developed fetuses, in particular those wedged into the pelvic cavity, you should immediately proceed to fetotomy and removethe head of the fetus or one of its limbs.

Occipital location of theextremities. In this complication, one or both fetal limbs are located above the fetus ' head as a result of slow bulgingof the latter or prematurestretching of the limbs whenthe head is raised. With this arrangement of the limbs, the volume of the fetus increases, its head is pinched in the pelvic cavity

and, in addition,there is a possibility of rupture of the vaginal wall and the mother's perineum by the fetal legs.

Help: The fetal limbsare pulled forward and down, and the headis lifted up by the hand at the same time. In case of severe infringement of the fetus, it is recommendedto amputate part of the limb or reduce the volume of the head.

Calcaneal presentation of the extremities. Pathological delivery with pelvic presentation ofthe fetus requires vigorous and rapid intervention, since fetal asphyxia is often observed due to infringementof the umbilical canal between the fetal tissues and the bone ring of the mother's pelvis.

Incorrect locationsof the pelvic limbs, as well as the front ones, are caused by a violation of the dynamics of labor, which is expressed in insufficient opening of the cervix, incorrect attempts, etc. As the most frequent complicationin pelvic presentation, wedging of the fetus withthe end bent in the hip, knee and hock joints is noted. Withunilateral, and even more so bilateral, fifthpresentation,the concertina-like layering of the femur, tibia, and metatarsal createsan insurmountable obstacle to the passage of the fetus.

Diagnosis. The birth act is delayed. In a unilateral calcanealmotion, one leg protrudes from the birth canal with the plantar surface facing up. Palpation reveals thecharacteristic outlinesof the knee joint, Achilles tendon, and croup: the tail, analopening, and, finally, the hip and the present hock joint of the bent limb are palpated. The calcaneus of the present hock joint may be located below the pelvic floor, before entering the pelvis, or wedged intothe mother's pelvic cavity.

Help. Removal of the fetus withoutpreliminary correctionof its position is impossible. Frequent in such cases, traumatic injuries to the birth canal are caused by an attempt topull the fetus with a rope fixed in the area of the hock joint. In this case, the femoral joint is straightened; the hip takesa vertical position and severely injures the birth canal.

With the hand extended to the distal end of the limb, graspthe path area or, better, directly the hoof and, having strongly bent all the joints of the limb, carefully guide the hoof into the pelvic cavity. This operation can be performed only after the fetus is first pushed into the uterine cavity and if a significant force is applied simultaneously with the leg pull to push the fetal croupaway by means of a stick with its emphasis on the sciatic tenderloin. To prevent slipping, one of the forks of the crutch is inserteddirectly into the anal openingof the fetus. Sometimes it is more convenient to pull up the limb with a rope.

If such correction is not possible for fetal extraction, the hock joint is pushed forward to give the limb a femoral presentation. In a wedged deadfetus, the hock joint or Achilles tendon is immediately dissected.

Femoral presentation of the limb (sciatic presentation). Femoral presentation of the fetus is a complication of calcaneal presentation and consists of bending one or both legs of the fetus under the stomach.

Diagnosis. With this anomaly, palpation is felt for the sciatic tubercles, tail.

Help. First of all, you should try to straighten the limb.Grabbing it by the tibia and pushing away the croup of the fetus, try to bendthe hip and knee joints so as to give the limb a heel presentation; then the limb is removed by the techniques described to eliminate this complication. Small fruits in both unilateral andbilateral pelvic presentationcan be extracted without straightening the extremities. In the first case, the fetus is pulled out by the correctly presented limb and the obstetric rope circled around the bent limb (Fig. 96).

In sciatic presentation, the fetus is removed using two ropes or loops passed on eachside between the hip and pelvis of the fetus (Fig. 97). For a more dense covering of the torso, the ends of the ropes are twisted together. In this case, themenima loop is also used. To apply it, both ends of the rope are passed between the limbs, they are circled around the hips and brought out. Then one end is passedthrough a pre-prepared pet at the other end. The loop is tightened over the sacrum; it should wrap around the torso. The disadvantage of this loop is that the resultant forceis located in the area of the sacrum of the fetus. To move it to the area of the sciatic arches, after securingthe loop around the torso, the free end is moved between the limbs and passed through the loop rope behind the body.In dead fetuses, a hook is inserted into the anal opening and touches the pelvic bones. Sometimes a sharp cruchok is fixed behind the sacrum. It is advisableto reduce the pelvis, amputate theknee, etc.

Incorrect tail placement. The tail can be pinched between the fetal croup and the bone ring of the mother's pelvis. However, this cannot serve as asignificant obstacle to the favorable course of labor. Thepinched tail can easily be pulledout with a rope loop or by hand.

In foals, the correction of incorrectly positioned limbsdue to their long length is much more difficult than in calves, and often requiresa combination of manual manipulations with pulling up parts of the limb with thehelp of tools.

In lambs and goats with headand pelvic presentation, operations are performed in the same way as in calves. Sometimes, if the size of the pelvis allows it, if one limb and head are presented incorrectly, it is more appropriate to turn the fetus so as to give it a pelvic presentation. To do this, a mucosal solution isfirst injected into the uterus, the head and anterior girdle of the fetus are pushed away, and thenits hind limbs are captured and pulled.

If the birth canal is narrow, this approachcontributes to a very rapid andsuccessful completion of labor. In piglets and pups, fetalpresentation shouldbe considered

normal. In the case of pelvic presentation, if both limbs are bent at the hip joints, the fetus is removedwith a line circled aroundthe extremities, or with two hooks hooked to the knee folds. A goodeffect is sometimes obtained by applying the hook through the anal opening ofthe fetus.

INCORRECT FETAL POSITIONS

Incorrect (lower and lateral) positions of the fetus, sometimes observed in head and pelvic presentations, create an obstacle to childbirth by the fact that the voluminous parts of the fetus mustpass through narrow areas of the pelvis. Usually, incorrect positions are the result of weak contractile activity of the uterus and abdominal press or fetal death and are observed, as a rule, in old animals, with loss offetal membranes and in twins.

Lower and lateral positions for headpresentation. They are detected by palpation ofthe presenting forelimbs and fetal head. The soles of the hooves are turned up or sideways.

Help. Without correcting the position, only small pieces canbe extracted, but even then there are difficulties. To eliminate them, they sometimes act as if pulling outan overdeveloped fetus, or slightly twistthe fetal torso around its axis in the expectation that the widestdimensions of the shoulder or pelvic girdle coincidewith the oblique or verticaldiameter of the mother's pelvis.

Correction of the lateral position is a relatively simple operation; it is usually facilitated by the wedge-shaped shape of the fetus and the oblique position of the pelvic entrance. To move the fetus from the lowerposition to the upper one, first of all it isnecessary to push it into the uterus, pour more (5-6 liters) of fluid into it, raise the croup and correct incorrectarticulations. Obstetric ropes are placed on the presentingparts (head and limbs) and anassistant is assigned to pull them.At the same time, the obstetrician tries to turn the fetus around the longitudinal axis with his hand placed under the fetus. The ropes are pulled strictly at the command of the obstetrician and stronger for the limb in the direction of which they want to turn the fetus. Usually, it is only necessary to tighten the fetal limbs and give the proper position to the head, as in the extraction process, the fetus takes a normal position.

Among the individual methods of surgicalintervention, it should be noted:hitting the fetus for twisting limbs; strong pressure onthe eyeballs, in response to which the livingfetus sometimes reacts by turning. It is also recommendedto test therotations made by a woman in labor when the fetus is fixedthrough the vagina, as indicated in the description of assistance for twistingthe uterus.

Lower position in the pelvicposition. It is characterized by the fact thatone or both legs usually protrude from the genital tract with the soles facingdown.

Diagnosis. It is placed after carefulpalpation of the present hock joints and other parts of the fetus.

Help. The lower position inthe pelvic presentation is corrected in the same order as inthe head presentation. Usually, these operations are easier to perform, since the hind limbs protrude more from the birth canal and are easier to fix. In this case, it is more convenient to use entanglement of the limbs and turn the fetus around its axis with a stick. In exceptional cases, they resort to fetotomy.

In the mare, due to the oval shape and vastness of her pelvis, the weak developmentof the sciatic tubercles and ridges, the fetus can be extracted from the lower or lateral positionwithout correcting these positions. When providing assistance to small animals, there are no special features in the operation technique.вотным особенностей в технике операции нет.

INCORRECT FETAL POSITIONS

They are rare, but represent the most severe complications of childbirth and almost always resultin fetal death and serious consequencesfor the mother. Transverse and vertical positions in the strict sense of the word usually do not exist, and when the axis of thefetal spine is at a more or less obtuse angle to the axis of the mother's spine, we can onlyrefer to the transverse or vertical, sometimes oblique positionof the fetus for orientation.

The fetus may assume an incorrect position from the very beginning ofpregnancy due to stretching of the uterus or during labor due to insufficientopening of the cervix. As a rule, this anomaly is observed only with small fetuses, and insome cases-with prematureobstetric care.

Transverse position of the fetus with dorsalpresentation. This position of the fetus complicates childbirth. Palpation reveals the presenting back, withers, ribs. It is especially important to determine which belt (shoulder or pelvic)is closest to the pelvic entrance.

Help. Give the fetus the correct position by pulling up the pelvicgirdle and pushing off the frontof the body or vice versa. Correction of spinal presentation is particularly difficult due to the slippery and rounded natureof the presenting parts.ния плода следует без промедления исAll hooks and forceps available to the obstetrician should be used immediately to lift the fetus. After the hooks are securely attached, as close as possible to the fetal pelvis, the shoulderbelt is pushed away by hand. When thefetus can be given a pelvic presentation by gradual movements of the hooks and pulling up the tail, the limbs are straightened and the fetus is removed by them. There is usually no need to correct the position, since the transverseposition occurs mainly in smallfruits. After establishingthe postural position with dorsal

presentation,in most casesit is more expedient to immediately proceed with fetotomy - dissection of the fetusby the popolam.

Transverse position of the fetus withabdominal presentation. In thispresentation, all four limbs are wedged into the birth canal.

Help. As with spinalmotion, the pelvic limbs are fixed with obstetric loops, and the anterior half of the fetus is pushed away

When applying obstetric ligaments, it is especially important notto confuse the forelimbs with the hind ones. If the forelimbsвые пути больше вклинились передние with the head are more wedged into the birth canal, it is more expedientto transfer the fetusto a head presentation.

Childbirth is especially difficult with the transverse position of the fetusin cows. In them, apparently, due to the significant size of the uterine body, postural positions are more common. Sometimes, if the uterus is strongly lowered, the transverse position is complicated by its bending. In such cases, the animal must be supported on its back and the pelvis must be raised strongly before receiving any assistance.

Vertical position of the fetus with dorsal presentation. It is observed mainly in animals with a bulky belly and in twins. The principles of roposuppressionare the same as in the priest's river position, but it is betterto attract the fetus in the head, and not in the pelvic presentation. Hooks are used to pull up the head and limbs. If it is not possible to extract the fetus, thenthe neck is cut off, andthen they try to straighten its limbs or usea set of surgical techniques.

Vertical position of the fetus with **abdominal presentation.** Whenэтом предlying down (sitting dog position), the head, front and rear limbs of the fetus are wedged into the mother's pelvic cavity.

Help. First of all, it is necessary to makesure that there are no dualities, to understand theposition of the anterior and posteriorfetal limbs (by palpation of the hock and carpal joints), and to exclude doubledeformities. The operation is performed as in the transverse position,opening the shoulder girdle, and transferring the fetus to the lower position with pelvic presentation.

Due to the impossibility of accuratediagnosis (the fetus is wedged into thepelvic cavity), it is often necessaryto use the techniques used for wedging two women into the pelvis: they put loops on each limb and,pushing the pelvic limbs, attract the head and front legs. When attempts to correct the fetal positionare fruitless, the only way to preserve the life and productivityof the mother is to separate the fetal limbs, head, chest, and cut it in half. Onlyin goats with a wide pelvis, small fruits can sometimes be extracted in four legs and a head without straighteningthe vertical position.

9-lecture. PATHOLOGY OF THE POSTPARTUM PERIOD.

1. Retention of the afterbirth in cows.
2. ВыпадениеUterine prolapse
3. Postpartum paresis
4. Postpartum endometritis.
5. Postpartum perimetritis and parametritis.
6. Postpartum septicemia.

Retention of the afterbirth in cows.

The birth act ends withthe separation of the fetal membranes (afterbirth) in animalsof different species at certaintimes. It is possible to speak about the retentionof the afterbirth if it did not standout in a mare after 35 minutes; in a cow - after 6 hours (according to some authors - 10-12 hours); in a sheep, goat, pig, dog, cat and rabbit - 3 hours after the birth of fetuses.

Placental retention can occur in animals of all kinds, but it is more oftenobserved in cows, which is partlyexplained by the peculiar structure of the placenta and the relationship between its fetal andmaternal parts. Especially often, retention of theplacenta is observed assedimentation after an abortion. It can be complete if all the fetal membranes are not released from the birth canal, and incomplete(partial) whenseparate areas of the chorion or single placentas remain in the uterine cavity (in cows). In mares, the vasculature and outer layer of the allantois remain in the uterus, and the allantoamnione is almost always expelled along with the fetus.

There are three immediatecauses of placenta accumbens:

1) insufficient intensity of post-labor contractions and uterine atony;

2).Fusion (adhesions) of the fetal part of the placenta with the maternal one due to pathologicalprocesses in the endometrium or chorion of the fetus;

3) increased turgortkaney karunkulov.

Большое значение в качестве предрасполагающего фактора имеют усло Conditions of maintenance, in particular insufficient exercise, are of great importance as a predisposing factor. In animals of all kinds that do not use walks during pregnancy, afterbirth retention can be a mass phenomenon. This also explainsthe most frequent afterbirth delays in the winter-spring period.

All those factors that reduce the tone of the uterine muscles and the entire body of the woman in labor can be regarded as predisposing to the retention of the afterbirth:emaciation, obesity, lack of calciumsalts and other mineralsubstances in the diet; dropsy of fetal bodies, twins in nursing animals, too large a fetus, as well as the genotypeof the mother and fetus. These junctions may be basedon infectious diseases (brucellosis, etc.), which cause the occurrenceof processes that disrupt the relationship between the fetal andmaternal parts of the placenta and causeinflammation of the chorion and uterine mucosa. Especiallyoften, afterbirth retention is observed infarms that are unfavorable for brucellosis, and not only during abortions, but also during normal childbirth.

A strong connection of chorionic villi with the crypts of the maternal placenta is also possible with a deep violation ofthe exchange of matter, when atony of the uterus occurs with the developmentof connective tissue elements in it.

Diagnosis. When the placenta is fully retained, a red or gray-red cord protrudes from the external genitalia. Its surface is bumpy in the cow (placenta) and velvety in the mare. Sometimes only flaps of the urinary and amnioticmembranes without vessels hang out in the form of gray-white films. With severe atony of the uterus, allthe membranes remain in it (detected by palpation of the uterus).

To establish incompleteretention of the afterbirth, it is necessary to carefully examine it.The placenta is examined, palpated and, if there are indications, microscopic and bacteriological analysis is performed.

The resulting afterbirth is spread out on a table or plywood. Normalmare's pic ice has a uniform coloration, velvety placental and smooth allontoid surface. The entire allanto-amnion is light gray or whitish in color, sometimes with a mother-of-pearl shade. Obliterated vessels, whichform a large number of convolutions,retain a little blood. The membranes are of the same thickness throughout (there are no connective-tissue growths, edema). The thickness of the lung membranes isdetermined by palpation.

To determinewhether the afterbirth has completely subdivided, the placental vessels are guided bya closed network surrounding the entire fetal bladder. During childbirth, the pre-lying area of the membranes is tornalong with the vessels passing through it. The integrity of the entire shell is judged by the breaks of the vessels: whenthe torn edges approach, their contours should give a matching line, and the central ends of the torn vessels should form a continuous vascular network when they come into contact with theperipheral segments. If, for example, a chorionic current remains in the uterine cavity, this is easily detected by straightening the choroid along the mismatched edges of the rupture and along sharply interrupted vascular trunks. By the location of the defectdetected in the vasculature, itis possible to determine in which place of the uterus the detached part of the placenta remained. In the future, palpation of the uterine cavity with the hand canalso forgive the rest of the placenta.

This method of research makesit possible to find out not only the size of the delayed part of the placenta, but sometimes the reason for the delay. In addition,-новременно можно обнаружить аномаplacental abnormalities, degenerations and inflammatory processes in the uterine mucosa can be detected at the same time, and finally, conclusionscan be drawn about the viability of thenewborn, duringthe postpartum period, and possible complicationsof pregnancy and childbirth in the future.

У Cows especially often have partial retention of the afterbirth, since their inflammatory processes are mostly localized in individual placentas. A careful examination of the releasedafterbirth reveals a defect along the vessels that feedthe severed part of the chorion.

In cows, with complete retention of the afterbirth, a significant part of the fetal membranes usually protrude from the external genitalia, descending to the level of the hock joints and below. Under the direct influenceof external factors, mainly pollution, the fallen parts of the placenta begin to decompose quickly, especially in the warm season. Therefore, already on the 2nd day, and sometimes even earlier, anunpleasant putrid smell appears in the area where such a cowis located. Necrosis of the placenta

also extends to its parts that are still in the uterus, which leads to the accumulation of decaying semi-liquid bloody mucus-like masses in its cavity.

The rapid development of microflora indecomposing tissues is accompanied by the formation oftoxic substances;their absorption from the uterus creates a picture ofgeneral intoxication of the body. Theanimal's appetite worsens,body temperature sometimes rises, milk yield sharply decreases, and the activityof the stomach and intestines becomes upset (profuse diarrhea). The uterine muscles become atonic; involution is disturbed; the cervix in most casesremains open for a long time (untilthe uterus is completely cleared). Along with this, the abdominal press is greatly reduced; the animal stands with a very arched back and a tautstomach.

With partial detention, the afterbirth begins to decompose somewhat later (on the 4th-5th day). Decomposition is manifested by signs of purulent catarrhal endometritis. In cows with an afterbirth or part of it remaining in the uterus, not only the afterbirth, but alsothe maternal parts of the placenta are destroyed. From the genitals, a large amountof pus is released with an admixture of mucus and grayish tiny masses.

Very rarely, afterbirth retention occurs without complications. Thedisintegrated parts of the placenta are removed with lochia, the cavity is cleaned, and the function of the sexual apparatus is fully restored. Retention of the placenta in caseof untimely medical intervention, asa rule, ends with difficult- to-treat pathological processesin the uterus and infertility. In mares, afterbirth retention is usually accompaniedby a severe general condition. Within a few hours after the birth of the fetus, general depression, increasedbody temperature, increased breathing are noticed, the animal pushes and groans. Sometimes (with severe uterine atony)there are no external signs. If timely action is not taken, septicemia often developswith a fatal outcome within the first 2-3 days. Often, due to severe straining, the uterus falls out. Partial retention of the afterbirth in the form of separate pieces of fetal membranes causes persistent purulent endometritis, abscesses, and general exhaustion of the body.

In the EC, the afterbirth is rarely delayed; in goats, as in pigs, detention very often leads to septicopyemia. In dogs, afterbirth retention is especially dangerous: it is quickly, sometimes lightning-fast, complicated by sepsis. Methods of afterbirth separation. ПредлоThere are many ways to separate the afterbirth, both conservative andoperational, manual. Methods of separating the afterbirth have some peculiarities in animals of each species. A cow, if the afterbirth has notseparated in 6-8 hours after the birth of the fetus, can be given synestrol 1% - 2-5 ml, pituitrin-8-10 units per 100 kg of weight, oxytocin-30-60 units, or massage the uterus through the rectum. Inside give sugar - 500 g.собствует отделению последа при атоTying the placenta with a bandage to the tail, retreating 30 cm from its root (M. P. Ryazansky, G. V. Gladilin), helps to separate the afterbirth during uterine atonement.The cow tends to release the tail by moving it from side to side and back, which encourages the uterus to contract and release the afterbirth. This simple technique should be used for both therapeutic and prophylactic purposes.

The villi and crypts can be separated by introducing pepsin with hydrochloric acid between the chorion and the uterine mucosa (pepsin 20 g, hydrochloric acid15 ml, water 300 ml). N. A. Phlegmatov found that amniotic fluid administered in a

dose of 1-2 liters to a cow through the mouth, after 30 minutes increases the tone of the uterine muscles and increases the strength of the uterus. increases the frequency of its contractions. Amniotic fluid is used for preventive and therapeuticpurposes when the placenta is delayed. During the rupture of the fetal bladder and during the expulsion of the fetus, amnioticfluid is collected (8-12 liters from one cow) in awell-washed basin with hot water and drainedinto a clean glass dish. In this form, they can be stored at a temperature of no more than 3°C for 2-3 days.

If the placenta is delayed, it is recommended todrink amnioticfluid 6-7 hours after the birth of the fetus inthe amount of 3-6 liters. If there are no placental accretions, the placenta usuallyseparates after 2-8 hours. Only some animals haveto give amniotic fluid (in the same dose) up to 3-4 times at intervals of 5-6 hours. Incontrast to artificial preparations, amnioticfluid acts gradually; its maximum effectappears after 4-5 hours and persists for up to 8 hours (V. S. Shipilov and V. I. Rubtsov).However, the use of amniotic fluid is associated with difficulties in obtaining and storing them in the required amount. Therefore, it is more convenient to useamnystron, a drug isolated from nearfetal waters; it has tonicproperties (V. A. Klenov). Amnistron (administered intramuscularly at a dose of 2 ml), like amniotic fluid, has a gradual and at thesame time prolonged effect on the uterus. After an hour, the activity of the uterus increases by 1.7 times, and by the 6th-8th hourit reaches the maximum. Then the activity begins to gradually decrease, and after 13 hours only weak contractions of the uterusare released.

When the placenta is delayed due to uterine atony and increased turgor of its tissues, a good effect is achieved by usingan electric separator designed by M. P. Ryazansky, Yu. A. Lochkarev and I. A. Dolzhenko, subcutaneous injections of oxytocin or pituitrin (30-40 units), colostrum from the same cow in a dose of 20 ml, prostaglandin preparations, blockade by B. V. Mosin and other methods of novocaine therapy.Intra-aortic administration of a 1% solution of novocaine in a dose of 100 ml (2 mg per 1 kg of animal weight) with simultaneous administrationof a 30% solution of ichthyol intrauterine in an amount of 500 ml is particularly effective (D. D. Logvinov).Repeated injections are carried out after 48 hours. If within 24-48 hours conservative methods of treatment do not give an effect,especially when the fetal part of the placenta is fused with the maternal one, then they resort to surgical separation of the afterbirth.

Manipulations in the uterine cavity areperformed in the appropriate suit (tank top and robe with wide sleeves, oilcloth apron and armbands). The sleeves of the robe are wrapped up to the shoulder; the hands are treated in the same way as before the operation. Skin damage on the hands is smeared with an iodine solution and filled with collodion.Boiled vaseline, lanolin, or enveloping and disinfecting ointments are rubbed into the skin of the hands. It is advisable to use a rubbersleeve from a veterinary gynecological glove. Surgical intervention shouldbe performed on the background of anesthesia (sacral, according to A.D. Nozdrachev, G. S. Fateev, etc.).

At the end of the preparation of the right hand, grabthe protruding section of the fetal membranes with the left hand, twist it around the axis and slightlytighten it, trying not to break it. The right hand is inserted into the uterus, where it is easyto

identify areas of attachment of the fetal placenta, focusing on the course of strainedvessels and vascular membrane tissues.

The fetal part of the placenta is separated from the maternal part carefully and-consistently; the index and middle fingers are placed under the placenta of the chorion and separated from the caruncle with a few short movements. Sometimes it is more convenient to grab the edge of the fetal placentawith your thumb and forefingerand carefully pull the villi out of the crypts.

It is especially difficult to manipulate the afterbirth at the top of the horn, since with an atonic uterus and a short armof the shark, the fingers do not reach the boils. Then the horn of the uterus is slightly pulled up by the afterbirth to the cervix, or, extending the fingers and resting them against the wall of the horn, sharplyraise it up, andthen, quickly squeezing the hand, move it forward and down. Repeating the technique several times, it is possible to "put" the uterine horn on your hand, get to the placenta and, having captured it, separate it. The work is made easier if the protruding part of the placenta is twisted around its axis: this reduces itsvolume, frees the hand through the cervix and slightly tightensthe deeply located placentas outwards. Sometimes uterine boils break off and bleeding occurs, but it quickly and independentlystops.

With partial retention of the placenta, non-separated placentas are easily detected by palpation: caruncles have a rounded shape and elasticconsistency, while the remnants of the placenta are pasty or velvety.

During the operation, it is necessary to monitor cleanliness, repeatedly wash your hands and again rub the enveloping substance into the skin.

Afterthe final separation of the fetus, it is useful to introduce no more than 0.5 liters of Lugol solution into the uterus;penicillin, streptomycin,streptocide, uterine sticks or suppositories with nitrofurans, metromax, exuter are also used. However, you can not use several antibioticswith the same organotropic toxicity at once, this leads to synergy and the development of severe complications. The sensitivityof pathogenic microflora to the antibiotics used should be taken into account.

In the absence of a putrefactive processin the uterus, it is considered more appropriateto use the dry method of placenta separation; in this case, no disinfectant solutions are introduced into the uteruseither before or after surgical separation of the placenta (V. S. Shipilov, V. I. Rubtsov). With this method, there are fewerindividual complications,and the ability of animals to reproduce offspring and theirproductivity is restored faster. In case of putrefactive decomposition afterda, it is necessary to douche the uterus with the obligatory subsequent removalof the wound.

In order to prevent endometritis in cows, after separation of the afterbirth, conservative treatment should be continued for 5-7 days, ensuring anincrease in uterine tone and preventing the reproduction of microflora in it. Various methodsof novocaine therapy,intramuscular administration of 10-15 ml of 7%ichthyol solution in 40% glucose solution, intrauterine suppositories give a good effect. All these methods shouldbe combined with the use of natural methods to increase the body's resistance and afterthe birth activation of sexual function (active exercise, etc.).

In m a r e s, the delayedafterbirth begins to be separated no later than 2 hours after the birth of the fetus. With one hand, the placenta protruding from the birth

canal is captured, and the other hand is inserted between the chorion and the uterine mucosa. Gradually and carefullymoving your fingers, pull the villi out of the crypts. It is advisable to twist the placenta: the protruding part of it is graduallyturned around the axis with both hands and very carefullysipped. At the same time, the chorion forms folds that facilitate the release of villi from the crypts.

With partial retention of the afterbirth in mares, especially after abortion,shapeless flabby film-like or filamentous masses are felt in the uterinecavity, as if stuck to the mucous membrane. If uterine atony is detected simultaneously withplacental expansion, as indicated by the large size of the uterine cavity, which the hand enters like a barrel, the animal should immediately be given uterine remedies andthe uterus should be induced to contract bypumping and douching. When douching the uterus, it is necessary to follow the rules of asepsis and antiseptics especially carefullyand remove the solution introduced into theuterus; otherwise, there are almost always serious consequences. Along with local treatment, you can tryinjecting 1%synestrol oil solution (3-5 ml) under the skin.

U o v e t s and koz afterbirth is separated 3 hours after the birth of fruits. With surgical intervention (asmall hand is needed), the separation of the fetal placentas is achieved by gradualcompression of their base, as a result of which the fetal part is squeezed out of the "nest" of the maternal part of the placenta. With uterine atony, it is better to separate the afterbirth by gradually twisting it around the axis. To increase the toneof the uterus, a 40% glucose solution or a 10% calcium gluconate solution is used intravenously at the rate of 2 ml per 1 kg of live weight; a 10% calcium chloride solution of 0.5-0.75 ml per 1 kg of animal; under the skin-pituitrin " P " or oxytocin-10-15 UNITS.

In p i g s, afterbirth retention is a very bad sign, as septic conditions can quickly develop. Apply uterine remedies:oxytocin - 20-30 units, 0.5% solution ofproserin or 1% solution of furamon in a dose of 0.8-1.2 ml and other drugs. To suppress the reproductionof microflora, 200-300 ml of a solution of ethacridine lactate 1: 1000, furacilin 1:5000, or the contents of one bottle of tricillindissolved in 250 ml of water, 1-2 gynaecological rods are introduced intothe uterus. Douching of the uterus does not givea positive result, and it is impossible to separate the afterbirth by handdue to the anatomical features of the pig uterus.

I n d o g s and c a t s задержание , afterbirth retention is accompaniedby severe complications. Enter oxytocin (5-10 units), pituitrin, and other uterine agents. You can recommend massaging the uterus through the abdominal walls along thedirection from the chest to the pelvis.

In animals of all species, whenbody temperature rises and other signs ofa local complication occur, it is useful to use penicillin and other antibiotics for the preventionof postpartum sepsis.

Prolapse (eversion) of the uterus (Prolapsus et inversion uteri) is a complication of labor. It occurs mainly in cows and goats, less often in mares and other animals with uterinehyperextension (dropsy of the fetal membranes, multiple pregnancies), and flabbiness of its muscles. The main predisposing factor isthe lack of active exercise duringpregnancy.

Rapid removal of the fetus, especially in dry birth canal conditions, when-negative pressure is created in the uterine cavity and close contact between the fetus and the uterine mucosa, canlead to stretching of the uterus and after the fetus and its complete eversion.

Prolapse of the uterus can occur at the time of delivery when the umbilical cord is too short but strong, or spontaneously, especially with increasedintra-abdominal pressure (coliki, tympania, feeding with bulky feeds). There are cases of spontaneous uterine prolapse immediatelyor after 1-2 hours and after an easy delivery. Often, uterine prolapseis a complication of afterbirth retention, especially when stones and other heavy objects are tied to the protruding part of the afterbirth. Rarely, the uterus falls out into the vagina through a rupture of its wall. Rabbits lose both uteri or onlyone. In carnivores, mostly complete loss of one horn is observed with invagination of the second.

Clinical signs. Inversionof the uterus is not characterized by any strictly specific signs. The animal is worried, behaves as in colicah, attempts are observed. During rectalexamination, it is sometimes possible to feel the fold formed bythe bent walls of the uterus.

When the uterus is completely prolapsedружных половых органов выступает , a round or pear-shaped mass protrudes from the external genitalia, sometimes descending to the hockjoint. Cows, sheep, and goats havesucculent, sometimes bleeding boils hanging in clusters. In pigs, the uterus resembles loops of intestines. In the mare, the surface of the fallen uterus is smooth or slightly velvety.

In carnivores, the fallen horn has the shape of a rounded body with a depressedtip. If the prolapse is complete,ловой щели выступает раздваивающаяся a round tube with characteristic indentations of the peripheral ends of the horns protrudes from the nasal fissure, which bifurcates at the endsми вдавливаниями периферических .

Sometimes prolapses of the uterus, rectum and bladder are combined. The latter may fall out through a vaginal wound or throughthe urethra.

In case of intussusception, if it is notaccompanied by an inflammatory reaction, the invaginated area may spontaneously expand. Areasof the serous membrane that are in contact in the crease are usually connected to each other as a resultof adhesive inflammation; exudate accumulates in the resulting cavities of the mucousmembrane, which can resolve. The process takes a chronic course, manifested by persistent endometritis and infertility. At the site of the soldered folds, a thickening occurs that disrupts the normal course of pregnancy, even if fertilization has occurred. In the area of invagination, purulent or putrefactive inflammation sometimes develops, ending in a generalized form of purulent peritonitis or general sepsis.

The uterus that has fallen out is initially brightpink or red in color. With the development of stagnant phenomena, its surface becomes blue, dark gray. The mucous membrane swells and becomes jellyvisible; it is easily injured, bleeds, "cracks" when dried. Over time, signs of inflammation appear, as well as necrosis ofthe mucous membrane, characterized by fibrinousdeposits, dirty-brownscabs, placental disintegration, and abundant separation of soft, crumbly masses.

Iftreatment is not started in a timely manner, the uterine tissues become gangrenous and the processends with sepsis.

The treatment is operative. Ifthe pathological process of uterine intussusception is not started, you should try tocorrect the uterus by hand or by injecting large amounts of disinfectant solutions into its cavity. Inthe latter case, the animal is given a position with a raised croup. The expansion of the uterine fold is sometimes facilitated by narkoz or epidural anesthesia.

Ifmore than 2 days have elapsed after uterine intussusception, as a rule, it is not possible to straighten its fold, and medical intervention is limited to symptomatic-treatment.

In case of complete prolapse of the uterus, sacral anesthesia (or intravenous alcohol anesthesia) should be performed first before its reduction,then the mucous membrane should be thoroughlycleaned and disinfected. The delayedafterbirth is separated. The entire surfaceof the organ is thoroughly washed with a cold astringent solution (tannin, alum, potassium permanganate), and in thepresence of necrotic areas - with a warm one. Dead tricks are then burned withlapis or smeared with an iodine solution. An enlargeduterus due to oedema can be somewhat reduced in some cases by using a tight bandagedtowel or a wide bandage. Wounds should be revived and closed with a catgutsuture. Reducing the volume of the uterus can be promoted by introducing oxytocin into the thickness of the muscle layer at several points (a total dose of 40-50 units).

After this preliminary treatment, the uterus is set in motion. To do this, the animal, regardless of the species, is given a position withthe croup raised high. Reduction can be started from the top of the horn or from the body of the uterus. In the first variant, a towel is wrapped around the fist and thetipof the horn is pushed forward with careful pressure. At this time, the assistant facilitates the reduction by applying pressure with his hands on the area of the fallen and bent uterus. When pushed into the pelvic cavity, the body of the uterus or, conversely, its upper part returns first. The reduction sequence is not essential. Depending on the circumstances of the operation, various combinations are used. Underan hour, you can quickly set the uterus, if it is previously bandaged in the direction from the tip to the vulva.- Holding the entire bandaged part with both hands, it is pressed into the pelviccavity; asthe caudal areas return to the pelvis, the uterus is released from the bandage. In small animals, after raising the croup, a disinfectant solution is poured under pressure into the remaining part of the horn that is not turned out, and at the same вправляют пальцами находящиеся снatime the areas inside the rifle are set with your fingers. The reconstituted uterus needs to be strengthened, as the prolapse can easilyrecur. To keep the uterus in its normal position afterinsertion, try to increase the tone of its musclesby stroking the mucous membrane with a hand inserted through the vagina, and stimulating the involution of the musclelayer by infusing cold solutions. Along with this, it is also useful to holdthe uterus with your hand for 0.5-1 hours. To strengthen the prolapsed uterus, it is fixedwith a soccer ball chamber inserted into the vagina and inflated with air. The swollen chamber is tightlypressed to the pelvic bones, clogging its lumen. In combination with a strongbandage or rope loops, this method prevents repeateduterine prolapses. The negative side of it is the

infringement ofthe urethra. To prevent the occurrence of urinary colic and other complications, it is necessary to give the animal the opportunityto empty the bladder and rectum 4-5 hours after vaginal discharge.The greatest effect is achieved by suturing the vulva, as in the case of vaginal prolapse. In dogs and cats, the uterus can be rectified after laparotomy, and strengthened for a monthby stitching a few stitches ofserous suture to the abdominal wall. Sometimes prolapse of the uterus is accompaniedby prolapse of the rectum andbladder. They are also set. Afteruterine reduction, persistent endometritis often develops, causing infertility.

If the uterus that has fallen out is severelydamaged, contaminated, ornecrotized, it is useless to set it back and even dangerous for the animal's life. In suchcases, the uterus is amputated (see "Workshop on Obstetrics, Gynecology, and artificial insemination of agricultural animals").

Postpartum paresis (Coma puerperalis) (puerperal paresis, coma of dairy cows, postpartumhypocalcemia) is an acute severe diseaseof animals, accompanied by paresis of the tongue and other organs of the gastrointestinal tract, limbs, and a comatose state.It is recorded in cows, goats, sheep and rarely in pigs.

The disease is caused by a complex of causes. First of all, this is an unbalanced diet for calcium andphosphorus, a lack of vitamin D, and a general excess diet (protein-richfoods), which leads to obeseanimals. It is mainly cows with high milk production that get sick, during the period of reaching the highest milk production, during stablemaintenance, for the first 3 days of the postpartum period, after light and rapiddelivery; rarely paresis develops a few weeks or months after calving and, as an exception,in pregnant animals or during childbirth. In some cows and goats, puerperal paresis recurs after each delivery.

To explain the causes of the disease, there are a significant numberof theories that try to link the clinical signs of paresis with the etiological prerequisites noted above.However, most of these theories are not supported by experiment andpractice.

It was found that during the postpartum period, the blood sugar content drops sharply (2parts per 10,000 with 8 parts normal). This was the reason to explain the occurrence of postpartum paresis as a consequence of hypoglycemia. Some authors see the cause of puerperal paresis in the increased activity of the pancreas, in which, under the influence of hyperemia, a large amount of insulin is produced, which causes hypoglycemia. Special studies have shown that cowsdevelop a typical pattern of puerperal paresis after injecting 950 units of insulin. After injecting 40 ml of a 20% glucose solution, all signs of the disease quickly disappear. The occurrence of postpartum paresis is associated with hypocalcemia, hypophosphorismia and hypomagnesemia, which appear due to inhibition of the function of the parathyroid glands as a result of their hyperemia during childbirth and general nervous overexcitation. In postpartum paresis, there are significant changes in carbohydrate and protein metabolism.

It should be assumed that postpartumparesis is a disease that occurs asa result of overexertion (exhaustion or inhibition) of the nervous system, and inparticular, analyzers of the cerebral cortex for impulses coming from the baro - and chemoreceptors of the sexual apparatus and other internal organs directly or indirectly involved in the birth act.

When treating postpartum paresis by blowing air into the mammary gland or injecting a glucose or calcium solution into a vein, baro - and cheoreceptorsare irritated, which are located in large numbers in the wallsof the mammary cyst, milk passages and blood vessels. In response to this irritation, blood pressure, respiratory rate change, and most importantly,the reactivity of the cerebral cortex is quickly restored, which equalizesthe function of all other body systems.

Clinical signs. Postpartum paresis can occur in the form of a typical general semi-paralysis or some malaise and a decrease in vital processes in the body. The disease beginswith general depression or, conversely, agitation. Appetite is absent,walking is uncertain; there is a general tremor or twitching of individualmuscle groups of the trunk and limbs. The whole body, especially the horns and limbs, is cold. The cow is lying on her chest withher legs bowed, her pupils dilated and her eyes blank, her head thrown to one side. When pulling on the horns, it is easy to give the head a natural position, but once you stopholding the head, the neck bends again andthe head is located on the side wall of the chest. The palpebral reflexis blocked or absent. Tears are released. Over time, the cornea driesup and becomes cloudy. Mouth slightly open; tongue protruding.

The act of swallowing is partially or completely disrupted due to paralysis of the tongue and pharynx. There is no peristalsis. In the rectum, dry, dense feces are found. The bladderis full. As a rule,tympania develops. Breathing is slow, hoarse (sinking of the tongue and accumulation of saliva). Udder veins are injected; milk is absent or not released inlarge quantities. When the disease occurs during childbirth (it is rare), contractions and attempts stop, fetal excretion is delayed.

It is characterized by a decrease in body temperature to 35-36°C. With a weakly expressedform of the disease (atypical form), the body temperature sometimes does not fallbelow 37-37. 5°C and may even remain normal. The animal is depressed, the appetite is weakened, often absent. Somesick cows are ableto stand up independently and move with difficulty. When lying down, there is a characteristic S-shaped curvature of the neck. Sometimes postpartum paresis is manifested only by a slight depression and general lethargy, atony of the gastrointestinal tract and shaky gait. In such cases, air injection into the udder should be used for differential diagnosis.

Forecast. The faster the process progresses, the more severe the disease is and the more difficult it is to treat. With timely intervention (within the first 24 - 48 hours), 90% of sick cows recover. Without medical intervention, the animal(almost as a rule) dies duringthe first 12-24 hours of tympania, rarely the disease is prolonged for 5-12 days. Very rarely, on the 2nd-3rd day, the general condition of the animal beginsto improve unexpectedly and quickly, and all signs of the disease disappear. If the disease isprolonged, the phenomenaof collapse increase and the animal dies unnoticed or in severe atonal convulsions. Mostdeaths are caused by tympania or aspiration bronchopneumonia.

Increased body temperature, improvedpulse rate, the ability to raise the head, restoration of the palpebral reflex, and especially peristalsis are signs of thebeginning of recovery.

In atypical cases (paresis before delivery, a few weeks or months after delivery), the disease often takes a prolonged form and treatment does not givepositive results. In the atypical formof puerperal paresis, transport sickness andintestinal intoxication (acetonemia, etc.) should be excluded.

Treatment. For the treatment of animals with postpartum paresis, the most diverse methods of general and local nature were proposed, but none of them gave an effect. Only with the discovery by Schmidt of the method of pumping air into the mammary gland through the milk channel and cistern, maternity paresis ceased to be a scourge of livestock farms. The Schmidt methodhas superseded all others in terms of its simplicity and accessibility in any situation and is currentlythe most common andeffective.

To blow air into the milktube, use an Evers device witha pressure balloon, or a bicycle pump connected by a rubber tube to the milkcatheter. To preventinfection of the breast, a cotton filter is inserted into the rubber hose. Before injecting air, the cow is placed in a dorsal position, milk is given out and the tips of the nipples are wiped with a desolution, a catheter is carefully inserted into the nipple canal and air is gradually pumped in. Gradual pumping of airexerts a more intenseeffect on the receptor elements thaneven its introduction. After pumping air into all quarters, it is necessaryto pump it again into the quarters thatwere pumped first, since after straightening the adjacent udder lobes, the pressure in the first lobes weakens.

The dosage of air is determined by practice; the criterion in this respect can be the general tension of the skin of the breast (folds are straightened), and most importantly, the appearance of a tympanic sound when clicking your fingers on the skin of the udder (the same sensations and sound are obtained when clicking your fingers on a tense, strongly stretched air "inflated" cheek).

When insufficient air is injected into the udderное количество воздуха, лечебного эф, there may be no therapeutic effect. If the udder is inflated excessively and rapidly, the alveoli open and subcutaneousemphysema occurs, which is easily established by palpation (crepitation of the subcutaneous tissue). Air that has broken out of the breast resolves over time, but damageto the organ parenchyma negatively affects the milk productivity of the animal.

After blowing in air, you should gentlymassage the tips of the nipplesto encourage the sphincter muscle to contract and prevent the release of air. If the sphincter is weak and the air is not retained, it is recommended to slightlyretract the nipple with a strip of cloth,such as a point from the bandage, but not with thread, since thread can cause necrosis of thenipple periphery or paralysis of the sphincter muscles. After 2 hours, the bandages are removed. Sometimes, within 15-20 minutes after blowing air, the cow shows signs of improvement in general condition, quickly gets up and immediately begins to eat food. More often, the signs of the donkey's disease subside gradually, and the animal's conditionrecovers to normalslowly. Often, before and after liftinga goat (goat) to its feet, it has a general muscle tremorthat lasts for several hours.

In most cases, a single injection of air is sufficient to cure the animal, but if there is no improvement after 6-8 hours, it is necessary to re-inject the air. It is

advisable tocombine the described method with symptomatic treatment (warm wrapping, rubbing the croup and sides, introducing caffeine under the skin, releasing the rectum from fecal masses by exploration, hot enemas). If the animal's life is threatened by tympanum, the scar is immediately punctured with a trocar or a thick needle and 20-40 ml of a 40% formalin solution or 300-400 ml of a 5% alcohol (wine) ichthyol solution is inserted through them into the scar cavity. In postpartum paresis,it is strictly forbidden to forcibly pour liquid medicines into the mouth of the animal (aspiration bronchopneumonia develops).

Along with air pumping, it is advisable to use intravenous injectionsof 10% solutions of calciumchloride (100-400 ml) or gluconate (100-200 ml), 20% glucose solution (200-400 ml), and subcutaneously-20% solution of sodium caffeine benzoate (15-25 ml)V.S. Kirillov recommends to eliminatepuerperal paresis by intravenous infusion of 600-2000 ml (depending on the udder capacity) of fresh milk from a healthy cow. In this case, aspractice has shown, recoveryis faster, is not accompanied-by muscle tremors, and usually does not require the use of cardiac and other means. Even better results are obtained by adding milkheated to 48 °C to one quarter of the udder. If thedose does not rise after 1-1. 5 hours,repeat the infusion in the same quarter. Usually, after the second infusion, all signs of the disease disappear in 20-30 minutes. You can milk a cow only 1-2 hours after it gets up. When milking, do not squeeze thelast breath out of the udder. It is necessary to give out only milk (before the appearance of air). There are cases when, despite the most diverse methods of treatment, animals do not recover, then they have to be killed. As a preventive measure, we can recommendeliminating all factors that predisposeto the disease. In particular, it is appropriateto give sugar 200-300 g per day a few days before calving and for the first 3-4 days of the puerperal period, mineralfertilization throughout pregnancy. According to a number of authors, a good effect is obtained fromintramuscular injections of vitamin D with simultaneous giving of 100-140 g of ammonium chloride per day with food. This promotes better absorption of calcium from the feed in the intestines, as wellas its mobilization from the animal's bone tissue. For 1-2 weeks. before delivery and for 7-10 days after it, concentrates and juicy feeds should be removed from the diet, and regular, daily exercise should be used, especially during the dry period.Draughts should be eliminated in hospitals and maternitywards, since some authors explain the occurrence of puerperal paresisas a cold (N. F. Myshkin). In goats and sheep, the disease proceedsin the same way as in cows. Apply the same methods of treatment. In pigs, paresis appears on the 2nd-5th day after delivery andis accompanied by very severe depression. A sickpig usually lies sprawled. All her reflexes fail; she breathes with a groan. The mammary gland is full and very hyperemic. The body temperature drops to 37-37. 5°C.

The forecast is favorable. Treatment. Prescribe warm wraps, breast massage withcamphor oil, enemas with sugar and laxatives of medium salt.

VULVITIS, VESTIBULITIS AND VAGINITIS

Inflammation of the external genitaliais possible in animals of all kinds, but mainly occurs in cows. According to the nature of the inflammatory process, serous, catarrhal, hemorrhagic, fibrinous, purulent, gangrenous and other forms of inflammationof the vulva andvestibule of the vaginaare distinguished. Vulvitis and

vestibulitis can developindependently as a resultof the introduction of the infectious agent or appear as complications of trauma during childbirth, coitus, and when-inflammation spreads from the endometrium and other parts of the genital tract. In this regard, the signs of inflammation can have a number of variations in the formof specific and mixed processes.Usually, the lesion of one area of the external genitalia extends to adjacent departments, and the veterinary specialist often deals **with** vestibulovaginitis,etc.

Serous vaginitis and vestibulitis. They are characterizedby the development of an inflammatoryprocess with profuse effusion in the serous exudate tissue. The general-state of the animal remains unchanged; the mucous membrane of the affected area is tense, covered with pinpoint or striped hemorrhages, its folds are straightened. The focusof inflammation and surrounding tissues are focal or diffuse edematous and painful; however, sometimes the animal does not respond even to significant pressure. With a highlypronounced form of serous inflammation, vesicles, erosions, and necrotic areas of various sizes form on the vulvar mucosa.

Treatment. Among the generally accepted remedies for the treatment of vaginitis in serous inflammation, irrigation with astringent and cauterizingsolutions should be preferred (tannin 5-10%; potassium permanganate перманганат 1: 500-1000; Cuprum or Zincum sulfuricum 15-30: 1000; Plumbum aceticum 1-5: 1000; Argentum nitricum 1-2: 1000; chamomile infusion, etc.). it is necessary to alternate with the introduction of ointments, disinfecting swabs or candles.

Acute and chronic catarrhal vaginitis and vestibulitis (Vaginitis et vestibulitis catarrhalis acuta et chronica). The acute course of the disease is manifested by edema, the surface of the mucousmembrane is dull, covered with cloudycatarrhal exudate, which is released from the genital fissure and dries up on the skin and tail in the form of gray-yellow films andbones. After exudate removal, striated and punctate mucosal hyperemia is detected. Witha chronic course, the mucous membrane becomes dense and pale. Insome areas, flattenedislets and nodules are felt,which protrude when viewed through a mirror in the form of elevations with a paler color.

Forecast. In acute cases, favorable; chronic inflammation is often complicated by purulent.

Treatment. To remove exudate, irrigation with a 1-2% solution of bicarbonate of soda is used, followed by douching with anaseptic solution, the introduction of ointments,tampons with sulfonamide preparations or combined emulsions of antibiotics, gynecological suppositories.

Acute and chronic purulentvaginitis and vestibulitis (Vaginitis et vestibulitis purulenta acuta et chronica).They are usually a complication of serous orcaural inflammation;post-trauma occurs during labor and coitus.

Clinical signs. A characteristic difference between purulent vestibulovaginitis and other forms of inflammation is the abundant release of white, yellow or yellow-brown (blood admixture) pus. The vulva, vestibule, and vagina are very swollen and painful. Acts of defecation and urination are accompanied by moaning ofthe animal and strong arching of the back. Often, the disease occurs with a general reaction of the body in the formof depression, an increase in body temperaturein cows-hypogalactia. In the chronic course of inflammation, more or less significant ulceration of the

mucous membrane, adhesions, strictures, and even overgrowth of the vagina are observed. Insome cases, due to narrowingof the vestibule lumen, a significant amount of purulent catarrhal exudate accumulates in the vaginal cavity and stretches ittельное количество гнойнокатарально. Purulent exudateis released from the genitals whenthe animal is lying down, after defecation andurination. The exudate retained in the moistureoften decomposes, acquiringa putrid smell.

Forecast. It is life-friendly and questionable in termsof reproduction, since the process easilypasses on to the cervix and creates unfavorableconditions for fertilization.

Treatment. Frequent irrigation withaseptic and hypertonic solutions of medium salts, tamponade with ichthyol-glycerol, iodoglycerol, sulfanilamidepreparations,-combined emulsions of antibiotics, and the introduction of suppositories.

10-lecture. POSTPARTUM UTERINE DISEASES IN ANIMALS

Training elements:

1. Postpartum metritis in animals
2. Subinvolution of the uterus
3. Postpartum general infection

Postpartum acute purulent-catarrhal endometritis. With delayed intervention, postpartum acute catarrhal inflammationof the uterine mucosa usuallyturns into purulent-catarrhal inflammation (Endometritis) (Endometritis puerperalis catarrhalis purulenta acuta). Introduction of the causative agent of the disease occurs through the cervix orhematogenically.

Clinical signs. The general condition ofthe animal is usually unchanged. Sometimes there is a slight fever, decreased appetite and milk secretion.Mucosal or mucopurulent exudate is released from the external genitalia, which is more liquid inan intense inflammatory process. Usually, the dischargeof exudate from the sexual organs is detected in the morning byits presence on the floor where the animal was lying. At times, the animal gets into a pose for urination, moans and bends its back. In the vestibule and inthe vagina, pathologic changes are not detected. The cervix is usually slightly open. Rectal examination reveals an increase in one or both hornsof the uterus; they do not respond well to palpation. Less often, fluctuation of the uterus is established when exudate accumulates in its cavity. In the postpartum period, catarrhal endometritis can easily be mistaken for normal uterine involution. Time decides the issue. Before the expiration of the period requiredfor postpartum cleansing (for an animal of this species), catarrhalendometritis can only be considered presumably. Usually, the signs of the disease gradually weaken, and

within 1-2 weeks the animal recovers. Sometimes the processtakes on a protracted character and turns into chronic catarrhal or purulent-catarrhal.

Treatment. It is necessary to ensurean increase in the body's resistance, suppressionof microflora in the uterus and evacuation of its contents. A good therapeutic effect is obtained by removing exudate, pressing the uterus through the rectum,sucking or douching (a double-flow catheter is used) in combination with uterine agents.комендуется глубоко вводить во влагалище ихтиол-глицериновые тампоны. V. A. Akatov noted good results from3-4 intramuscular injections of 20-40 ml of 5-10% aqueous ichthyol solution for 3-4 days. In recent years, a 7% solution of ichthyolin a dose of 25-30 ml with an interval of 48 hours (3-6 injections) is more often administered, furazolidone uterine suppositories or sticks are used in the uterine cavity.

Due to the narrowing of the cervical canal, the introduction of suppositories becomesimpossible and they should be replacedwith liquid medications (nitvisol, iodismutsulfamide emulsion, biosan, spumosan, streptofur, tetramycoin, eridone, etc., Table 17). Intrauterine administration of drugs is advantageous to combine with novocaine therapy. In pigs, the POS-5 device is used to inject lefuran into the uterus, heated tobody temperature (0.5 ml / kg, repeated after 48 hours), or at intervals of 12-24 hours the following combinations of drugs in the form of oil or water suspensions: 1) furatsilin-1 g, furazolidone-0.5, neomycin-1.5, penicillin-1.5, norsulfazol-5 g; 2) oxytetracycline-1.5 g, neomycin-1.5, polymyxin-M-0.15 g; 3) septimethrin-2-3 capsules. You can pour 300-500 ml of a 1-2% solution of micerin or neomycin, etacridine lactate 1: 1000 into the uterus.

To accelerate the evacuation of exudate from the uterus, 20-30 units of oxytocin, 0.8 ml of 0.1% carbacholine solution or 0.5% prozerin solution are injected. M. A. Bagmanov (1997) for the treatment and prevention of endometritis in cows, "choriophage" is a placenta extract with specific bacteriophages. It is administered to the cow in the loose fiber of the pararectal pits on both sides of half the dose at the rate of 0.1 ml per 1 kg of live weight 5-6 times with an interval of 48 hours. If indicated, antibiotics, caffeine, and other symptomatic medications are administered intramuscularly. Good results were obtained with the blockade according to V. V. Mosin in combination with antimicrobial agents (A. G. Shekhvatov).

Postpartum fibrinous endometritis (Endometritis fibrinosa puerperalis) is an inflammation of the uterine mucosa, accompanied by an effusion of fibrin into its cavity. The animal does not show any changes in its general condition. From the genitals, a yellow-brown mucous mass is released, containing flakes or even pieces of fibrin.

The forecast is favorable.

Treatment. Irrigate the uterus with hypertonic solutions of medium salts, apply ointments and uterine products. When the temperature rises, antibiotics are used.

Postpartum perimetritis (puerperalisis aninflammation of the serous lining of the uterus, often purulent or fibrinous in nature, expressedby exfoliation of the mesothelium, deposition of fibrin films, formation of abscesses or fibrous adhesions

with adjacenttissues. Among the causes of this disease are microbes that enter throughthe lymphatic pathways and less often through the blood, sedimentation ofendometritis andendosalpingitis.

Clinical signs. The animal has general depression, lethargy, abdominal tightening, difficulty urinating and defecating, and high body temperature.Purulent exudate is often released from the external genitalsand uterus. However, sometimes no signs of endometritis are found.

The disease is mostly acute. The pathological processdevelops in a diffuse form, causing general peritonitis and death of the animal, especially mares. In cows, the disease can take a chronic course. In the postoperativecase, the perimetry fuses with the surrounding tissues. This causes displacement of the genitals and infertility, gastric dysfunction, and shock, followed by exhaustion and even death.

Treatment. Local (see "Treatment of endometritis") and general symptomatic therapy.

Postpartum parametritis (parametritisritis puerperalis) is an inflammation of the broad uterine ligaments or paravaginal tissue, usually occurring in the formof phlegmon and abscess.

Clinical signs. Повышается Body temperature rises, the vulva and vaginal mucosa swell, and urination and defecation are difficult. During rectal and vaginal examinations, abscesses can be detected by fluctuation and severe soreness.

The prognosis is questionable with regard to life-saving; after treatment, infertility or narrowing of the vaginal lumen remains.

Treatment. Prescribe antibiotics, hot douching of the vagina with disinfectingsolutions, ichthyol-glycerin tampons, enemas from a 1-2% solution of potassium iodide; ifabscesses adjacent to the vaginal wall are detected, they can be openedthrough the vagina.

Postpartum septicemia (Sepsis puerperalis) As a complicationof pathological labor, it occurs mainlyin carnivores witha falling placenta, and in cows and maresit is registered mainly as a complication of abortion (postabortalsepticemia) and postpartum trauma.

The causative agent of postpartum sepsis is more oftenhemolytic streptococci, relatively less often-staphylococci, Escherichia coli,pneumococci, etc. When wounds are infected with Bac. proteus,malignant edema bacilli, strains of anaerobicstaphylococci and streptococci, the generalinfection occurs in a putrid form. Under the influence of CI. chauvoei, CI. .-septicum, CI. oedematiens, CI.hystolyticum and other anaerobic bacteria, the general infection takes the formof gas gangrene.

Clinical signs. Usuallythe animal is depressed, there is no appetite, lactation stops, or milk isreleased in small amounts and becomes bluish or red in color. In the natural position, the animal stands, swaying, with difficulty lies down and gets up. Cows sometimes lie on their sideswith their heads turned to one side, as in rodielparesis. The body temperature reaches 40-41°C, but before death it often falls to normal or lower. Pulse is fast and weak. Breathing is rapid. Palpebral and skin reactions in most cases are weakened, but may also increase. There are skinexanthemas, petechial or pustular rashes, andmucosal bleeding due to toxic

damageto the vascular walls. Sometimes the cornea becomes cloudy. There may be bloody diarrhea or, conversely, behindthe pores.

In the sexual apparatus, it is possible to identify signs of an acute purulent-putrefactive process; sometimes no local pathological changes are noted. The absence of a reaction in the area of birth canal injury is considered a terrible harbinger: it indicates the weakness of the body's defenses and the severity of the disease. There are rarecases when microbes or their toxins accumulate in the blood so quickly and so much that not only the reaction at the site of damage, but also the general reaction of the body does not have time to develop, and the animal dies during coma phenomena.

If there are wounds in the area of the external genitalia, with the developmentof sepsis, the type of purulent-inflammatory focus also changes. The wound surface becomes dry, covered with a dirty fibrinous coating; pus production stops; granulations are absent or become sluggish and disintegrate.

The most characteristic featureof the septic process is the features of the criticalbody temperature: a steep rise, the absence of large fluctuations atthe reached maximum altitude, and a sharp critical drop during recovery or death. At the height of the disease, temperature fluctuations usuallydo not exceed 0.5-1 °C.

In the case of putrefactive infection inan inflamed focus, changes are mainly manifested by cleavage, decomposition of cell proteins into simpler chemical compounds (carbon dioxide, hydrogen, hydrogen sulfide, ammonia, etc.), which have a very strong toxiceffect and give the secretions a fetid smell. The tissues in the primary focus turn into a slimy fetid mass soakedin serous-bloody, dirty or brown-greenliquid, sometimes containing gases. As a resultof intoxication, sepsis develops.

In gas infection, almost no local signs of inflammation are found. When palpating the affected organ (uterus, vagina, vulva), crepitation is felt.

There is severe jaundice of the mucous membranes, especially the sclera, high body temperature (40-41°C), sometimes falling below normal, severe shortness of breath. It is characterized by the preservationof consciousness; the animal responds to calls andexclamations before the onset of agony.

The septic process in animals of different species has its own characteristics. In mares, it is acute, andusually animals die after 2-3 days. Incows, especially in emphysematous fetuses, and in sheep, deathoccurs more often on the 2nd-4th day;the disease can last for 6-8 days or longer. Goats often have uterine necrosis, and they die quickly as a result. In pigs, dogs and cats, sepsis usually occurs as a result of difficult labor, mainly with the development of emphysematous fetuses, and lasts from 5-7 hours to 3 days, usually ending in the death of animals.

If postpartum sepsistakes on the character of a putrefactive or gas process, the animal, despite allmedical measures, usuallydies within 2-3 days.

11-lecture. DISEASES AND ANOMALIES OF NEWBORNS.

Training elements:

1. Anatomical and physiological features of newborn animals. Causes the birth of a fetus with low nonspecific immunity.
2. Asphyxia.
3. Colostrum toxicosis. Alimentary hypotrophy
4. Constipation in newborns.
5. Congenital absence of anal opening and rectum in newborns.
6. Bleeding from the navel. Diseases of the navel.
7. Ruled the care and feeding of newborns.

Anatomical and physiological features of young animals

Young farm animals have three stages of growth and development. The first stage isthe neonatal period, or colostrum (earlyneonatal) period, 1-10 days after birth. The second stage is the period of milk nutrition from 10 days to 6months and the third stage is the period of puberty from 6-8 months to puberty.

Especially difficult in terms of adaptationляется период is the period of stillbirth, when placental respiration is replaced by pulmonary respiration, and endogenous nutrition is replaced by ecogenicnutrition. Under the condition of normal intrauterine development, young animals are born quite mature, with formeddigestive, respiratory, urinary, cardiovascular, nervous and other systemsthat allow them to quickly adapt to environmental conditions.

In newborn ruminants, synovialand intestinal digestion occurs. The function of the scar, grid, and book is very small. Rennet digestion in the first 24 hours is also weakly expressed, since there is no free hydrochloric acid in its contents andproteolytic enzymes are weakly active. This allows colostrum's immune proteins to pass through unchanged and be absorbed into the blood, creating colostral immunity. At the same time, the absence offree hydrochloric acid in the rennet content (pH 4.5-6.1) and the weak proteolytic activity of enzymes create favorable conditions for the development of harmful microflora. The activity of rennet digestion increases 24-36 hours afterbirth. Abomasum grows faster than the scar until almost one month of age. Then the growth of the latter increases and by the time of transition, for example, a calf to vegetable feed, the rumen is equal in volume to abomasum, and by the timeof sexual maturation (6-9 months) it is 5-6 times larger than it. At birth, the abomasum-to-rumen ratio is 2-3:1.

The first ruminant periods in calves appear at 3months of age, in lambs-a little earlier. Calves at one month of age have 1-3 weak contractions of the scar in 2 minutes, and at 2-4 monthsof age-2-4 contractions in 2 minutes. Therefore, it is not advisable to feed calves up to 3 weeks of age with coarse feed.

In calves up to 2 months of age, the function of the esophageal trough is of great importance, which ensuresthe flow of colostrum (milk) to the rennet, and not to the rumen. Closing the lips of the esophageal gutter occursreflexively. The receptors for this reflex are located on the tongue and the mucous membrane of the front of the mouth and pharynx. The center of the esophageal gut is laid in the medulla oblongata, fromwhich signals are sent to the muscles of the gutter, and it closes. The method of drinking colostrum (milk) is of great importance for the reflex of closing the esophagealchute. Sucking the udder, drinking from the teat drinker contribute to

a more active and timely closing of the esophageal chute. At the same time, when forced ingestion of food, greedy drinking of milk from a bucket, the esophageal chute does not close and the ingestedfood mass does not fall into the abomasum, but into the rumen, where it rotts. There are frequent cases of congenital abnormalities in the foodgutter. According to the data of German authors (L.. Dirr, G. and G.Dirksen, 1989), out of 249 calves under 2 weeks of age with signs of acute catarrhal enteritis, 2.2% of the animals were found to have congenital non -closure of the esophagus. Out of 29 such calves, 2 fell. After 2 months of age, the esophageal gut reflex gradually fades.

In newborn animals, the reactionof the stomach (rennet) to the temperature of milk (colostrum) and water is strongly expressed. When drinking cold milk to calves (2-14°C)C) or preheated(42-45°C and higher) of milk is accelerated evacuation of the contents of the abomasum in the duodenum, digestion is disturbed.

In the first weeks after birth, the animals undergointensive growth and differentiation of cellular elements of the mucous membrane of the digestive tube. The degree of maturity of the tissue elements of the stomach (rennet) and intestines depends on the quality of nutrition of the mother during pregnancy. For example, the abomasum, pre-ventricles, and intestines of calves born from emaciated cows correspond to the morpho-functional state of these organs in a 7-8-month-old fetus (A. A. Turevsky).

Morpho-functional immaturity of the central nervoussystem and esophageal tube in fetuses leads to a delay in the implementationof the sucking position, delayed intake of immunoglobulins, energy,plastic and biologically active substances into the calf's body.

The most important age-related feature of newborn farm animals is that they are born with very weak immune defenses. The typeof placenta of cows, as well as sheep, pigs and mares, excludes the direct transfer of immune proteins from the mother's blood to the fetus, so the offspring is born almost without the content of immune globulins in the blood. Saturation of immune proteins in the body of a calf, and even a lamb, pig,or child, occurs due to colostrum in the first 24 hours of life, when pepsin and trypsinogen are inactive and immuneproteins are not digested. At this crucial timeсоздается , colostral immunity is created. In predators, placenta passes immune proteins, so puppies and kittens are born with a certain immune protection.

In newborn piglets, free hydrochloric acid (achlorgia) is absent in the stomach contentsand intestinal digestion is mainly performed. In suckling piglets, the pancreas functions intensively. This compensates for the lack of gastrointestinal-digestion. The period of age-related achlorgia is significantly reduced when piglets are fed early with toastedbarley grain and other dry foods that increase the release of hydrochloric acid.

Lung function in newborn animals depends on the degree of maturity of the fetus. Physiologically immaturenewborns due to antenatal alteration of the respiratorycenter have defective apneistic respiration of small amplitude. The lungs expand very slowly, over several hours or days. Incompleteexpansion of the lungs causes the formation of atolectase in themатолектаза.

In lambs, for example, the mucociliary system is not formed in the lungs at the time of birthмукоцилярная система, не достигают полной дифференцировки , and immune элемен-competent elements, supramembrane and membrane structures are not fully differentiated (N. A. NeUmyvakina, 1999). Therefore, newborn lambs are very susceptible to lung diseases. Complete differentiationof the immune defense structures is achieved by 3-4 months of age. Similar dynamics of the formation of protective mechanisms of lung tissue is observed in younganimals of other species.

Newborn animals are very sensitive to hypothermia, since the thermoregulation system is formed only by the 10th day of life.

The stump of the umbilical cord dries up in normally developed calves in 3-4 days, piglets-in 5-7 days after birth. The weight of newborn calves is 20-35 kg,-children-26-50 kg, lambs and goats-2-4 kg, piglets-1-1. 5 kg.

The newborn's body, which enters the external environment for the firsttime, naturally has to undergo a numberof changes and adapt to new living conditions. This process can be complicated by a violation of the functions ofindividual organs and systems of the newborn, sometimes causing their pathologicalstate.

Diseases in newborns develop as a result of errors in feeding, exploitation and maintenanceof pregnant females or newborns, incorrect selection of parental pairs for mating, duringpathological childbirth and congenitalanomalies. Therefore, the prevention of neonatal diseases should first of all consist in eliminating the above-mentioned shortcomings, in the proper operation of pregnant females, performinglabor in cows in boxes, raisingnewborn calves in sectionaldispensaries orindividual houses in the open air. Good results are achieved when rearing newborn calves with the use of regulated suckling of nursing cows, поддояatray for suckling during the preventiveperiod. Particularly harmfuleffects on the viability of the offspring late start-up of cows or permanent (continuous) milking, as milk from the body extracts a significant amount of substances necessary for the formation and growth of the fetus. If the launch is delayed, the dynamics of evolution and involution of the breast are disrupted, and this causes the absence or inferiority of colostrum, the most important food productof the newborn.стойным периодом, плохо подготовColostrum contains 2 times less immunoglobulins and vitamins than colostrum of healthy cows in cows with a short dry period and poorly prepared for childbirth2 раза меньше, чем в молозиве здоро. Improper feeding, exploitation, and maintenance ofpregnant females disrupts the normal growth and development of embryos and fetuses, resulting in the birth гипотрофикиof hyotrophs, which usually die inthe first days of life, and if they survive, they develop poorly, and they easilydevelop a wide varietyof diseases. Hypotrophy is a very favorable ground for the development of mass diseases. To increase vitality, F. F. Mullerrecommends infusing newborn calves, foals, and other animals with the blood of their mothers.

V. K. Kopytin achieved 100% preservationof hypotrophic calves of the Sychev breed as a result of careful licking by their mother cows, followed by the use поддояof the poddoya-suckling method throughout the entire preventive period. ГипотроHypotroids with a live weight below 19 kgcannot be spared, and they usually

die within the first day. Therefore, based on the results of the clinical study, a specialist should quickly assessthe development (maturity) of the newborn and its condition (see "Workshop on obstetrics, Gynecology and artificial insemination of agricultural animals").

Krupnoplodnost and melkoplodnost. The size of fetuses developing inthe uterus depends on the genetic properties of the fetus, placental area,maternal nutrition, and a combination of these factors. When crossing horses with ponies, large mothers have large-scale fertility, and small mothers have small-scale infertility. The same relationship is observed when crossingdifferent breeds of cattle. However, the size of the fetus is very much dependent on the mother's feeding during pregnancy. If a largeamount of carbohydrates (sugar industry waste) is included in the diet of pregnant cows, very largecalves (60 kg and above) will be born.

A large amount of fat in feed at the beginning of the second half of pregnancy (when the placenta develops) limitsthe size of the uterus, i.e. the areaof the placenta , and the fetuses will be born small. The weight of one fetus during pregnancy with twins in sheep at the beginning of pregnancy is the same as in the development of one fetus, and only laterrestriction of placental nutrition causes the birthof smaller fetuses in a multi-fetal pregnancy.

During pregnancy, it is necessary to monitor the weight of the mother. If in the second halfof pregnancy the weight of the female (cow, sheep) decreases, then the size and weight of newborns decrease, andmost importantly, the vitality of the latter decreases partly due to the fact that fetuses do not build upglycogen reserves in the liver and they cannot maintain body temperature in the first days after birth.

Practitioners should consider two things: 1) good feedingof animals, especially those with multiple pregnancies, before insemination and in the first half of pregnancy ensuresmultiple pregnancies; 2) good feeding in the second half of pregnancy creates favorable conditions for the development and growth of fetuses and increases their vitality.

Asphyxia of newborns (asphyxia neonatorum). This is a condition of the body in which the oxygen content in the animal's blood is reduced with excessive accumulation of carbon dioxide.

During the period of intrauterine development of the fetus, its respiration is provided through the mother's circulatory system. During difficult, prolonged labor, especially during pelvic presentation, the umbilical cord is often pinched, which reduces or completely stops the flow of bloodto the fetus. In such cases, fetal asphyxia develops with a fatal outcome, or the fetus is born with severesigns of hypoxia. Lack of oxygen in the blood is often observed in diseases of women in labor **with** clinicalsigns of intoxication of the body or a prolonged increase in body temperature.

The increased content of carbon dioxide in the fetal blood prematurely causes respiratory movements, and the lack of oxygen contributes to the release of meconium intothe amniotic fluids, which the fetus aspirates (along with meconium). This causes pneumonia or the formation of local atelectatic foci. When the umbilical cord is pinched,the flow of nutrientsto the fetus decreases and the fetus is forced to

use its glycogen reserves, which in conditions of oxygen deficiencycontributes to an increase in lactic acid in the tissues and a decrease in blood pH.

Clinical signs. There are two forms of neonatal asphyxia:mild and severe. In the mild formмof asphyxia (asphyxialivida), all reflexes are preserved in newborns, but breathing with wheezing. The tongue is swollen and protruding from the oral cavity, the mucous membranes are cyanotic ("cyanosis"),and the heart activity is increased.

Тяжелая Severe asphyxia (asphyxiapallida) is characterized by lossof reflexes. The oral mucosa and tongue have a white color ("white asphyxia"), the heart rate is reduced, and breathing is accompanied by strong wheezing.

Diagnosis. They put it on the basis of the studyof the fetus in the birth canal and the assessment of its reflexes. A gooddiagnostic sign is meconium inthe amniotic fluid. Determine the level of lactic acid, blood pH, and other indicators of acid-base balance.

The prognosis for mild asphyxia is questionable, and for severeasphyxia, it is unfavorable.

Treatment. First of all, it is necessary to clearthe newborn's airways of aspirated mucus and amniotic fluid. To do this, the animals wipe the nasal openingsof the nose with their left napkin,lift the animal by its hind legs, or bend its head low. From the nostrils and trachea, the liquid is sucked out with a rubber balloon, a syringe connectedto a rubber tube. At the same time, the newlyborn baby is sprayed with cold water and thoroughly rubbed with strawbundles. After that, the animal is placed in a position with a raisedtail and lowered head and artificial respiration is applied.ния дыхательного центра инъецируют Lobelia (0.02 g) are injected to stimulate the respiratory center, and caffeine (0.5 - 1 g) and camphor oil are injected to maintain cardiac activity. As a last resort, an intracardial injection of epinephrine can be used.

Asphyxia is often accompanied by atelectasis of the lungs as a result of aspirationof amniotic fluid and filling of certain areas of the lungs with it. With atelectasis, frequent breathing, weakness, coughing, and wheezing are noted.Artificial respiration, rubbing, cool irrigation, periodic and short-term inhalation of ammonia are used.

In severe asphyxia, it is recommended to use substances thatprevent the occurrence of metabolic acidosis. 4-5%-A 4-5% solution of sodium bicarbonate administered simultaneously intravenouslyat a dose of 4.5-6.5 ml anda 10% solution ofglucose at a dose of 0.5 ml per 1 kg of animal weight work well.

Constipation in newborns. Weak butwell-born children, mainlychildren, often have meconium retention - a thick, dense consistencyof the original feces, consisting of ingested and digested elements of amniotic fluid with a more or less significant number of hairs that have fallen out of the fetus intothe amniotic fluid. Sometimes the act of defecation does not occur due to individualbowel movements. Constipation causesintoxication of the body, often with a fataloutcome. Constipation in newborns is often caused by quantitative insufficiency or qualitativeinferiority of colostrum, which is known to have laxativeproperties; if the newborndoes not receive a timely portion of colostrum, he developsintestinal atony.

Clinical signs. The newbornhas no defecation; on the second day of life, he begins to showrestlessness, looks back at the stomach, kicks it, refuses to feed. Then there are signs of general weakness, lethargy, and the animal dies. With a finger inserted into the rectum, an accumulation of gummy, sometimes solid feces is established in the intestine.

The prognosis is initially favorable, but it is very doubtful in the case of general weakness.

Treatment. Feces are removed with your finger.Warm soapy or oilenemas, colostrum, laxatives (Ol. Ricini 50.0; Natr. sulfurici 50.0-75.0, Extracti Aloes) are appropriate. A good effect is given by phenolphthalein (purgen) in a dose of 1-2 g in combination with hot water bottles (3. P. Koryagina).

Prevention. It is necessary not laterthan 1-2 hours after birthto give newborns colostrum to drink.A good effect is achieved whennewborns are kept with their mothers in the first days after birth.

Congenital absence of analedema and rectum. Atresia of the analopening (Atresiaani, atresiaanietrecti) is a congenital deformity that consistsin the overgrowth of the anus with skin. In rectal atresia, the colon ends blindly in the abdominal or pelvic cavity. Usually, these anomalies are detected when examining an animal with signs characteristic of meconium retention. With atresia of the anus, a protrusion of the skin is found in its place, through which the compacted fecal masses are felt. The terminal part of the colon in rectal atresia can sometimesbe palpated through the perineum.

Treatment. Dissect the area of skin covering the anus with a cross-shaped incision, the resulting flaps are removedwith scissors; it is advisable to scrapewith several stitches. the mucous membrane of the rectum with the skin. If the blind end of the undeveloped rectum is embedded in the pelvic cavity, you can try to bring it intothe space or (in a more cranialposition) through the abdominal wall by sewing the edges of the intestine (anuspraeternaturalis) to it, as is done with afistula.

Diseases of the circulatory system. Congenital anomalies - heartdefects, underdevelopment of the oval valve, etc. - can cause rapid death of the newborn. These anomalies should be taken into account during forensicexamination.

Bleeding from the navel (omphalorrhagia). More often in newborns, the umbilical veins bleed, and rarely the arteries bleed due to general weakness or insufficientchest breathing movements, which means that the oval heart valve does not completelyclose and does not create negativepressure in the venous system. Other causes of this disease include asphyxia, degeneration of the blood vesselsof the vagina, and, finally, improper care of it (circumcisionwith a sharp instrument).

Help. The umbilical cord is tied and artificial respiration is performed.

Inflammation of the navel (omphalitis). In the burrow, the stump of the umbilical cord undergoes drynecrosis (mummification) and on the 4th-8th day disappears, the navel turns intoa lump and epithelizes. Whenthe pathogen enters the stump from the external environment (less often by hematogenic route), the mummification processis delayed; sometimes wet necrosis develops instead of drynecrosis (umbilical cord gangrene). In calves, inflammation of the navel often

occurs when the animals are kept in groups, when the animals are able tocut off each yother's umbilical cord and therebyinfect it.

Clinical signs. Inflammation of the navel becomes noticeable on the 2nd-3rd day of the newborn's life, less often-on the 7th. The inflamed umbilical cord is edematous and painful; sometimes with a severe course, the edema spreads to the abdominal area surrounding the umbilical cord; there is an increase in local and sometimesgeneral temperature. The stump of the umbilical cord turns into a wet rotting mass of dirty brown color.

The prognosis is questionable, as theprocess can easily spread up the umbilical blood vessels and end in septicemia, pyemia, or septicopyemia (schizol).

Treatment. Thoroughly clean and disinfect thenavel of newborns. If necessary, the abscess is opened, the affected stump is removed, the wound is smeared with a solution of iodine, cauterized with lapis, carbolic acid, treatedwith a solution of ethacridine lactate, a solution of potassium permanganate, and appliedstreptocide. It is recommended толщу брюшной стенки вокруг пупка to inject 0.5-1 million unitsof streptomycin dissolved in 20-40 ml of 0.25% novocaine solution into the thickness of the abdominal wall around the navelного. If necessary, this treatment is repeated on the second and subsequent days.необходимости такое лечение повторяAt the sametime as local treatment, general treatment with antibiotics or sulfonamides is carriedout.

To prevent umbilicalinfection, more attention should be paidto the hygiene of childbirth and the maintenance of newlyborn calves.

Фистула урахуса (Urachus patens fistula.It isobserved in calves, less often in foals and is caused by the preservation of the urinary duct in постфетальныйthe post-fetal period. Normally, after the birth of the fetus, the urinaryduct closes and turns into a small scar on the topof the bladder. When the urachus is preserved, urine isreleased from the bladder through it, which moistens the stumpof the vagina. As a result, erythema, eczematous processes develop around the navel, and inflammatory phenomena occur. The umbilical cordis bandaged; the navel area is disinfected with solutions and covered withdisinfecting ointments.

Control questions. 1. What are the main causes of diseases of newborns, and what kind of assistance is provided?

12-lecture. PATHOLOGY OF THE MAMMARY GLANDS.

Training elements:

1. Morphofunctional characteristics of mammary glands.
2. Classification, etiology, methods of treatment and prevention of mastitis in animals.
3. Agalactia and hypogalactia.
4. Treatment and prevention of mastitis in cows.
5. Mastitiss in other animal species

The mammary gland, like the genitals, should be considered as an organ that naturally functions only during the suckling period; it evolves in connection with childbirth andevolves when the offspring can already exist without mother's milk. In natural conditions, a new pregnancy occurs after that, and in production, lactation is combined withpregnancy on the basis of economic feasibility. The mammary gland is an organ that produces an essential food product (colostrum) for the newlyborn and milk. Therefore, after a brief description of the anatomy andphysiology of the mammary gland, we present themain provisions of the doctrine of the forms of agalactia (milk-free) and hypogalactia(low-milk).

Brief morphofunctional characteristics of the udder

The mammary gland, udder (glandulalactifera, uber, mamma, mastos) of a cow is a glandular organ consisting of fourquarters; each of them ends at the bottom with a teat. Somecows have two, rarely four, additional quarters, usually poorly developed, without glandulartissue and a nipple canal. The skin of the udder is covered with delicate sparse hairs; on the back surface of the udder, they grow from bottom to top and to the sides, forming a so-called milk mirror. The shape and size of the milk mirror vary. The udder fits snugly against the ventral abdominal wall and is held in position by the suspensory ligament of the udder and fascia.

Udder components: glandular tissue, excretory ducts,interstitial connective tissue, bloodvessels, lymphatic vessels, and nerves. The right and left halves of the breast are separated from each other by the suspensory ligament of the udder (ligam. Suspensoriumuberis), which serves as a continuation of the yellow abdominal fascia(fasciaflava). Under the skinis the superficial fascia of the breast, covering each halfof the udder. The superficial fascia is followed by its own fascia, which coversthe glandular part of the udder and branches (trabeculae) into the parenchyma, dividing it into quarters and separate small lobules (lobulaeuberis); each lobule is surrounded by an interlobular connective tissue membrane.

The udder parenchyma consists of glandular alveoli and excretory ducts that form an independent, separate system in each quarter of the udder. The alveoli are lined with secretory cells that form milk. Eachalveolus and the duct extending from it are externally entwined with stellate cells(myoepithelium) and their processes. When the stellate cells contractвы, they push the contents of the alveoli into the proto-ci. Small ducts branch off fromthe alveoli, which combine to form the middle ducts. Areas of the parenchyma with these ducts formindependent udder lobules surroundedby a more or less pronouncedlayer of interlobularconnective tissue.

The middle ducts, going down towards the teat, merge and giverise to 12-50 broad excretoryducts-milk passages (ductuslactiferi), which flow into the cistern. Milkcistern (sinuslactifer, receptaculumlactis) - the nipple cavity,sometimes extending up into the udder parenchyma, serves as a reservoir for milk.

The nipples (papillaeuberis) are conical, bluntly terminatingbranches of the mammary gland. In the nipple, the base is distinguished,which passes without sharp borders into the body of the lobe of the udder, the tip, which hangs freely down, and the cylindrical part locatedbetween the tip and the baseof the nipple. The length of the teats varies from 4 to 10 cm depending on the age, breed and milk productionof the cow. The wall of the nipple is made of skin, connectivetissue and mucous

membranes. The skin does not contain hair, sebaceous and sweat glands; at the tip, it passes into the mucous membraneof the nipple canal, which connects the cistern cavity with the external environment. Theconnective tissue layer of the nipple wall has bundles of smooth muscle fibers that form plexuses running in different directions. At the tip of the nipple, muscle fibers are collected in a clearly definedcircular layer - the sphincter ofthe nasal canal. Its length is 5-10 mm, and its diameter is 2.5-3 mm. The lumen of the nipple canal is closedby a shortened sphincterand small longitudinal folds of the canal shell tightly adjacent to each other, forming arosette on the side of the tank, which hasa value for tightness.

The udder is very richin blood vessels, and arterial and venous capillaries form a dense network around each alveolus. The intensity of blood supply to the udderdepends on its functionalstate. Here there is an unclear function, due to which 0.8-1 liters of blood flows through the udder of a dry cow in 1 min, and during lactation – 4 liters or more.

The arterial system of the cow's udder is shown in Figure 123. Attention should be paid to the following featuresof the udder's bloodsupply: the perineal arteries branch out on its posterior surface; there areanastomoses between the arteries of the right and left halves of the udder;blood flows through the intervertebral vein fromthe genital organs to the udder. The latter fact is of great importance for explainingthe occurrence of udder disease when the genitals are affected, as well as the endocrine effect of sex hormones on the udder.

The venous system of the udder is more developed than the arterial one. There are a large number of additional venous vessels, often anastomosing with each other and with the veins of the adjacentquarter. There are also anastomosesbetween the veins of the right and left halvesof the neck.

Venous blood flows from the udder through two paired vessels:

1) through the external pudendal vein (vv. Pudendaexterna), which runs together with theexternal pudendal artery;

2) through the subcutaneous abdominal mammary vein (vv. Subcutaneaabdominis), which, moving forward, is well distinguished under the skin by its convolutions and penetrates throughthe molar well into the abdominal cavity, where it flows into the internal thoracic vein (vv. Thoracicainterna);

3) through the internal pudendal vein (v.. PudendainternaPudendainterna).

Venous trunks, mainly superficial, form a largenumber of convolutions andampulloid extensions, mainly at the baseof the nipple, which gives the udder a lumpyappearance. The circularvenous junction, located at the border of the cistern and parenchyma,can close the lumen of the cistern when the valve is overflowing.

Лимфатическая система The udder's lymphatic system originates from the lymphatic slits and spaces located around the alveoli. From here, the lymph is collected in the interlobular lymph vessels, passes through the lymph nodes to the lymphatic cistern, and from it through the thoracic duct to the vena cava. The rich network of lymphatic vessels in the udder skin begins in smalltrunks at the base of the nipple. They form a large number of anastomoses between themselves and the deep lymph vessels of the correspondingvertebra, and are combined in each lobe intoindependent trunks that flow separately intosupramental lymph nodes the size of

a hazelnut or pigeon's egg. Supramental lymph nodes are located at thebase of the posterior udder lobes. Fromeach node, lymph is carriedout by two large lymphatic vessels or bundles of vessels. One of the outflow vessels goes to the perineum and unites here with the lymphatic system of the rectum and external genitalia; the other vessel goes to the inguinal region, to the inguinallymph nodes. In addition to the mainlymphatic vessels, there are a number of small, denseones that permeate the gland parenchyma.

The degree of lymph circulation in the mammarygland in lactating animals is directly dependent on the level of milk productivity. In dry cows, it is about 6 times less than in milk cows (I. K. Medvedev).хостойных коров она примерно в 6 раз меньше, чем удойных (И. К. Медведев).

Innervation of the udder is carriedout by the branches of n. iliohypogastricus, n. ilioinquinalis, n. Spermaticusn. externus and, finally, branches from the dense nerveplexuses surrounding the udder vessels. Nerve fibers of the parenchyma form dense plexuses around the alveoli and lobules of the gland. Clearlydistinguishable nerve trunks run,accompanying the vessels of the cistern and the milk passages, to the milk cistern and the nipple, wherethey end up in the skin of the nipple and in the mucous membrane of the tank. Theexpression of receptors located in the udder tissue affects bloodcirculation, respiration, digestion and the reproductive system of the animal,

The pituitary gland reacts by increasing or decreasing the release of hormones under the influence of visual, auditory, andolfactory perceptions.

The mammary gland of sheep and goats consists of two halves, clearlyseparated by an inter-parietal furrow. In terms of structure and function, the milk zheleza of these animalsdoes not differ significantly from that of the cow.We should note only the conical shape of the teats and a strong sagging gland in the goat, which causes frequent mechanical damage to the udder.

Udder innervation is carried out by branches of the lumbar-lateralnerves extending from the first and secondlumbar nerves, passing along the abdominal wall of the corresponding side and branching in the skin and parenchyma of theudder. In sheep, the teats are short, theudder lobes are rounded, the teat channels are somewhat longer (up to 1 cm) and cnarrower (important to consider during catheterization).

The mammary gland of a camel has four lobes; like a cow, it is divided into right and left halves. The nipples are short (they resemble the nipples of a "koumiss" mare). The forequartersare less developed than the hind quarters. Milk productivity depends onthe animal breed and ranges from 15-20 liters per day. The duration ofthe lactation period reaches 16-18 months.

Молочная железа The mare's mammary glandis covered with soft, hairless skin. During the dry period, the gland decreases so much that it almost merges with thebone of the abdomen, and the reduced tautnipples protrude on its folds in the form of flattened elevations from the sides. The gland is sedentary and wellseparated from the abdominal wall, to which it is suspended by a branch of the yellow abdominal fascia , a suspensory ligament that penetrates betweenthe udder halves and passes into the mammary gland's own fascia. Each half of the udder is

divided into anterior and posterior quarters indistinguishable from the outside, which have independent and separate systems of alveoli andudder ducts that open at thebase of the nipple into two or three small cone-shaped cisterns. The cisterns communicate with the external environment by independent channels, and on each nipple there are therefore two (rarely three) openings of the nipple channels, respectively, to the anterior and posterior glands. Blood supply to the gland is carriedout through the pudendaeexternae arteries and veinspudendaeexternae.

The mammary gland свиньиof a pig consistsof 8-16 (rarely 20) glandular lobes (milk hills), symmetricallylocated on the sides of the white line from the pubic bones to the sternum; sometimes the numberof lobes is odd. Each lobe consists of a group of glands, the channels of which flow into two, rarely threesmall tanks. At the tip of the nipple, two, rarely three nipple channels open. During the dry period, the lobes of the samelesa are pulled up to the abdominal wall and merge with it. By the time of delivery, the mammary gland is allocated in the form of two powerful bars with more or lessequally developed lobes.

Молочная железа The dog's mammary glandconsists of 10 glandular lobes locatedon the ventral abdominal wall. There are no milk tanks. Milk passages, as their lumen increases, combine into 6-12 large milk passagesthat open with independent ducts at the tip of the nipple, so whenthe secretion is squeezed out of the gland, milk first protrudesto the surface of the nipple in the formof several small droplets that gradually merge into a common large drop. Each nipple serves its own systemof alveoli and excretory ducts of the mammarygland.

During lactation, the areas of the milk channels located in the nipple may expand and take the form of small cisterns (milk sinuses).

The mammary gland of a cat consists of 8 glandular lobes located, like in a dog, on the ventral abdominal wall. The milk ducts, merging and not forming a cistern, are openedon the surface of the nipple by twoversts.

The mammary gland of the rabbit is formed by 8 glandular lobes.

Breast function. The mammary gland performs the function of lactation, which consists of twoindependent and interdependent processes: milk formation and milkproduction.

Lactation is a manifestation of a complexneurohumoral reaction of the entire bodyto nerve impulses coming from the receptors ofthe mammary gland skin duringsucking or milking, as wellas arising due to irritation of chemoreceptors located in the walls of blood vessels of the gland and other organs by substances formed in the female's body during certain periods of life (childbirth, pregnancy).Hormones involved in lactation include estrogens, progesterone,prolactin, somatotropic, thyroid-stimulating, adrenocorticotropic, oxytocin, thyroxine, triiodothyronine, thyrocalcitoninкальцитонин, глюкокортикоиды, мине, glucocorticoids, mineralocorticoids, epinephrine,norepinephrine, parathyroid hormone, insulin, and glucagon.

The function of the udder is closely related to the functional state of the genitals. In a neuteredimmature female, the mammary gland does not develop due to the lack of estrogens. After transplanting an ovary to a neutered male, the mammary gland is formed and even lactated. Underthe skin administration of estrogens to

infantile animals causes the growth of milk passages, and when combined with the action of estrogens and progesterone, the alveoli also grow. In thesecond-largest pregnancy, the ovary and placentarelease a large amount of estrogens, which cause the growth of the milk passages and alveoli. Progesterone prepares the gland for secretion. By the end of pregnancy, theanterior pituitary gland secretes the hormone prolactin,which produces milk, i.e. secretion, and the posterior pituitary gland produces oxytocin, which causes milk production.

Молокообразование (ceMilk production is inextricably linked with milk production. Without the releaseof milk(when colostrum and milk are not taken out or are not absorbed dueto the loss of offspring), as well as withits continuous release (for example, with a milk catheter constantly inserted into the nipple canal or with penetratingwounds of the nipple), milk production stops. An important factor in lactation is irritationof nerve endings located in the walls of blood vessels, milk passages and in the skinof the breast. Irritations of the nerve endings of the skin of the breast and especially suckling(massage, milking, sucking) are transmittedalong the nerve pathways to the cerebral cortex. In response to these stimuli, nerve impulses go from the center to the peripheryto the mammary gland as a workingorgan, in some cases encouraging it to secrete and secrete milk, in others they inhibit these processes. In the secretionof milk, hormonal factors also play an important role, which, acting on the chemoreceptors of the mammary gland, cause nervous excitement.It is transmitted through irregular pathwaysto the cerebral cortex, and from it nerve impulses go to the mammary gland, prompting it to secrete.

В процессе секреции молока и молоAll the organs of the female's body are involved in the process of milk secretion andmilk production, which determinesthe specific, individual propertiesof each cow's milk. In addition to the ovary, pituitarygland, and placenta, lactation is also affected by other endocrine glands (thyroid, adrenal glands, etc.). External stimuli (visual, auditory, auditory, tactile, and gustatory) also have a positive or negative effect on breast function. This should explain the fluctuationsin milk productivityof cows depending on the method of milking, the experience of the milkmaid, the care of the animal and the diet, and not only on its nutritional value, but also on taste.

In young animals, the mammarygland consists of adipose tissue anda small number of milk ducts. With the onset of puberty, the number of milk ducts increases. A radical fracture in the structure and function of the breast occurs in connection with pregnancy. From the secondhalf of pregnancy, especially towards theend of pregnancy, milk ducts, alveoli and milk lobules are intensively formed.

By the time of delivery, the mammary gland is enlarged and begins toproduce colostrum-a thick, viscous,yellowish-white liquid, distinctive, unpleasant, and salty in taste. Colostrum contains a significantamount of protein and salts, characteristic fatdroplets (colostrum corpuscles). Colostrum contains lessfat and sugar than regular milk, more iron, 10 times more retinol (vitamin A) and ascorbic acid (vitamin C), and 3 times more calciferol (vitamin D). Colostrum contains a large number of decayed secretory cells. 7-10 days after delivery, colostrum turns into regular milk.

The process of milk formation occurs in the alveoli. The process of secretion consists in the accumulation (formation) of secretions in the cell, the subsequent

rejection ofsecretions accumulated in theperipheral part of the cell and its transferto the alveolar lumen.

After delivery, glandular tissue continues to develop and milk productivity increases for 4-6 weeks (with proper milking or regularmaintenance). Then the reverse development of the breast begins (involution), which consists in a gradual decrease in the intensity of its function. After winter delivery, with the transfer of cows to summer maintenance, an increase in their milk productivity is often observed, which is regarded by some experts as a natural manifestation of a two-vertexlactation curve. However, this phenomenon should not be considered as a rise inthe lactation curve, but as a recovery of lactation after winter alimentary-climatic hypogalactia.

After weaning the suckers or stoppingmilking, breast involution is already intense; the milk ducts collapse, epithelial cells regenerate, disintegrate and dissolve, появляется and a large number of macrophages appear in the tissues,removing reduced tissue elements. The gland decreases in volume, becomes more dense. Gradually, almost allthe alveoli and the smallest ducts, apparentlyalso having secretory function, undergo involution. The dryperiod begins. During this period, the mammary glandconsists of a system of tree-like milk ducts and surrounding connective tissue, bloodand lymph vessels. Milk formation stopscompletely. Sometimes, instead of milk, a few drops of a thick, clear, yellow-straw-colored liquid ("serka") are squeezed out of the nipple.

The study of the functionof milk jelly using labeled atoms allowed us to establish that milk productionhas a great influence on all metabolic processes of lactating females, causing the renewal of blood plasma proteins.

A huge amount of blood flows into the mammary gland, into its well-developed network of arterial and venous vessels. For example,more than 6 tons of blood pass through the udder of a cow that secretes up to 15 kg of milk per day (prof. V. N. Nikitin, when 1 liter of milk is formed, an average of about 540 liters of blood passes through the udder. The daily mass of milk can be up to 110 kg.

Studies have shown that theosmotic pressure of blood plasma and milk is the same, but the composition of milk stronglydiffers from the composition of blood. Thus, milk contains 90 times more sugar than blood, 9 times more fat, 5 times morepotassium, 13 times more calcium, 10 times more phosphorus, 2 times less protein, and 7 times less sodium.

Milkproduction-the release of milk from the udder occurs due to the movement of milk from the upper parts of the udder down, mainly as a result of contraction of the myoepithelium and smooth muscles of the udder. Milk production is carried out by the combined activityof the nervous and humoral systems. In the process of preparing the udder for milking, there is an increased rush of blood to the gland, which ensures the elasticity of the nipples.

Udder research. It consists of collecting anamnesis, a clinical examinationof the animal, its mammary gland, and checking the quality of milk.

When collectinganamnestic data, they seek to establish:

1) the course of pregnancy, the durationof the dry period, preparationfor lactation; the time of delivery, the state of the breast before and after them;

2) the general state of the body before and after childbirth, the stage of the

sexual cycle, the time of insemination, the specifics of the course of labor and the postpartum period;

3) the state of the district and economy inrelation to livestock diseases in general and breast diseases inparticular;

4) breast diseases observed in animals in previous years;

5) milk yield in previous years and duringthe post-lactation period;

6) milking method and quality of milk, its color, smell, taste, changes during-boiling;

7) the time of disease of individual fourvertebrae of the udder, the amount and quality of secretions secreted by them.

The clinical examinationshould begin with a routine examination of the animal, and then examine the mammary glandfor examination, palpation, trial milking and determination of milk quality. The udder is examined from behind and from the side; at the same time, attention is paid to its shape, the preservation of the hair cover, skin color; damage, skin diseases or their traces are detected. The animal is tied up, but no methodsof forced reinforcement are used (compressionof the nasal septum, femoral twist, etc.).

Palpation is primarily usedto determine thetemperature of individual areas of the breast in a strict sequence by comparing the heat sensation received by the back of thehand from symmetrically located points. For example,compare the temperature of the outersurface of the right front quarter of the udder with the temperature of the outer surface of the left front quarter, but not with the temperature of the back quarter, since the back quarter of the breast, locatedbetween the limbs, isusually slightly warmer than the front.It is advisable to determine the udder temperaturedifferently first from the outer surfaces of the right and left front quartersof the udder; then go to the innersurfaces of the same quarters. In the same sequence, the temperature of the hind quarters is determined.

To detect soreness, structure and consistency, all areas of the breast are alternately slightly squeezed in the samesequence as when determining the temperature.

The skin of the breast is normally smooth, easily gathers into folds and shifts, and the parenchyma should be palpable in the form of elastic lobular tissue. Lobules are smoothed out duringgland filling and appear more clearly after milking, so the udder is examinedby palpation before and after milking. Both on examination and palpation, it is especially important to identify the condition of the supramental lymph nodes locatedat the upper border of the hind quarters, sometimes several centimeters above the glandular tissue, in skin folds running from top to bottom from the vulva. To detect them, they begin to probe from the base of the gland and move up. The lymph nodes are normally mobile, loosely connected to the surrounding tissues, have an elastic consistency and the sizeof a pigeon egg. In inflammatoryprocesses, especially of an infectiousnature, thesupramental nodes may be enlarged, painful, notmobile, and compacted.

During the study, the nipple is grasped at the base with the index andthumb and pulled out,gradually shifting the fingers to the top. At thesame time, the nipple is rolled out between the fingers, which makes it possibleto detect morphological

changes inthe cistern wall or to detectthe presence of milk stones in its cavity. Afterfeeling the nipples, the tone of the sphincter of the nipple canal is determined by trial milking. By the resistance feltby the hand when squeezing out the containednipple, as well as by the thickness of the milkjet, it is possible to identify anomalies of the nipple canal, which cause tightnessor, conversely, an involuntaryoutflow of milk (lactation).

MASTITIS

Mastitisisan inflammation of the breast that develops as a result of mechanical, thermal, chemical andbiological factors. A. P. Studentsovestablished that often the course and outcomeof mastitis depend not so much on the localization of the process and pathogenic properties of thecausative agent of the disease, but on the state of the entirebody, the reactivity of breast tissues. Mastitis can occur during lactation, run-up, anddry periods.

The causative agent of the disease, morphologically related to the same species, depending on its biologicalproperties and the reactivity of the tissuesof the body and the body as a whole, cancause all the variety of existing forms of inflammation in their variouscombinations. At the same time, various microorganisms can cause the same clinical course and morphological changes in the form of udder inflammation. For example, streptococci and staphylococci, Escherichia coli, salmonella in some cases can be pathogens of serous, and in others - catarrhal, fibrinous or hemorrhagicmastitis. In additionto microbes, viruses, fungi and mycoplasmas are found in mastitis. However, mastitis can also occur aseptically (without the participation of any pathogens).

The general pathogenesis of mastitisis characterized by a violation of nerve conduction and the transition of nerve endings to a state of parabiosis with a loss of enzymatic activity, a decrease in the productionof oxytocin and vasopressin,changes in the metabolism and trophism of breast tissues.Developing inflammatory hyperemia is accompanied by stagnant processes with plasma exudation and emigration of formedblood elements due toincreased porosity of the vessel walls. As a result of these processes, a demarcation line is created around the focus of inflammation.

Since the udder is an integral part of the whole body and given that the inflammatory process in the mammary gland is a manifestation not only of the organ's reaction, but also of the entire body, A. P. Studentsov distinguishes mastitis by the nature of the inflammatory process.

In the udder, as in other organs,all the classical formsof inflammation develop. In addition, specific processes can be localized in the mammary gland, which are aconsequence of, for example, foot-and-mouth disease, tuberculosis and other infectious diseases. These processes cannot be regarded as a simpleinflammation of the udder. The main thing with them is the damage tothe entire body. And by the nature of changes in breast tissues, they do not fit into the framework of classical forms of inflammation, so wedistinguish specific mastitis.

Classification of mastitis (according to A. P.**.** Studentsov)

1.Serous mastitis

2.Catarrhal mastitis: a) cataract of the cistern andwashing passages; b)

cataract of the alveoli

3.Fibrinous mastitis

4.Purulent mastitis: a) purulent-catarrhal mastitis; b)udder abscess; c) udder phlegmon

5.Hemorrhagic mastitis

6.Specific mastitis: a) foot-and-mouth disease of the udder; b) actinomycosis

c) udder tuberculosis

Complications of mastitis: Induration of the udder; Gangrene of the udder.

Mastitis is acute (up to 10 days), subacute (up to 3 weeks), and chronic (more than 3 weeks).

MASTITIS IN COWS

The diagnosis of udder conditions is made by clinical signs or, when they are weakly expressed, by a combinationof clinical and laboratorystudies (reactions with 5% dimastidine solution, 2% and 10% mastidine solutions, sedimentation breakdown, and bacteriological analysis). Such a comprehensivestudy allowsus to clearly determine the state of the breast.

Serous mastitis (Mastitis serosa).Serous inflammation of the udder is characterized by hyperemia, large effusion of serous exudate, and emigration of white blood cells, mainly to theinterlobular tissue. This type of udder inflammation develops after injuries, due to improper machine milking, as a complication of congestive edema, when microbes enter through the skin, hematogenic or lymphogenic pathways from the genitals, gastrointestinal tract. Thecausative agents of serous mastitis can be streptococci, staphylococci, Escherichia coli, etc. Acute mastitis develops more often in the first days ofthe postpartum period with uterine atony withretention and decomposition of lochia, withinflammatory processes of the endometrium of purulent, fibrinous and diphtheriacharacter. In 63% of these cows, the microflora of the uterus and udder wasidentical (V. I. Rubtsov).

V. I. Mutovin notes that in cows, subacute and chronic serous and serous-catarrhal mastitis usually occurs with unclearclinical signs, so hecalled them subclinical or hidden. They identified about 80 % of such mastitis. They are detected by laboratory tests of milk.

Clinical signs. The affected quarter is enlarged, hot to the touch and painful. Edema can be localizedmainly in onequarter of the udder. Sometimes it covers the right or left halfof the udder, and rarely the entire udder.

Clinical signs have much in common with congestive edema, butdiffer from the latter in severe redness of the skin, increased localtemperature, and soreness. In addition, with edema of the breast tissue, the testis easy to determine by feeling, and with serous mastitis, the consistency of the udder is stony, dense. Supramentallymph nodes are often enlarged.

Milk productivity decreases, but the external quality of milk initially does not change. Later, when thesecretory parts of the gland are involved in the pathological process,the milk becomes liquid and contains flakes. НарядAlong with a local reaction, the animal may experience general depression, decreased appetite, and increasedbody temperature.

Forecast. Whenthe pathological process is resolved, the inflammation disappears in 7-10 days. Possible transition to a chronic course.

Treatment. To reduceintraocular pressure, frequent careful milk delivery is used. Udder blockages and the use of ultrasound have a good effect. The skin is lubricated or rubbed with ichthyol, camphor and other ointments. A light massage from the bottom up is useful at least 2-3 times a day for 15-20 minutes. And then, especially from the 2nd-3rd day of illness, you should practice warm wraps, poultices, quartz lamp irradiation, and diathermy 2-3 times aday. It is advisableto apply ozokerite to the udder andlumbosacral region. Ozokerite has not only a local, but also an excellent physiotherapy effect, beingsimultaneously ananti-inflammatory, resorbing andanalgesic agent. From thermal procedures apply poultices, dry heat (thio-sulfate hot water bottle), paraffin. Whenusing heat, the animal should be especially carefullyprotected from drafts and overcooling. Distracting rubs in the chest and forelimbs, giving inside medium laxative salts contribute to the resorption of inflammatory exudate. During the treatment period, animals are restricted from watering and are not given juicy food.

A good release of the udder in various forms of inflammation is achieved by using oxytocin. After removingthe secretion from the affected lobe, 40 units of oxytocin are injected into the jugular vein or subcutaneously and then carefully re-administered. Injections are repeated after 8-12 hours. Often serous mastitis occurs aseptically. Therefore, antimicrobial drugs are administered only when microbes are detected in the udder secret, and the overall body temperature increases. In these cases, streptocide is given inside 2-5 g per reception every 4 hours for 1-2 days. It is advisable to inject 10% norsulfazole sodium intravenously at the rate of 40-50 mg of dry matter per 1 kg of cow weight (A. I. Pospelov). If necessary, use anti-biotics.

Other therapeutic methodsare described in the section "Treatment of mastitis".

Catarrhal mastitis (Mastitis catarrhalis). It is characterized byovergrowth of the glandular and integumentaryepithelium, its rejection, as well as exudationof exudate and emigrationof leukocytes, mainly to the surfaceof the mucous membrane.

Catarrhal mastitis occurs in two forms: 1) catarrhal inflammation ofthe urinary passages and cistern and 2) catarrhalinflammation of the alveoli.

Catarrhalinflammation of the milk passages and cistern develops as a complication of the inflammatory processthat passes from the skin of the nipples through the nipple canal during milking with a pinch; reducedvacuum (tears of the mucousmembrane), penetration of ha microbesby lactogenic pathways in cows with a weak sphincter of the nipple canal, rarely as a result of their penetration through the cro-venous and lymphatic systems and especially often as a result of toxiceffects of saprophytes. The disease is observed mainly in the first weeks of lactation; often limited to one quarter of the udder. Underthe influence of a pathogenic factor, hyperemia, emigration of leukocytes, and epithelial desquamation occur.

Clinical signs. The firstportions of milk are liquid and contain flakes or tiny clots of precipitation. General depression, decreased appetite, and increasedbody temperature can be observed.

Forecast. Whenthe pathological process is resolved, the inflammation disappears in 7-10 days. Possible transition to a chronic course.

Treatment. To reduceintraocular pressure, frequent freezing ofmilk is used. Udder blockages and the use of ultrasound have a good effect. The skin is lubricated or rubbed with ichthyol, camphor and other ointments. A light massage from the bottom up is useful at least 2-3 times a day for 15-20 minutes. Azathem, especially from the 2nd-3rd day of illness, should be practiced 2-3 times a day with warm wraps, poultices, quartz lamp irradiation, and diathermy. It is advisable to apply ozokerite applications to the udder andlumbosacral region. Ozokerite has not only a local, but also an excellent physiotherapy effect, being at the same timean anti-inflammatory, resorbing andanalgesic agent. From thermal procedures apply poultices, dry heat (thiosulfate hot water bottle), paraffin. Whenusing heat, the animal should be especially carefullyprotected from drafts and overcooling. Distracting rubs in the chest and forelimbs, giving inside medium laxative salts contribute to the resorption of inflammatoryexudate. During the treatment period, animals are restricted from watering and are not given juicy food.

Fibrinous mastitis (Mastitis fibrinosa). It develops from catarrhal or occurs independently by hematogenic-embolic route, more often with purulent endometritis, traumatic cervicitis, purulent pericarditis.

A characteristic feature of this formof mastitis is the exudation of fibrin on the surface of the mucous membrane or its deposition in the thickness of the tissue. Purulent-fibrinous udder inflammation is more common in cows.

Fibrin can accumulate inthe cistern, but usually, by soaking the gland tissues, it disrupts blood circulation in the affected areas and causes necrosis and purulent softening of the parenchyma. The pathological process is causedby the pathogenic action of various microorganisms: Escherichiacoli, Bact. pyocyaneus, Staphylococcus and Streptostreptococcus pyogenes, etc.

Clinical signs. Резко снижаMilk production abruptly decreases or stops. Initially, the milk may be little changed, but already on the 2-3 th day, a few drops of serum or purulent exudate with an admixture of fibrinous crumbs are hardly squeezed out of the nipple. Whenда fibrinous inflammation has developed from catarrhal, the characteristic flakes in the milk are joined by tinyyellow lumps; the milk takes on the appearance of pus.

The entire affected quarter of the udder increases in volume, becomes dense and painful; sometimes compacted foci are caught in it. When palpating the cistern and its base, a characteristic crepitation is heard from the compression of fibrinous deposits. Supramental lymph nodes are enlarged. The general condition of the animal is depressed; the body temperaturerises to 40-41°C (in cows).

The prognosis is doubtful, asthe pathological process is often complicated by the development of extensive purulent foci or gangrene of the udder, metastases in the lungs, kidneys and liver. Aftertreatment, single or multiple nodes remain in the gland, located mainly at the base of the nipple and representing encapsulated foci of inflammation. Milk productivity is not fully restored.

Treatment. Antibiotics and novocaine blockades are used (see the section "Treatment of mastitis"). The affected quarter of the udder is smeared with 3-5%

ichthyolor iodine ointment. Poulticesor warm wrapping, intravenous infusions of ethacridine lactate 1:1000, streptocide 1:100, 2 - 10% ichthyol solution,chlorophyll, polyvalent serum, as well as autohemotherapy, sero-and lactotherapy are advisable.

Заслуживают внимания парафинотеParaffinoteia in combination with congestivehyperemia according to M. A. Kirillov and ozokeritoteia deserve attention.eThe animal must begiven rest. Udder massage nedolet's go. To remove exudate and solutions infused into the udder, careful hand-holding is necessary.A breast catheter is of little use: itspassage is quickly blocked by fibrinousclots.

Purulent mastitis (Mastitis purulenta). It occurs in three forms:: 1) purulent-carotid; 2) abscesses of the udder; 3) phlegmons of the udder.

Purulent-catarrhal mastitis (Mastitis catarrhalis purulenta), as a rule, develops fromcatarrhal inflammation of the mammary cistern,molar passages or alveoli due to the penetration of microbes through thenipple canal. Pathogens of purulent inflammation can be variousmicrobes, but most often streptococci andstaphylococci. In medical practice, itis necessary to deal mainly with streptococcal inflammation of the udder.

Clinical signs. Acute purulent-catarrhal inflammation of the udderis accompanied by complete agalactia or a sharp decrease in milk yield. From the affected quarter of the gland, milk is almost not released or it becomeswatery, salty or bitter, contains flaky clots, often acquires a reddish hue; the temperature is elevated during the month, and redness is clearly visible on unpigmented skin. The affected quarter of the udder is enlarged, swollen, painful to touch and during milking.The supramental lymph node of the affected side is enlarged. Noticeablesigns of general depression (lackof apnea, increased pulse and respiration); body temperature rises to 41°C. After 3-4 days, the symptomsof acute inflammation subside; the pathologicalprocess resolves or takes achronic course.

Sometimes (in agalactia) the acuteprocess goes unnoticed, since thegeneral reaction of the body observed at the beginning of the disease is regarded as a disease of other organs, andagalactia - as a sign of a disease of the stomach, intestines, lungs, etc.In the chronic course, the symptomsof acute inflammation subside, the local and generalbody temperature decreases, the udderbecomes painless, but themilk remains liquid, unpleasant to the taste; it is usually slimy with a yellowish or yellow tint. The secretion of milk decreases every day, and, finally, the contents are not released at all or only a few tens of milliliters are given out. The affected quarter of the udder gradually decreases in volume. Fabrics are made dense. At the baseof the nipple, milk nodes and retention cysts are formed. Due to atrophy of the parenchyma, connective tissue grows. The pathological process can occur only in one quarter of the udder, but ifthe milkmaids do not comply with sanitary measures, the process extends to other quarters of the udder. After childbirth, the pathological process in the affected quarter worsens.

Diagnosis. Для постановки диагноза решающее значение имеют микроскоMicroscopic examination of milk, detection of a large number of purulentbodies and short or long chains of streptococci, staphylococci and other microbes are crucial for making a diagnosis. Chronic purulent-catarrhal mastitis is characterizedby a mucous state and yellow color of milk, a decrease in the volume of

the affected quarter of the udder and its nipple,a dense consistency, nodes and retentioncysts at the base of the nipple. In acute inflammation, short chains of streptococci predominate in milk, while in chronicinflammation, long chains of streptococci predominate.

The prognosis is doubtful in acute and unfavorable in chroniccourse of the disease.

Treatment. In the acute courseof udder inflammation, it is necessary to free the mammary gland from microbes as soon as possible. To do this, milk should be given frequently (every 2 hours). In order to mobilize the body's defenses, it is recommended to irrigate the surfaceof the affected quarter of the udder with cold water at least 5 times a day for 5 minutesto cause its activehyperemia. Each time after irrigation, the milk should be thoroughlydispensed, gently massaging the udder bystroking towards the nipples or shaking.

Some specialists pour solutions of ethacridine lactate 1:3000-5000, potassium permanganate 1:300-500, ichthyol 1-3%, streptocide1-2% and other antiseptics into theudder. Do not enter solutions under pressure and more than 200-250 ml, as such amounts of solutions can contribute to the spread of microbesin healthy lobules. Infusions aregiven 1-3 times a day using a milk catheter or by inserting a syringe into the nipple canal.

After infusion, for better contact of the tissue with the liquid, the udder islightly massaged (shaken). The solution is leftin the udder for 2-4 hours, after whichthe liquid is released every 1-2 hours. The experiments of T. K. Trifonova showed that massage of the udder after infusion of the solution slightly accelerates itsspread through the tissues of the corresponding quarter, but at the same time accelerates the removal of medicinal substances fromthe udder through the lymphatic pathways.

A positive effect is obtained from autolactotherapy (subcutaneous injections of 5-10 ml of sterilizedsecretion from the patient's quarter after 48 hours) in combination with an infusion of 2% sodium chloride or soda salt solution to remove flakes into the mammary gland. After infusion, the affected quarter of the udder is lightly massaged (by shaking) and the solution is left in it for 30-40 minutes, then it is given out every 2 hours. Infusionof the solution is repeated after 12-24 hours.

It is recommended to inject intravenouslya 1% solution of streptocide (up to 300-400 ml) at intervals of 24-48 hours and into the affected quarterof the udder every 4-5 hours at a dose of 50-100 ml incombination with frequent dosing. The experiments of T. K. Trifonova showed that the distributionпространение в паренхиме молочной of drugs in the breast parenchyma introduced through the nipple canal does not depend very much on the dose of the solution. After the introduction of 60-100 ml of a 1% solution of streptocide, it already comes into contact with the entire parenchyma of the udder quarter into which the solution was introduced within 15-20 minutes.

Currently, there is a fairlyrich material on the use of antibiotics for the treatment of mastitis. In cases of chronic purulent mastitis, when atrophy of the udder parenchyma occurs and connectivetissue growths with obliteration of the milk passages appear, treatment does not work. The affected quarter of the gland not only does not recover, butalso serves as a factor in the spread of microbes to neighboring

quarters of the udder of a sick cow and to other cows. Forthis reason, it is advisable to introduce 150-200 ml of 0.5-1% lapis solution or 50-100 ml of 5% iodine solution, followed by massage. After a sharp exacerbation, the inflammatory process gradually subsides, and the affected fourthudder ceasesto function. Turning off the hopelessly affected quarter of the udder is not only a good preventive measure against the further spread of purulent mastitis, but also helps restore the cow's milk productivity, since the remaining three quarters of the udder beginto secrete better.

TREATMENT OF MASTITIS

Whatever causes may affectthe mammary gland, the mechanismsof development of inflammation in principle remain the same. They are reduced to variousdegrees of disorders of excitability andnerve conduction, the development of lymph and hemodynamic disorders, the appearanceof hypertension, hyperosmia and hyperonkia, the accumulation of histamine,acetylcholine, adenosine triphosphate and adenylic acids, peptone, albumose, amino acids, ketone bodies, anincrease in hyaluronidase, catalase and other enzymes. Disordersфообращения обусловливают замедлеof blood and lymph circulation cause a slowdown in blood and lymph flow, which leads to a disorder of tissue trophism, a violation of the function of excretion of contents from the udder. All these and other changes that occur in the mammary gland cannotbe eliminated only by antibacterial agents. Restoration of breast function is possible only with the normalization of complex neurovascularrelationships and trophism.

Pathogenetic therapy of mastitis. Novocaine is used to normalize neurovascular reactions. It isnot only a purely anesthetic factor that interrupts the passage of arousal, but also contributes to the emergenceof a qualitative newdisorder that has the property of regulatingthe trophic function of the nervous system. Novocaine always has an effect if mastitis has not reached irreversibleprocesses in the form of purulent melts, necrosis, gangrene, atrophy or udderinduction. The simplest methodof treatment is an intravenous infusion of 100-150 ml of 0.5 - 0.1% novocaine solution with an interval of 12 h. d. Loginovobtained good results using the method ofshort-term novocaine blockade of the udder developed by him. For injection, use a syringe connected by a rubber tube to a long injection needle. The needle is inserted from behind between the base of the udder and the abdominal wall, retreating 1-2 cm from the median line towards the patient'sudder margin, and it is advanced in the direction of the carpal joint of the same side to a depth of 8-12 cm. Inject 150-200 ml of 0.5% novocaine solution. By moving the needle in different directions, the solution is evenly distributed in the supra-exchange space. Sheep are injected with a 0.25% solution of novocaine at a dose of 40-50 ml in the front, and goats are given a udder in the back. In sows, the nerves of each affected glandular lobe of the udder are blocked separately with 0.25% novocaine solution of 20-40 ml. If necessary, repeated blockades are performed after 48-96 hours.

The method of B. A. Bashkirov is also effective, which consists in blocking the external seminal nerve, cutaneous-lateral nerve of the thigh,subcutaneous-inguinal nerve and their branchesby injecting 80-100 ml of a 0.5% solution of novocaine into the connective tissue space between the large and small lumbar muscles. In bilateral

udder disease, thesolution is administered from both sides. ПромежноThe perineal nerves are blocked according to the I. I. Magda method - 20-30 ml of a 3% solution of novocaine is injected in the area of the sciatic notch.

Positive results are obtainedby injecting a 1% solution of novocaine into the abdominal aorta according to the method of D. D.Logvinova.

A good effect is obtained when 100-150 ml of a 1% solution of novocaine is administered intravenously with an interval of 24-48 hours. Animals with serous mastitisrecover in mostcases after 2-3 days, with catarrhal -after 4-5 days, with fibrinous - after 6 days, with purulent-catarrhal - after 5 days, and with hemorrhagic-after 6 days.

Positive results are given by conducting anesthesia of the breast according to I. I. Magda, blockades according to V. V. Mosin, G. S. Fateev, etc.

Antibiotic therapy. Microbes often complicate the courseof the inflammatory process; they can also be a directcause of mastitis. In such cases, it is advisable to use antibiotics. To choosea more effective antibiotic, it is necessaryto determine the type of pathogenic microflora and its sensitivity to the drug.

In the acute course of mastitis (serous, catarrhal, fibrinous or purulent) with an increase in temperature, antibiotics (penicillin, streptomycin,bicillin, erythromycin, etc.) are administered intramuscularly at a dose of 3 - 5 thousand mg. UNITS per 1 kg of body weight.It is also recommended to administer antibiotics in combination (penicillin + streptomycin, penicillin + erythromycin, tetracycline + neomycin, etc.).

In the initial stage of breast damage, when changes in the qualityof milk can be detected only by dimastin, it is recommended to introduce an intravenous solution of penicillin or erythromycin (which hasa short elimination period) in doses of 50 - 100 thousand units. Erythromycin is firstdissolved in 10 ml of ethyl alcohol, andthen in 90 ml of distilled water.Medicinal preparations are administered after releasing a quarter of the secretion and disinfecting the nipple in doses of 50-100 ml heated to 38-40°C. The solution iscured 1-2 hours after administration. Infusion is carried out 1-2 times a day.

For intravenous administration, combined drugs are also recommended: masticide, mastisan, etc. An effective treatment tool is peroxin, which consists of a complex of antibiotics, cortisone, and a coloring agent; the latter allows you to set the time of drug withdrawal fromthe urine, which is valuable forestablishing the possibility of its use. These drugs are administered 1-2 times a day for 3 days.

Intravenous antibiotics are also administered for chronic mastitis.

When exudate is abundant, intravenous administrationof antibiotics is ineffective, so a1% solution ofstreptocide, ethacridine lactate 1: 1000-3000, furacilin 1: 5000, 2-5% solution of ichthyol, 1-5% solution of norsulfazole, 1-2% solution of sodium bicarbonate should be administered to the patient's quarter.

In the course of treatment, the secret from the sickquarters is destroyed. After intrapermaladministration of antibiotics to patients in a quarter, milk from them is rejected according tothe instructions: when penicillin is administered at a dose of 100 thousand mg. U -during 48 hours, streptomycin in a dose of 100 - 500 thousand mg. ED - within 7 days.Antibiotics administered in large doses are isolated not only from the quarters inwhich they were administered, but also from others, so it is

recommended to rejectthe entire milk yield: after the introductionof penicillin in a dose of 500 thousand mg. UNITS -within6 hours, streptomycin in a dose of more than 200 thousand mg. ED - within 12 hours. Afterintravenous administration of 10 mlof masticide, mastisans A, B, and E, and difural-A, milk is rejected for 4,5,4, 3, and 3 days after drug administration, respectively.

For effective treatment, you can enter no more than 100 - 300 thousand liters of udder into the udder tank. IU of antibiotics in 50 ml ofthe solution. It should be borne in mind thatimproper use of antibiotics, large doses of them can causenegative consequences (induration, tankfilling, etc.).

Sulfonamide therapy. терапевтической эффективностью обладают сульфаниламидные препараты Long-acting sulfonamide preparations (sulfapyridazine, sulfadimethoxine, sulfamonomethoxine, salazopyridazine, ftazine, etc.) are highly therapeutic.V. K. Kopytin, using sulfapyridazine (0.1 g per 1 kg of animal weight), achieved restoration of breast function in various forms of mastitis in 93-98%of sick animals. Drugs are administered every 24-30h.

V. G. Vasiliev suggestedthat the following drug mixture should be administered for various forms of mastitis: novocaine-0.5 g, hexamethylenetetramine-10 g, potassium iodide-1 g, oxytocin-10 units, water up to 100 ml. The mixture is injected at a dose of 60-120 ml into connectivetissue for three monthsaround the affected quarter of the udder. A needle 12 cm long is inserted from the bottom, retreating from the intersection of the middle sagittal and segmental planesof the udder by 0.5-1 cm in the directionof the nipple of the diseased lobe. The same mixture (withoutoxytocin) can be successfully administered intravenouslyfor various forms of mastitis.

The following antimicrobialpreparations are also used: DMSO-90is applied with a swab to the skin of the affected quarter (on a wound, ulcer) at intervals of 12-24 hours (during treatment and for 3 days after its completion, milk is not used for food); aseptol is applied to wounds and other skin injuries fromthe scs after milking and slightly rubbed; mastevalen, 10 ml, heated to 40°C, 1 time a day (during treatment andfor 3 days after its completion, milk is not used in food); 1% aqueous solution of dioxydin is administered heated to 39^0C intravenously with an interval of 8-12 hours for 2-3 days.

The results of any treatmentare monitored by clinical and laboratorytests 5-7 days afterthe end of therapy. If there are signs of pathology, the course of treatmentis repeated or a newvariant is prescribed. In conclusion, it should be noted that in the treatment of mastitis, it is necessary to use a comprehensive method. M. G. Mirolyubovsuggests combining diet, novocaineand heat therapy with intravenous injections of 2% and 5% propolis line in the treatment of serous, catarrhal and other forms of mastitis.

Treatment of mastitis inthe dry period. They have become quite often used in recent years. The fact is that many antimicrobialsare excreted in milk for a long time, so their use in lactating cows is impractical. Therefore, special preparations have been developed for intra-tank administration of bark(masticide-2, propolis liniment, etc.). Such drugs as apramast and heliomast are administered once on the day of the last milking or in the first 3 days of dead wood, as well as when mastitis is detected during

the dry period. It is recommendedto carry out treatment no laterthan 30 days before the expected delivery (V. M. Yurkov, L. D. Demidova).

In the first 30 days of dead wood, the secretion from the affected lobes does not differ from thatfrom healthy ones. To visually assess the secret, it is examined between the 30th and 45th days of dead wood.Normal udder secretion in cows at this time is gray-milk, straw-yellow or saffron color, homogeneous from semi-liquid to thick consistency, stickiness is well expressed. The volume of secretions does not exceed 5 ml. In acute catarrhal mastitis, the amount of secretionsincreases to 10-20 ml, itbecomes gray, cloudy, watery,homogeneous (without pus and mucus), and less sticky. With subacute catarrhal-purulent mastitis in dry cows, the secret is liquid, gray, cloudy, with the presence of pus and mucus,there is no stickiness. In the affected lobe - foci of compaction. With the transition of the disease to a chronic course, the secret becomes creamy,becomes thick, opaque, pus and mucus predominate in it, and there is no stickiness. Theamount of secretions reaches 30-50 ml (N. I. Polyantsev, L. G. Podkuiko).

13-lecture. GYNECOLOGICAL DISEASES OF ANIMALS.

Training elements:

1. Methods of research of genitals.
2. Vulvitis, vestibulitis, and vaginitis.
3. Pathological processes in the cervix.
4. Diseases of the uterus.
5. Diseases and hypofunctions of the ovaries

Inflammation of the cervix (Cervicitis). Depending on the predominantlesion, there are: 1) endocervicitis (endocervicitis) - inflammationof the cervical mucosa; 2) myocervicitis (myocervicitis) -inflammation of its muscle layers; 3) перицеppericervicitis (pericervicitis) - damage to the serous cover of the cervix. Inpractice, mixed forms of cervicitis are almost always found. Cervicitis, as well as vaginitis, can occur due to trauma during childbirth or after sexual intercourseas a result of the introduction of infectious agents and invasion. Often, cervicitis is a complicationof colpitis or metritis and occurs simultaneously with them.

Clinical signs. With cervicitis, flabbiness, testovatost (edema), stickiness of the mucous membrane are detected; sometimes even a light touch to it is accompanied by bleeding. The cervical canal usually opens slightly and passes1-2 fingers. Examination with a vaginal mirror can establish bloodflow, focal or diffuse hyperemia, bleeding, accumulation of pus and mucus with flakes. Ifthe process takes a chronic course,- hypertrophy of the mucosal folds often occurs both in the canal itself and in the vaginal-part of the neck. Cysts sometimes form in the cervical canal.

In older animals,the hypertrophied vaginal part of the cervix can take on the appearance of cauliflower.Overgrownmucosal folds can serve as amechanical barrier

to the penetration of sperm into the uterine cavity; in addition, they are adversely affected by mucusthat lingers and decomposes between the folds.

Diagnosis. It is placed on the basis of a vaginal and rectalexamination by hand and an examination of the cervix using a vaginal mirror.

Treatment. Специфического лечения There is no specific treatment. Douching is carried out with a solution of furatsilin 1: 5000, followed by smearing the neck with an emulsion of antibiotics, sulfonamides, candles or tampons are used. In acute cervicitis, accompaniedby the formation of erosions, ulcers and edema, it is useful to lubricatethe vaginal part of the cervix 5%-with a 5% alcohol solution of iodine, iodine-glycerin equally, syntomycinновой ointment, and inject candles intothe cervical canal. After the elimination of the inflammatory process in the uterus or in the vagina, theinflammation in the cervix also stops. If the cervical canal becomes overgrown due to an injury or ulcerative process, the animalis excluded from the uterine composition.

In case of hypertrophy of the folds, it is recommendedtodouche the vagina with saline or солesoda-salt solution (to remove mucus and neutralizesecretions) or use artificial insemination for successful fertilization before coitus. Individual polypous growths sitting on the legs can be cut off with scissors, pulling the neck up to the vulva.Parenchymal postoperativebleeding stops quickly aftersmearing the wound surfacewith a 5% alcohol solution of iodine.

Induration of the cervix (Induratio cervicis). It can be a consequence of chronic cervicitis, when the muscles of the cervix are replacedby connective tissue undergoing гиалинизhyalinization and even calcification. Often, induration of the cervix occurs afterruptures or bruises of its tissues,intracerebral hemorrhages. Induration, as a rule, entails narrowing or complete obstruction of the cervical canal.

During vaginal and especially rectal examination, the cervixis palpable as an unevenlyenlarged, compacted or stonyformation. Stony moundsalternate with compacted elastic areas; sometimes, on the contrary, compressionsare located in depressions between elevations (scar contractions). Induration and calcification of the cervix serve as a direct indication forculling queens. If induration is established during labor, anoperative dilation of the cervix or a caesarean section can be performed.

Neoplasms in the cervix. Tumorsin the form of sarcomas, carcinomas, fibroids, and others, if not always createa mechanical obstacle tofertilization, then, as a rule, complicate the birthact. Tumorsare mainly localized in the vaginal partof the neck. Cysts and fibroids from hypertrophiedmucosal folds are especially common here.

Diagnosis. Put by vaginal and rectal examination.

Treatment. Tumors that develop on the vaginal part of the cervix and sit on the legs can be surgically removed. With malignant tumorsand extensive damage to the cervix, the animal is culled.Surgical intervention is recommended only in cases where the tumor does not invade the muscle layer, remains mobile and bound only tothe mucosa.

Preparation for the operation is usual-regional or local anesthesia. Tseforest-like dissect the perineum. The opuhol is captured with a kornzang or hooked forceps-and pulled out of the vaginaalong with the cervix. When operating under

localanesthesia, an analgesic solution is injected into the base of the tumor. A scalpel is used to cut the mucous membrane around the tumor stem. The incision edges are fixed with tweezers, and the tumor is graduallyremoved to healthy tissues. Toprevent the cervix from being prematurely drawn deep into the birth canal after the tumor is separated, it is held with forceps. After removal of the tumor, the wound of the mucous membrane is fastened with several nodularsutures (preferably from catgut). Before suturing, the bleeding should be carefullystoppedby puncturing or unscrewing the bleeding vessels. Sometimes in postoperativebleeding to avoidthe formation of extensive hematomas, the remainder of the pedicle is squeezed with hemostatic tweezers and left for 12-24 hours. Incase of persistent postoperative parenchymal bleeding, tight vaginal tamponade is used and thepeддверия srodoorway is closed for 4-5h.

Small mucosal polyps witha whisker are unscrewed with Muset forceps or cut off with scissors afterpreliminary stitching and pulling the leg with a ligature.

DISEASES OF THE UTERUS

Diseases of the uterus not onlynegatively affect fertility, but also reduce all types of productivity of the animal. Inflammatory processes create unfavorable-conditions for sperm survival in the uterus (spermiolysins, spermiotoxinsспермиолизины, bacteriotoxinsны, бактериотоксины и бактериолизиand bacteriolizins, active forms of phagocytes, etc.); in addition, even after fertilization of the egg, the embryo that enters thecavity of such a uterus dies. The development of inflammatory processes in the uterus during pregnancy, as well as deep morphologicalchanges in its mucous membrane (atrophy, scarring, degeneration) can lead to a violation of the connection of the fetalpart of the placenta with the mother, and through thedamaged placental barrier,microbes and their toxins penetrate into the tissues and organs of the fetus. Sometimes pregnancyis interrupted because the uterus, which is scarred or attached by adhesions to surrounding organs, cannot serve as a normal плодовместfetus.

The main etiologicalfactor of uterine diseases should be considered an infection, the causativeagents of which enter the uterus during estrus, inseminationand in the postpartum period. Often, uterine lesions are complications ofем colpitis, cervicitis. Sometimes the causativeagent of infection enters it by a hematogenicroute. Often, inflammation of the uterus is only a sign of a general disease of the body (tuberculosis, brucellosis). Depending on the virulenceof microbes and resistance of the genital tissue, signsof uterine disease can vary from obvious to unavoidableвимых клиническим обследованием papathologic changes. Therefore, diagnosis of some uterine lesions is very difficult.

Infertility can be caused by pathologicalchanges in the uterus невосof a non-inflammatorynature in the formof endometrial hyperplasia. This hyperplasia is clinically manifested by thickening and sagging of the uterine wall. Changes in the uterus are preceded by the formation of ovarian cysts (A. I. Ilyina).

Chronic endometritis (Endometendometritis chronica). Chronic inflammation of the uterine mucosa, accompanied by more or less significant changes in the endometrium and increased activity of healthy or degenerated uterine glands. By the

nature of the pathological process (clinically - by the composition of the secreted-mucus), catarrhal and purulent-catarrhal endometritis are distinguished.

Chronic catarrhalendometritis develops as a consequence of the pathogenic action of an infectious agent that penetrates the uterine cavity in the postpartum period, during coitus, artificial insemination, or when распространении восthe inflammatory process spreads from the vagina and cervix. Itis characterized by deep changesin the uterine mucosa in the form of thickening,rarefaction, erosion and ulceration. In the thickness of the mucous membranes, connective tissue grows; uterine glands become atrophic, and in some placesthey form cysts the size of a pinhead to a chicken egg; individual glands or groups of them undergo hyperplasia. Along with atrophy andthinning of the mucousmembrane, thickening of folds is observed, and various forms of growth of granulation tissue turn into scars.

Characteristic signs: infertility, discharge from the uterus of cloudy flaky mucus, sometimes withan admixture of blood. The rhythm of sexual cycles is disrupted or anaphrodisia occursанафродизия. Sometimes sexual cycles are regular, but infertility is noted, despite numerous inseminations, orhidden abortions occur in the initial stages of pregnancy, after which animals мecshow signs of the arousal stage of the sexual cycle in 1-2 months. In the vagina, streaky hyperemia is found, an accumulation of cloudy mucus of a slightly acidic reaction (pH 6-7). Usually, exudate is released while the animal is lying down, mainly during estrus. In the balancing stage, there is an increase and hyperemiaof the vaginal part of the cervix or its displacement to the sides, up; the channel is slightly open and passes 1-2 fingers.

In some cases, sexual cycles stop, there is no discharge, and catarrhal exudate accumulates in матке накапливается катаральный эксthe uterus.

Smears taken from the uterus or fromthe cervix consist of mucus, a large number of decaying white blood cells and ciliated epithelial cells.Rectal examination establishes uneven thickening of the walls of the horns and the uterine body. In some places, the fabric is compacted, flabby or fluctuating (pus). Often the total volumeof the uterus is increased; the horns and body descend into the abdominal cavity, and the ovaries-sometimes to the level of the pelvic floor (in mares). Motor function of the uterus is impaired: rigidity is weakly expressed or absent.

The prognosis for chronic catarrhalendometritis is questionable, as a number of deep morphologicalchanges in the uterus remain irreversible.

Latent chronic endometritisis a typeof carotid, characterized bythe absence of morphological changes (in a clinical study). Theoccurrence of the disease-is promoted by the use of sperm contaminated with opportunistic or pathogenic-microorganisms, incorrect timing of insemination, whichleads to infertility and-increases the likelihood of infectionof sexual organs.

The disease is recognized by the failureof multiple inseminations. The rhythm of sexual cycles is usually notdisturbed. During estrus, there is an abundant discharge from the genital slit of cloudy mucus with an admixture of flakes. Mucus can be examined to clarifythe diagnosis.

When a physiological solution is introduced into the uterine cavity(through a catheter with a reverse current), the fluid that flows backfrom the uterus contains

flakes. In the absence of clinical signs, it is advisable to performan endometrial biopsy for histologicalexamination. With latent endometritis, dystrophy and peelingof the surface epithelium, diffuse or focal accumulation of lymphoidcells, destruction of the uterine glands, severeedema of the endometrial stroma,and vascular filling are noted. With a prolongedflow, atrophic processes occur.

With latent endometritis, toxic substances accumulating in the uterus have a detrimental effect on sperm. Therefore, to restore the animal's fertility, it is necessary to release the uterus from exudateку отэкссудатаand increase its tone. Ahigh therapeutic effectis obtained by applying tissue therapy according to the Filatov methodin combination with uterine massage. Sometimes positive resultsare obtained after washing the uteruswith a physiological or saline-содовым pasolution for 1-2 hours or immediately before insemination.

N. I. Polyantsev believes that with latent endometritisможнопроводить , therapy can be carried out in two ways:: D) during the stage of excitation of the sexual cycle, instead of insemination, 20 - 30 ml of spermosan-3 is poured into the uterus in the form of a 5% masssuspension, an emulsionof iodisulfamideмутсульфамида or mastisan A, B, E; 2) neomycin or neovitin is once injected into the uterus 12-16 hours after insemination неомицин или неовитин(0.5 g each), polymyxin M (0.5-1 g), levomycetin sodium succinate (0.5-1 g). Before infusion, antibiotics are dissolved in 10 ml of 1 %sodium chloride solution or 0.25-0.5% panovocaine solution. A. I. Varganovbelieves that biosan should be administered cervically 10-12 hours after insemination of cows with latent endometritisвводить цервикально биосан.

Chronic purulent-catarrhal endometritis develops from acute oris caused by the activity of pyogenicmicroorganisms in chronic endometrial catarrh.

Pathoanatomical changes are quite pronounced. Along with edema, severe hyperemia, andлияниями в слизистой оболочке матки hemorrhages, more or less extensive foci of softening, purulentinfiltration, degeneration, and necrosis with tissue rejection appear in the uterine mucosa. Often, ulceration of the rasis divided into muscle layers.The mucous membrane atrophies; its foldsare smoothed out. In some places, connective tissue grows in the formof warty, mushroom-shaped elevations. Sometimes significant areas ofthe endometrium turn into a continuousgranulating surface or into a zone of scarringstrands that form large folds and adhesions on the innersurface of the uterus. Cysts of various sizes are formed from the uterine glands. The uterine cavity contains mucopurulent, cloudy, liquid or thick, creamy, yellowish-white or yellow with a reddish tinge exudate.

Purulent-catarrhal inflammation of the uterus is often accompanied bydeterioration of the general condition, weakeningof apnea and emaciation of the animal. Feveris not uncommon. Sexualcycles drop out or becomeirregular (anaphrodisia and nymphomania). White creamy purulent-catarrhal exudate (leucorrhoea) is periodically released from the vagina, especially abundant during estrus.

The mucous membraneof the vagina and cervix is edematous, strongly hyperemic, and sometimes ulcerated. The cervical canal is slightly open and passes 1-2 fingers. Rectalexamination reveals fluctuation (cysts), edema, flabbiness of uterine

tissues, and scarring; its rigidity is weak or absent. Sometimes only certainparts of the uterus are edematous.

Persistent treatment canstop the development of the pathological process. However, after the disease, sometimes such deep changes in the endometrium remain that duringfertilization, abortion occurs at variousstages of pregnancy.

Myometritis (.Inflammation of the uterine musculaturethat occurs as a result of severeendometritis, less often - penetration of thecausative agent of infection by hematogenic pathway. Intermuscular connective tissue grows, replaces musclevoids, and undergoes hyaline or amyloid degeneration. In some places, lime salts are deposited in the uterine wall, and abscesses develop that open into the uterine cavity or encapsulatecяit. миометритаMyometritis is characterized by a violationof the motor function of the uterus.

During rectal examination, the uterus feels thickened, sometimes unevenlybumpy, sometimes of thesame consistency. Its body and hornsdescend into the abdominal cavity. Thesephenomena are often joined bysigns of endo - and perimetrite.

Treatment. In chronic миометmyometritis, it does not produce positiveresults; animals are culled from the smallherd because they remaininfertile or havetemporary abortions.

INFLAMMATION OF THE FALLOPIAN TUBE (SALPINGITIS)

The state яйцепроводаof the oviduct isof great importance forthe fertility of the animal. яйцепровода вдается Many large and small folds of the mucous membrane protrude into the lumen of the oviduct, so the development of an inflammatory process in the fallopiantube, accompanied by swelling of the mucous membrane and adhesions of its sclera, causes the formationof closed cavities containing exudate. Under the influence of the toxins present in the latter, sperm, egg and zygote die.

Inflammation of the oviduct and its consequences in the form of degenerationof individual layers of the tube interfere with the progress of the egg and often serve as an insurmountable obstacle on the way of sperm to the eggcell. Tubal lesions, which are insignificant in sizeand are not noticeable in clinical studies, can cause infertility of the animal in the normal state and proper functioning of all other parts ofthe reproductive system.

Lesions of the oviduct canbe limited to the mucous membrane (endosalpingitissalpingitis), invade the muscle layer (Myosalpingitis) or the serous cover of the tube (Perysalpingitis). In fact, there are no methods of thorough clinicalinvestigation that would allow todetect lesions of individual layers of the testiculartract. Clinically, only processes that are accompanied by morphological changes in the tube in the form of accumulations of exudate or connective tissue scarring aredetected. Therefore, we will limit ourselves to considering only the mainpipe connections.

Acute and chronic catarrhal salpingitis (Salpingitis catarrhalis acuta et chronica). Endosalpingitis is an inflammation of the mucous membrane of the tube that develops as a complication of endometritis,peritonitis due to injury or

metastasis. The essence of the process consists inswelling, the appearanceof small hemorrhages and leukocytic infiltration of the mucous membrane. Its epitheliumis subject to degeneration andis sometimesreduced. Edema of the folds of the mucous-membrane leads to the formation of closedcavities, more or less strongly stretched by secretions, or to completeobstruction of the tube with filling of its lumen with serous-catarrhaldischarge.

In the chronic courseof the disease, the epithelium of the tube degenerates, its folds thicken and condense due to the proliferation of connective tissue. The tops of the folds, devoid of the integumentary epithelium, grow together, and in the intervals between them thereare closed cavities. Sometimes scarcontractions cause strictures and даже even complete overgrowth of the pipes in one ormore places. Closed sections of the tubes are stretched by inflammatory exudate into cyst-like swellings. As the pathologicalprocess progresses, the degenerated mucosa begins to secrete mucosal-serous fluid that overflows the tubes. The process ends with dropsy of the tubes (Hydrosalpinx).

During catarrhal hemorrhagic inflammation or after trauma (witha severe rectal examination), a significant amount of blood can accumulate in the tubepassage (Naemosalpinx).

Acute and chronic purulent salpingitisпингит (Salpingitis purulenta acuta e tchronica). Purulent salpingitis usually arises from catarrhal and oftenoccurs in the form of purulent-catarrhal inflammation. Purulent salpingitis характеris characterized by deep changes in the mucous membrane. Erosions and ulcers appear on its surface, sometimes purulent-fibrinous and diphtheria deposits. The pathological process captures the muscle layers. In a chronic course, scar tissue develops and облитерируетсяthe lumen of the oviduct is obliterated.Purulent white exudate of creamy consistency or liquid greenish or yellowish serous-catarrhal masses accumulate in the pipe channel. Thecontents can stretch the tube,merging into one continuous fluctuatingbubble or into several abscesses located along the course of the tube.

Normally, the oviducts of mares and cows are not palpable duringrectal examination. Therefore, the diagnosisof poorly expressed forms ofendosalpinitis is impossible. Ifother parts of the sexual apparatus are excluded, a presumptive diagnosisof tubal obstruction should be made.

Attempts by some clinicians to detect tubal patency in cows and mares by purging them have not yielded valuable diagnostic results.

With hydro-and pyosalpingitis, palpationsin the uterus establish a round or oval fluctuating bladder located between the ovary and the top ofthe uterine horn. If there-are purulent contents in the tru, the animal reacts strongly to palpation. Sometimes, along the course of the pipe, severalcyst-like fluctuating swellings ranging in size from a pea toa lubin's egg and more are felt.

14-lecture. INFERTILITY AND DULLNESS. OBSTETRIC AND GYNECOLOGICAL MEDICAL EXAMINATION.

Training elements:

1. The concept of infertility and cowhide.
2. Etiology, economic damage, classification of infertility.
3. Congenital infertility
4. Stages and terms of conducting obstetric and gynecological medical examinations in cows.

Infertility is a violation of reproductionof offspring causedby abnormal living conditionsof females and males (errors in feeding, maintenance andoperation, improper insemination, diseases ofthe reproductive system and other organs).

Infertility causes huge damage to the national economy, as it causes a lack of offspring; a decrease in the milk productivity of livestock; unpaid expenses for feeding and maintaining, and ifnecessary, treatment of infertile animals; a significant increase in costs due to repeated inseminationof infertile females. In animal husbandry, the damage causedby infertility often exceeds the losses caused by all other infectious and non-infectiousdiseases, so the fight against infertility is the most urgent taskof agricultural science and practice.

In the theory of infertility, the following phenomena and concepts are distinguished: **плодofertility**-the property of females and malesto regularly reproduce offspring; **infertility**- a violationof reproduction of offspring; **плодовитость** female fertility - the numberof fetuses developing in the uterus and being born during one pregnancy; it can manifestitself in the form **of infertility**-the birth of fetuses by a female is less than the fertility standards established for her species, and **multiple pregnancies**, when there are more newborns than the female usually brings.

Many foreign experts consider infertility only as a violation of the ability of females to bear fruit due to diseasesof the sexual organs, and all cases of reduced fertility that are not accompanied by pathological changes in thegenitals are regarded as special processes. Infertility is a complex biological phenomenon. The definition of infertility onlyas a symptom of genital diseases is too narrow, does not reflect reality and therefore artificially restricts the use of effective methods of infertility prevention and therapy. Very often, the ability of animals to fertilize is not violated, and the female remains infertile (without a fetus) due to improper, untimely insemination.

A healthy organism that is in normal conditions of existence can regularly bring offspring. Therefore, every female of all types of farm animals that is not inseminated or inseminated, but is not fertilized within a month after delivery (young females - one month after reaching physiological maturity), should **be considered infertile**.

For monthly monitoring, the specialist should divide all breeding stock into the following groups:

1. females in the postpartum period who have an involution of the reproductive system (up to 30 days after delivery);

2. inseminated, subject to pregnancy testing (1-2 months after insemination, depending on the diagnostic method);

3. pregnant women who have been diagnosed with this condition by appropriate research methods;

4. infertile.

To get the maximum number of offspring, you must first take into account the main thing - infertility and struggle, but that during the year on all farms there are as few days of infertility as possible. During the intensification of animal husbandry, reproduction work is planned on the basis of fertility standards, i.e. time for the birth of a normal number and quality of offspring from a female of the corresponding species. The standard of female fertility characterizes her maximum opportunities for reproduction of offspring, i.e. the time required for a female to become pregnant, give birth and involute her genitals, lasting 7-30 days. For mares, it is 350-365 days, for cows-300-315, for sheep and goats-165-170, for pigs - 140 - 145 days.

Currently, there are many classifications of infertility; all of them, as a rule, are aimed at identifying the causes of infertility, for their elimination. The most complete forms of infertility are reflected in the classification developed by A. P. Studentsov.

The etiological factors of infertility are basically the same for females and males; infertility depends on the inferiority of females or producers, on the violation of the relationship between the body and its environment; it can occur with the normal state of the genitals of males and females (artificially acquired). In contrast to all other forms of infertility that cause cow-breeding, we also distinguish a special form of infertility - artificially directed, with which breeders not only do not fight, but, on the contrary, cause and create it in order to get a full-fledged offspring, increase meat productivity, as well as for the implementation of selection and breeding work and other purposes.

Any case of infertility, when carefully analyzed, always turns out to be a variety of one of the seven named forms.

Industrial experience has shown that establishing the causes of infertility is of great importance, but we can not limit ourselves only to their identification and elimination. We must remember that infertilityoccurs if there are three conditions:

1) causes that have an adverse effect on sexuality (stress);ствующие на сексуальность (стрессы);

2) conditions that favor infertility.

3) the state of the body (reduced resistance).

In farms, there are usually mixed forms of animal infertility rather than "pure"ones; alimentary and climatic, operational and artificially acquired, symptomaticand senile, etc. In case of mass infertility of animals on the farm, in order to apply effective preventive and curative measures, it is necessary to identify the main, main, leading form, its causes, and first ofall focus attention on it.

Mature female farmanimals have two normalstates: pregnancy andthe postpartum period. All cases of infertility should be considered abnormal.

On farms the following categoriesof breeding stock should be taken into account on a daily basis: 1) pregnantanimals; 2) non-pregnant, i.e.those who are in the postpartum period (within 30 days after delivery); 3) infertile; it is advisable to distinguish betweenthose who have been inseminated during the last month and artificially directed infertility, i.e.those who have not been inseminated for 30 days for economic reasons after delivery, and young females-one month after the onset of their physiologicalmaturity.

Congenital infertility is the inability to reproduce as a result of abnormalities in the development of the sexual apparatus of males and females that occurred during the embryonic and fetal periods or as a result of the biological inferiority of the egg, sperm and zygote.

Infantilism. Infantilism (infantilis - infantile) refers to the underdevelopment of the genitals or their afunctional state in an organism that has reachedmaturity, dueto insufficient activity of the hypo-physis and other disorders of theendocrine and nervous systems. According to some authors, in 2-5% of pigs and heifers infertility occurs on the basis ofinsecticide. In small animals, thevital diagnosis of infantilism has not been developed.

In nature, females stimulatethe sexual maturation of males and vice versa. This also happens if there is no direct contact. The lack of such stimulation can lead toinfantilism.

In some heifers, despite the completion ofbody formation and pre-exterior forms, sexual cyclicity is not manifested. Sometimes, with regular sexual cycles, multiple inseminations are still not accompanied by conception.

Clinical signs. ОбнаруживаThey show a small volume of the uterus and its horns,testicles the size of a pea, or they can be of normal size andcontain follicles. Sometimes, with the fulldevelopment of the internal genitalia, there is an underdevelopment of the vulva or vagina.

The forecast is cautious.

Treatment. To stimulatethe activity of the sexual apparatus, communication of females with a probe, pastoralmaintenance, massage, tissue and other preparations are used. If the animal is fertilized, the onsetof pregnancy promotes the formation ofsexual organs.

Freemartinism is a deformity, often called incomplete (false) hermaphroditism, characterized by over-development of the clitoris, which takes the form of a male penis, in the absence or underdevelopment of certain parts of the female sexual apparatus.

Pseudohermaphrodites occur mainly at the birth of variousduos in cows, and bulls, as a rule, develop normally and can be full-fledged producers, and freemartin heifersфримартины are infertile.

Freemartinism is also registeredin goats and pigs, and less frequently in animalsof other species.

The origin фримартиновof freemartinsis explained by the presence of anastomoses between the chorionic vessels of neighboring fetuses, through which male hormones penetrate to the female fetus, causing its masculinization. When

twocouples are born, 30 % will have 2 males, 30 % - 2 females, and 40 % - males andfemales, 80-90 % of the latter are infertile.

One of the significant factors determining the nature anddegree of disturbances in the development of the sexual systemмы y in freemartinsis the time offormation of the common placental systemin opposite-sex twins.

Clinical signs. Для фримартиновFreemarthins are characterized by a bull-like appearance, anomalies of the genitals.

Diagnosis. After the birth of a calf, Finger recommends using avaginal measurement and an examination of the mouth of the cervix using a narrowvaginal mirror with divisions or a rectoscope. In normal heifers, the length of the vagina is in the range of 12-15 cm, the cervix has the shape of a rosette. In фримарfreemartins, the length of the vagina is about 2-4 cm, and the vaginal part of the cervix is absent. Freemartins are goodworking and meat-producing animals.

Hermaphroditism. This is an anomaly that consists in the development of Muller and Wolf протоducts, testes and ovaries, or ovariesкоconsisting of ovarian and testicular tissue in one individual. True hermaphroditism is rare. Hermaphroditism can occur due to a primary disorderof the chromosomal set in the form of mosaic cells along the sex chromosomes. Forexample, some cells of the body contain a female set of chromosomes, i.e. two X-chromosomeseach, while others contain an X-and Y-chromosome-a male set. Hermaphroditism is also registered as a consequence of diseases of the endocrine glands, i.e. it can be a secondary disease.

According to Rick, hermaphroditism is common in white long-eared pigs (up to 1.5 %).The author notes that the left gonad always hasan ovarian structure, and the right тестикулаone always has a testicle or a mixed ovarian and testicular tissueтестикула.

Hermaphroditism can be inherited on the paternal side in pigs and goats.

A. I. Puchkovsky, when studying hermaphrodite pigs, found that they differ little in appearance from normal animals.Histological examination of the genital-glands revealed signs of spermiogenesis and follicles at various stages of development, some of which revealedegg cells.

Hermaphrodites are always infertile, they can be used as workingand meat-producing animals.

Congenital anomalies of the cervix. Among the congenital anomalies that give grounds for culling animals as infertile,the absence of the cervix or its canal should be noted.Animals with a double cervix but normally developed horns andovaries are usually fertile. This is most often found in cattle.

Congenital anomalies of the uterus. A single-horned uterus has been found repeatedly in pigs and cows. Observations have shown that the fertility of cows is not affected. In one case, we installed twins in the unicorned uterus of a cow. Usually, the second horn andovary are missing, or the horn is a flat cord connected to the ovary. Single-horned uterusappearsto be more common than expected. In animals of multiplespecies, this anomaly causes lowfertility.

Abnormalities of the vulva and vagina. ЖиAnimals with a congenital absenceof a veil or vagina are discarded. In heifers, and rarely in mares, there isan overgrowth of

the urinary valve, which takesthe form and shape of a fibrousligament that does not allow the insertion of thepenis into the vagina. There are individuals who have completely overgrown the entrance to the vagina. The vaginal cavity is stretched by accumulating mucus, pus or reddish-yellow liquid (up to 10 liters). Stretchingof the vagina can make it difficult to defecate.

Congenital impotence (infertility) of males. It is characterized by underdevelopment of the penis, testicles (infantilism), the formation of cysts in them, as well as one - or two-sidedcryptorchidism (the testes are retained in the abdominal cavity). Underdevelopment ofseeds is determined by their small size and dough-like consistency. In the absence of one or both testicles in the scrotum, they can sometimes bedetected in the inguinal canal. КрипторхиCryptorchidov and animals with underdeveloped seedsare culled from amongthe producers

Senile infertility (рий, climax) is a violation of the fertilityof females and breeders due to changes in the genitals and other organs.

In old age, the activity of all body functions decreases, inparticular, the sexual function weakens and ceases. The age-related decline and cessation of generative ovarian function is basedon the development of hypoplastic or fibrotic processes in the connective tissue elements of the gonadsthat perform trophic, plastic, andhormonal functions. This excludes the possibilityof growth, maturation and ovulation of follicles and the manifestation of sexual cycles. In oldcows and mares that have given birth a lot, the uterus descends from the pelvic cavity to the abdominal cavity due to a sprain of the ligamentous apparatus, with the cranial part of the vagina also moving there. Such an anatomical and topographical locationfavors the flow of urine to the area surrounding the cervix, as a result of whichirritation occurs and поддерживается inflammation of local tissues is maintained, and unfavorable conditions for spermsare created.

With age, senile atrophy of the uterus, ovaries, and otherparts of the reproductive system occurs, and the functionsof the sexual system are weakened.

Senile atrophy of the uterus and ovaries can be in the form of a general reduction of the organ or its size remains unchanged and even increases if the tissue elements are replaced by connective tissuegrowths with their calcification.

The organs become hardand stony.

Practical observations showthat the onset ofthe climacteric period, defined in animalbreeding by the loss of the ability toreproduce, varies greatly in animals of different species.

The vitality of the offspring obtained from old animals is reduced. In old sheep, twin lambs are especially often killed.

Symptomatic infertility is a violation of reproduction due to diseases of the genitals and other organs of females and breeders. The developmentof the pathological process in the sexualapparatus negatively affects not only fertility, but also all types ofproductivity of the animal. Gynecologicaland other diseases canbe accompanied by a serious condition of the entire body. These cases of infertility are a sign of a more serious disease of the body. All so-called functional disorders, such asovarian disorders, are a sign of a diseaseof the body or abnormal living conditions.

Often, infertility of cows is a consequence (sign)of impaired functions сердечнососудистойof the cardiovascular and digestivesystems or postpartum diseases. G. V. Zvereva, F. Ya. Sizonenko, E. F. Kochetova observed symptomaticinfertility in FMD.Biological factors (infection and invasion) can cause infertility, orcause a general pathogenic effect on the body, or cause a complexof local inflammatory processes and concomitantchanges in the genital area, manifested by vaginitis, cervicitis, endometritis, myo - and perimetritis, salpingitis and ovariitis, scar contractions, andtissue degeneration.

Depending on the location andnature of the inflammatory process, the essenceof infertility can be explained by four factors:: 1) deathof sperm in the female genital areadue to their exposure to an unfavorable environment or inability to move to the egg cell; 2) death of the egg cell or zygote; 3) inability of the zygote to enter the uterine cavity; 4) violation of the sexual cycle (lack of ovulation, estrus, sexualarousal and hunting).

The most common of these factors seems tobe the death of sperm. By natural dropout, millions and billions of sperm die as they movethrough the genital tract; there are spermotoxins in the blood of every organism that, kill sperm when they come into contact with them

Spermotoxins can be qualitatively different (autospermotoxins; isospermotoxinsthat kill the sperm of a male of the same species; heterospermotoxinsthatkill sperm belonging to a male of another species). M. P. Tushnov found that the amount of spermotoxins can be increased artificially by parenteral administration of sperm into the body, as a result of which the latter reacts with the formation of antibodies - spermotoxins. If a certain dosage and sequence of subcutaneous injections are observed, it is possible to create such a concentration of spermotoxins in the female bodythatsperm entering the vagina die. Therefore, this method can be used to obtain a kind of artificial infertility (vaccinationagainst pregnancy).

The female's sexual apparatus always contains a small amount сперof spermatoxins. Their concentration in inflammatory processes localizedin the female's genitals and even innher body increases dramatically. It is possible that their biochemicallyharmful effect on sperm is also enhanced.разующиеся при воспалительных проBacterial toxins formed during inflammatory processes also have a harmful effect on sperm cells. Finally, more aggressive forms of phagocytes, which appear during the inflammatory reaction of the genital tissues,destroy sperm cells. The meeting of sperm with an egg cell can also be hindered by purely mechanical obstacles in the formof scars, adhesions, narrowing of the lumenof the sexual pathways due to degeneration or edema of their walls, and the developmentof neoplasms.

Infertility in infectious and invasivediseases. Brucellosis, leptospirosis, salmonellosis, campylobacteriosis, infectious rhinotracheitis,trichomoniasis and other diseases can cause symptomatic infertility.Since sexual infections and

infestationsare described in the relevant textbooks, we will briefly discuss the individual most common diseasesbelow.

Alimentary infertility (food, from Lat. alimentum-food) - violation of animal reproduction asa result of a general or qualitative shortageof feed. This formof infertility is based on alimentary stress. It is known that under stress due to the restructuring of the functionпофиза ослабевает или подавляется деяof the pituitary gland, the activity of the reproductive system weakens or is suppressed. To determine the causes and types of alimentary infertility, it is most important to analyze the feed ration, feed resources, and organization of feeding of animals, in particular young animals, throughout the entireperiod of growth and development.

Infertility as a consequence of exhaustion. Low yield, untimely delivery of feed, improper processing for feeding, spoilage of feed due to improper storage and other violations of the rules of feedproduction and feeding can causeinfertility. A general lackof food negatively affects the entire body, primarily disrupts the dynamics of sexual cycles in the form of anaphrodisia and defective sexual cycles.

Clinical signs. Emaciated animals have no sexual cycles. Estrus, sexual hunting, or ovulation do not occur. During rectalexamination, a decreasein the ovaries and a denser consistency are established. Sometimes large yellow bodies are found, but there are no follicles or their maturationis delayed, and ovulation does not occur, the follicle undergoes lyuteinizationтеинизации or turns into a follicularcyst. Signs of inflammation are not established.

Alimentary infertility canoccur in the form of hypoproteinemia.The level of total protein in the blood serum decreases, the percentage of albumin and globulin fractions changes. The albumin and beta-globulin fractions decrease for a long period, while the alpha-and gamma-globulin fractions recover relatively quickly.

Fecundity is negatively affectedby the concentrated type of feeding, which is associated with a violation of endocrine-trophicmechanisms. Alimentary infertility can also manifest itself in the form of hidden abortions or the birthof an unhealthy offspring.

Infertility as a consequence of obesity. The reason for this infertility is feeding a large amount of beet pulp, bards, cake cakes, concentrates without taking into account the norms. One-week feeding in the absence of mo-tion favors the deposition of fat in the body, in particular inthe female's sexual apparatus. The ovaries undergo fatty degeneration and fat infiltration. The basis of infertility due to obesity, of course, is a violation of the functions of the endocrine systemand mainly the ovaries and hypophysis. However, the pathogenesis, in particular the question of where the primaryprocess is located, often remains unclear.

Clinical signs. There is general obesity, anaphrodisia, an increase in the volume of the ovaries, and a high density of them. The sexual cyclesof animals are defective, there is nofertilization under normal rhythm and the formationof the arousal stage of the sexual cycle. Sometimesuterine atrophy is noted, which is expressedby a decrease in its volume, flabbinessof consistency, and lack or weaknessof hydration.

Infertility as a consequenceof poor feed quality. The reasons are a lack or excess of proteins, vitamins, macro-and microelements in the diet, feeding ofspoiled, substandard feed. Practical observations and experimental studies of recent years

indicate a close dependence of animal fecundity on the quality of feed. It should be borne in mind that the absence, insufficientquantity, and sometimes an excess of one ofthe components of the feed diet (vitamins, proteins, carbohydrates, calcium, phosphorus, manganese, iodine, iron, cobalt, etc.), even with a good overall fatness of the animal, can lead to infertility. Thus, when there is a lack of carbon in the diet, the level of reserve alkalinityand blood sugar decreases, the number of ketone bodies increases, alimentary toxemia appears, and нарушается reproductive function is disrupted.Iodine, which is a part of thyroid hormones, has a great influence on the reproductive function of animals. It increasesthe excitability of the central nervous system, increases metabolism, and activates sexual function. When there is a lack of-iodine in the diet, femalesexual maturation is delayed, defective sexual cycles (often ановуляanovulatory) are observed with the formationof follicular cysts, infertility occurs, abortions occur, detention afterchildbirth, etc., bulls have reduced potency and sperm quality worsens. Ifthere is a lack of cobalt in the diet, cowshave anemia, incompletesex cycles, reduced fertilization, abortions, afterbirth retention, uterine subinvolution, endometritis, and stasis before and afterchildbirth.

Manganese plays an important role in the animal's body. It is necessary for the release of hormones by the anterior pituitary gland that affect the function of the ovariesand breast. Ifit is not enough, the development of the genitals is disrupted, the terms of puberty are prolonged, the fertilization and vitality of the offspring are reduced,and abortions appear. With an excess of manganese in the feed, the digestibility of jelly decreases, andthe body is depleted of iodine. Copper is essential for the normalfunction of the ovaries, hypothalamus, and pituitary gland. It enters into an exchange with molybdenum, calcium, and manganese.

Thelack of retinol is especially important in the development of infertility, which can lead to theregeneration of the endometrial epithelium - its keratinization, as well as, apparently,degenerative changes in egg cells. Severe A-hypovitaminosis causes emaciation, corneal ulceration, and other eyeinflammations in cows. One of thesigns of A-hypovitaminosis in cows is achange in the color of milk and butter. Summer oil rich in retinol is bright yellow in color.

The negative effect of B-hypovitisminosa on the fertility of animals is usually combined with an incorrectselection of the protein part of the diet (excess) and is manifested by degenerative changes in the sex glands and violationof sexual cycles. Calciferol (vitamin D), while not directlyrelated to animalfecundity, has a beneficial effect on mineralmetabolism in general and maintainsa higher blood concentration of calcium and phosphorus salts in particular. If it is deficient, redox metabolism and reproductivefunction are disrupted (ovarian atrophy andsclerosis). With E-hypovitaminosis, the course of pregnancy is disrupted.

Sexual functions can be negatively affected by rancid cakes (spoiled fats), feedingmainly with bard. It is necessary to take into account the acidity of feed, as it can cause general acidosis and infertility. Acidosis can probably be attributedto the occasional infertility of animals treated with very large amounts of silage.

Clinical signs. Ininfertility causedby a lack of quality feed, they are the same as in infertility due to exhaustion or obesity.

Alimentary infantilism. This is notthe pre-development of the reproductive system of young females during puberty due to malnutrition.

Clinical signs. Для алименAlimentary infantilism is characterizedby a lack of pre-development of the animal, the absenceof sexual cycles at the age of puberty. Rectal examinationreveals ovarian hypoplasia (they can be the size of a pea), the uterus is small, and it is oftendifficult to feel it.

The prognosis for any type of alimentary infertility depends on the degree of metabolic disordersand the nature of degeneration of ovarian and other organs of the reproductive system. As a rule, the eliminationof alimentary infertility requires a long time (at least 4-6 weeks).

Treatment. A balancedfeeding is prescribed, taking into account the age andcondition of the animal, and the necessary mineral and other supplements are included in the diet. When feedingwith calcium and phosphorus salts, vitamin D is always given or ultraviolet irradiation of the animal is organized. It is necessary to use the natural route ofintroduction of fat-soluble vitaminsinto the body, and not focus on injections of oil solutions.Simultaneously with the normalization of feeding, they organize animal walks, dosizing and communication with samplers. When improving the condition of females,determined by the results of clinical andlaboratory studies, after 4-6 weeks, tissuetherapy, ovarian massage and othertechniques can be used.

In case of obesity, replacing concentrates with juicy feeds and active exercise give good results.Infertility in this case is more difficult to eliminate than with starvation or qualitative insufficiency of the diet. Pasture maintenance, exercise, sun exposure, and contact with the prober usually contributeto the rapid recovery of fertility. However, in some cases, after winter-spring under-feeding, sexual activity is restored only after 4-6 months, despite goodfeeding of animals and pasture maintenance.

Operational infertility. Often, the violation of animal reproduction is a consequence of unilateral overexploitation.

The reasons are increased training at races and horse races; continuous 300-day or longer lactation with skipping sexual cycles in the first and second months after delivery; shortening of the dry period in cows;insemination of females before reaching physiologicalmaturity; intensive milking of cows, especially first-calves, mares; long suckling period in sows. If the suckling method of raising calves in dairy cattle breeding is not properly organized, cows also have a violation of sexual function.

In case of operational infertility, the metabolism is disrupted, as alarge amount of vital substances is released from the urine, which creates conditions for quantitative and qualitative starvation in the body. In addition, “milk infertility" can be explainedby the increased response of the pituitary gland to nerve impulses coming fromthe breast. These impulsesoccur due to irritation of the nipples by suckers or during milking and udder massage.

These factors maybe compounded by feeding errors in the form of general or qualitative deficiencies in thediet.

Clinical signs. They are not veryspecific. There are no sexual cycles in the first months after delivery, arousalstages are gradually manifested, and anovulatory, алибидныеalibid, and other defectivesexual cycles are noted. There is ovarian depression - anaphrodisia, persistentcorpus luteum, cyst, reduction of oneor both ovaries. The ovaries have an elastic-dense consistency; sometimes follicles are detected, but they remain stable for a long period. With lactation infertility, signs of osteomalacia are observed: pain in the liver, swelling of the joints, and a reticular structure of the bones on X-rays.

Treatment. Assign full-fledged feeding, exercise, pasture maintenance of females with a probe, massageof the uterus, ovaries in order to increase their bloodcirculation. If necessary, use gonadostimulating гонадостимулирующиедrugs or perform surgery on the ovaries. Overworked maresare usually given 2-3 days of rest, followed by moderate work (such as exercise) for 10-15 days, to restore their sexual cycles. The yellow body trapping recommended by some authors should not be practiced.торами отлавливание желтого тела практиковать не следует.

Organize proper machine milking of cows. Cows of meat breeds after giving birth are reinforced with feeding, they practice regulatedsos (3 times a day), which accelerates the involution of the genitals and increases fertilization (V. K. Kopytin).

Climatic infertility. Violation of animal reproduction due to suppression of sexualfunction by meteorological factors or abnormal conditions of maintenanceis characterized as climaticinfertility. Infertility of this formis a consequence of the effects on the animal's body of physical (air temperature, high humidity, ionizing radiation, harsh noises, etc.) and chemical stressors (increased concentration of-ammonia, hydrogen sulfide, carbon dioxide, nitrogen oxides, and various chemicalsused to treatanimals and premises from insects).

Reasons-sudden changes in the climate (from the southern to the northern or viceversa) due to the movement of animals to other areas, lack of provision of premises in winter orscales to protect them from the sun in summer can be accompanied by infertilityas a result of new solar conditions, unusual feed composition, air temperature and other externalinfluences that affect the quality of exchange of goods. The possibility of climate infertility should be borne in mind, in-particular, when importing animals.

The fertility of animals canchange under the influence of not onlygeographical conditions, but also meteorologicalfluctuations in certain years in the same area.

It is noted that a decrease in air temperature for severaldays to 3-1°C (April-May) delays the development of follicles and the manifestation of huntingin cows. Increase in air temperature to 35-40°CC also leads to suppression of sexual function. A direct dependence of the intensity of sexualprocesses in rabbits on fluctuations in outdoor air temperature is established.

In the hot season of the year, the functional activity of the thyroid gland, adenohypophysis, ovaries and uterus decreases in animals.

In sheep, climatic infertility is observed in summer due to the lengthening of daylighthours, which manifests itself in anaphrodisiaродизии without significantmorphological changes in the genitals.

It is known that raisingyoung piglets in the dark leads to adelay in the development of the sex glands andsexual maturation. Slowing the growth of gonad in such conditions is associated withhypofunction of the pituitary gland, which in piglets raised in the dark was 20-24% less than in animals kept in normal conditions (K. B. Svechin).

However, climatic infertility can be eliminated by creating comfortableconditions for keeping animals. With modern technology, it is possible not only to reduce orneutralize the negative impact of the microclimate, but also to increase the fertility of animals.

Treatment. The main focus should be on providinganimals with dry, bright, well-ventilatedrooms with optimaltemperatures. They organize regularexercise at all seasons of the year. Do notallow cooling or overheating of animals. In sheep, lengthening of the night and shortening of the day, while in horses, on the contrary, lengthening of the day and shortening of the night stimulatesexual activity.

Use ovarian massage, weaving therapy, and other techniques (see "Stimulation of sexual function").

Artificially acquired infertility. Violationof animal reproduction is possible due to improperorganization and implementationof natural or artificialinsemination.

Eliminationof artificially acquired infertility in females. The main attention is paid to the choice of insemination time. When working on animal reproduction, a practitioner usually meets with full-fledgedsexual cycles, which arecharacterized by the presenceof all the phenomena of the sexual cycle - hunting, estrus, ovulation and-sexual arousal-at the stage of arousal, but under such conditions, fertilization may not occur if the relationshipof these processes over time is not taken into account.

Obstetric and gynecological medical examination of cows and heifers is a continuous complex of planned diagnostic, therapeutic and preventive measures aimed at preventing, previously detecting and treating diseases of the genital organs, increasing the fertilization rate and productivity of cattle.

Gynecological medical examination includes the following activities:

1) clinical study of an animal;
2) gynecological examination;
3) laboratory tests;
4) analysis of herd reproduction.

Clinical study of an animal. To find out the cause of infertility, it is necessary to perfectly master the methods of studying the animal. It should always be remembered that often the reproductive function is disrupted with diseases of other systems and organs. In addition, infertility is often asymptomatic and is diagnosed only with the use of special research methods (endometrial biopsy, hormone tests, etc.).

Given the above, the study of the animal should be carried out strictly according to a certain scheme.

Before the study, the animal is registered in special journals (the most convenient card registration system). When registering, indicate the following data: date of inspection, type of animal, breed, age, suit and markings, nickname and tag (brand).

The clinical study of an animal consists of a general and a special one. It is preceded by collecting an anamnesis.

Collecting anamnesis. The medical history should contain data on two interrelated periods. First, they find out the conditions in which the animal was before the disease (behavior, appetite, conditions of detention, quality of care, operating mode), and then collect information that can help to recognize the disease. It is advisable to obtain anamnestic information from a person who constantly monitors the animal (vetsanitar, artificial insemination technician, milkmaids, etc.) and has data, possibly for a long time.

When collecting an anamnesis, you need to ask questions skillfully, since only after a correctly posed question can you expect an objective answer that will help in making a diagnosis. When collecting an anamnesis, you need to get information on the following basic questions:

1. When did the animal get sick?

3. What are the most characteristic signs of the disease?

4. How many animals have become ill and have similar diseases been observed before?

5. When was the last delivery, how did it proceed and what is the duration of time from fetal removal to separation of the afterbirth?

6. What is the duration of the postpartum period?

7. When was the first estrus and hunting observed after childbirth, what kind of insemination is used (artificial, natural)?

It is necessary to establish the insemination method used in the farm, study the insemination procedure and identify its shortcomings. To do this, you need to find out: the qualification and work experience of the artificial insemination technician, the equipment of the artificial insemination center and its sanitary condition, the method of storing sperm, the method of determining its quality before insemination, the method of accounting for inseminated animals.

Analysis of the obtained anamnestic data allows us to approximate the possible causes of gynecological diseases of the animal. Often, when studying the causes of female infertility, conclusions are drawn about the need for a clinical examination of the manufacturer, a study of the quality of his sperm, the method of its storage, etc. Only with a comprehensive analysis of the causes can a scientifically based conclusion be drawn and infertility prevention can be properly organized.

However, it should always be remembered that the diagnosis and final conclusion about the causes of infertility can be made only after a complete clinical study of the animal.

General research. In the general study, physique, fatness, body position (pose), temperament, condition of the hair, skin, mucous membranes, lymph nodes and body temperature are determined. Functional activity of the cardiovascular, respiratory, digestive, urinary and nervous systems is studied.

Special research. It includes various instrumental research methods (gastric probing, catheterization, electrocardiography, etc.).

Gynecological examination. When conducting a gynecological examination, it is necessary to identify the most characteristic signs of genital diseases. In addition, it should be borne in mind that some symptoms are observed in a number of other diseases, so you should apply additional research methods and strictly differentiate the objective data obtained. Gynecological examination consists of external and internal examination.

External examination is performed by examining and palpating the croup, pelvic ligaments, abdominal walls, and vulva. If there is a discharge of exudate from the genital cleft, then determine its nature (color, smell, consistency, etc.).

External examination data are of great importance in the complex of information obtained for the correct diagnosis.

The internal examination consists of a vaginal and rectal examination. During vaginal and rectal examinations of the female's genitals, characteristic signs of the disease can be detected and pathological processes can be differentiated with sufficient accuracy. At the same time, in clinical practice, a veterinary specialist often has to use special research methods to diagnose the causes of infertility, since vaginal and rectal research methods cannot detect changes in the genital organs.

Before internal examination, you need to prepare the animal (treat the external genitalia, fix it in the machine, etc.) and treat your hands (cut your nails short, wipe them with a disinfectant solution, ointments, etc.).

The examination of the genitals should be carried out in a strictly defined order. First, the vestibule of the vagina and the vagina are examined, and then the cervix, uterus, ovaries and oviducts.

A veterinary specialist, strictly following the method of gynecological examination and having some experience, in many cases determines the cause of infertility. However, often a violation of reproductive function occurs subclinically, i.e. without clinical signsdetermined by generally accepted research methods. Therefore, for the diagnosis of so-called latent infertility, it is necessary to apply additional or special research methods that allow us to identify and differentiate functional and other disorders of reproductive function.

Laboratory tests. Laboratory methods for diagnosing infertility include: bacteriological and serological examination of exudate from the vagina, cervical canal and uterus; histological examination of the endometrium obtained by biopsy-cytological examination of smears of vaginal mucus in order to determine its crystallization ability (fern leaf phenomenon); hormonal studies of blood serum and urine.

Analysis of herd reproduction. Analysis of herd reproduction and differential diagnosis of infertility is carried out not at the end of the calendar year, but constantly.

To determine the reproduction of cattle on the farm or on the farm, it is necessary to conduct an appropriate special analysis, which should provide for the characterization of the herd by individual indicators: the number of calves lost (% according to calving data), the duration of infertility (in days), fertilization from the first insemination (according to rectal examination); in addition, the condition of the herd should be reproduction on the day of the survey.

Obstetric and gynecological medical examination consists of a number of links, according to the frequency of performance, divided into three groups:

1. Wind events performed continuously throughout the year:

control over the quality of feed for reproducing livestock;

prevention of mineral and vitamin deficiencies in the dry and postpartum periods;

clinical and gynecological examination of cows in the postpartum period;

mastitis testing of dry and lactating cows;

organization of maternity care and monitoring of compliance with veterinary and sanitary rules in the premises of the maternity ward;

pharmacoprophylaxis of postpartum complications;

monitoring of artificial insemination;

treatment of cows with postpartum pathology;

rehabilitation of the uterine cavity in infertile cows (after two or three unsuccessful inseminations);

treatment of cows with clinical forms of mastitis;

2. Monthly veterinarymeasures:

rectal pregnancy check;

clinical and gynecological examination of infertile cows and heifers;

examination of lactating cows for latent mastitis;

analysis of the physiological and clinical state of the herd;

3. Quarterly activities performed:

clinical and gynecological examination of long-term infertile cows and heifers;

culling of cows and heifers unsuitable for reproduction;

biochemical blood analysis from reference groups of animals;

To do this, it is necessary to keep records of herd reproduction according to the scheme given below.

These columns include data on inseminations in cows that have not been tested for pregnancy. In addition, when analyzing herd reproduction, breeding stock should be divided into seven groups:

1. Stelnye.
2. In the postpartum period (3-4 weeksafter calving).
3. Inseminated, but not tested for pregnancy.
4. Those who do not go hunting after calving in 30 days or more.
5. With regular sexual cycles, repeatedly inseminated, but not fertilized.
6. With a disturbed sexual cycle.
7. With clinically expressed pathology of the genitals.

This division of the breeding stock into groups allows a more qualified differentiated approach to the diagnosis and prevention of infertility.

Prevention of infertility of farm animals. Accounting and timely detection of infertility forms allow us to apply effective measures for their prevention and organize the work of farms on the principle of industrial production.Infertility prevention is effective only when implementing a set of measures that include

organizational, agronomic, zootechnical, andveterinary measures. Insufficient implementation of one of them can reduce the effectivenessof all preventive work.

In order to preventsymptomatic infertility, it is necessary to have insulators and other veterinary facilities on farms and complexes, maternity wards with round-the-clock duty in them, it is necessaryto maintain proper cleanliness in livestock premises, and strictly observe sanitary rules for keeping animals.

Prevention алиментарof alimentary infertility is carried out by creating specialized groups of animals for rearingyoung animals, where they are fed in accordance with their age. Organize timely andcorrect harvesting, delivery and storage of feed. Establish and use the necessary mechanisms forprocessing feed, preparing it forfeeding and distributing it to animals.

To prevent эксплуатаoperational infertility, proper milking of cows is organized, taking into accountthe cultivation of viable offspring and maintaining the health of mothers.

Prevention of climate infertilityis achieved by creating an optimalmicroclimate for animals.

To prevent искусстartificially-acquired infertility, it is necessary to havecirculation stations and points of artificialinsemination of animals with the necessaryequipment. The points should have stalls (cages) or pens for keeping inseminated queens. From time to time, it is necessary to send technicians of artificial insemination of animals to advanced training courses.

In order to prevent congenitalденного infertility проводят , timely diagnostics of sexual and other organ abnormalities are performed in young animals under repair; in order to exclude defective animals from reproduction, castration or vasectomy of all non-breeding males is organized beforepuberty (prevention of inbreeding).

Senile infertility is prevented by timely diagnosisof menopausal changes. In some valuable animals, sexual function is stimulated when indicated, and the rest are culled.

To профилактики preventsymptomatic infertility, the instructions and rulesfor keeping animals at stations and points of artificial insemination of animals in industrial complexes and farms are strictly observed. They organize obstetricand gynecological medical examinations. Periodically, a bacteriological study of sperm producers is carried out. Monitorthe health status of pregnant females and their preparation for childbirth, and ensureproper delivery management. In the postpartum period, the state of the genitals is monitored on days 5-7 and 14-15. All females that did not show the stage of arousal within a month after delivery(repair females within a month after reaching physiologicalmaturity) are examined to identifypathology and carry out the necessarytreatment and preventive measures.

Timely diagnosis and treatment of animals with diseases of the genitals and other organs. Make sure that animals with genital diseases are not inseminated until they recover. Sick females that are unsuitable for reproduction should be promptlyculled.

Для выявления влияния кормления на организм животных регулярно проBiochemical and other studiesof blood, urine, milk, and feed are regularly performed to determine the effect of feeding on the animals ' bodies. Makeup dietary rations for sick and old animals.

To prevent эксплуатаoperational infertility, they pay attention to the health status of highly productive animals; checkthe timeliness of starting cows, weaning piglets, lambs, etc.The sexual reflexes and semen quality of producers are periodicallyevaluated, and their load is monitored.

Prevention of climaticкого infertility is ensured by monitoring the microclimate of thepremises, additional insolation, air ionization, and other measures are taken with stablemaintenance.

To preventartificially acquired infertility, the necessary number of operated probes is prepared in a timely manner.Periodically check the health status of producers and the quality of their sperm.

Control questions. 1. What is the essence of infertility classification according to A. P. Studentsov? 2. What are the characteristics of congenital, senile and symptomatic forms of infertility? 3. What is symptomatic impotence? 4. What are the main measuresof prevention of alimentary, operational, climatic and artificially acquired infertility? 5. What is artificiallydirected infertility? 6. What does the complex of measures for the prevention of female infertility and male impotence include?

15-lecture. FUNDAMENTALS OF VETERINARY ANDROLOGY.

Training elements:

1. Andrological dentalexamination.
2. Varieties infertility and sexual impotence in breeding males (aspermia, oligospermia, teratospermia).
3. Diseases of the male genitals.

Andrological medical examination

Andrological medical examination is a study of manufacturers, the purpose of which is to establish the state of their health and potency, and, if necessary, to

diagnose the form of impotence. The tasks of medical examinations include predicting the use of males for reproduction, as well as the choice of treatment and prevention methods.

Scheme of the male clinical study:

1. Registration.

2. Medical history.

Information about registration, feeding, care, diagnostic tests and preventive treatments, sexual use regimen, volume of ejaculates, quality of sperm and its fertilizing capacity, number and quality of the offspring received, manifestations of sexual reflexes by the male during sexual intercourse or receiving sperm on an artificial vagina.

3. General research. Determination of the male's physique, fatness, and temperament. Measurement of temperature, pulse, respiratory rate, study of circulatory, respiratory, nervous, and digestive systems.

4. Special study - examination of the male sexual apparatus.

Examination, careful palpation of the scrotum, testicles and their appendages, inguinal rings, penis (through the walls of the prepuce) and prepuce give a general idea of the development, symmetry, topography, and soreness of the genitals. If the male is restless, shows aggressiveness, then before the study , he is given antipsychotics (aminazine or combilene). After the introduction of these drugs in males, spontaneous extension of the penis from the prepuce is noted after 5-30 minutes for 1-3 hours, which facilitates the study of the organ.

In large animals, the condition of the adnexal sex glands is rectally examined.

5. Reflexological examination of the male (trial cage). Sexual reflexes of males are determined by test cages on clinically healthy females in sexual hunting. Take into account the usefulness of the manifestation of sexual reflexes: erection, hugging, copulating, ejaculation.

6. Laboratory research. Comprehensively examine the resulting sperm. Samples of feed, water, blood, urine and feces, as well as flushes from the male prepuce, are sent to the veterinary laboratory.

Congenital impotence

Congenital infertility of males is a consequence of abnormalities in the development of their sexual apparatus that occurred during embryonic or fetal development as a result of the inferiority of sperm, egg or zygote.

Congenital infertility is manifested in males in the form of infantilism, cryptorchidism, and hermaphroditism.

Infantilism. It is characterized by underdevelopment of the genitals and lack of sexual reflexes in males who have reached the age of puberty. It is clinically manifested by hypoplasia of the testes. As a therapeutic method, some authors recommend communication between males and females, pasture maintenance, massage, and the use of tissue preparations for male infantilism.

Cryptorchidism. It is manifested by a violation of the lowering of the testicles into the scrotum cavity and their retention in the abdominal cavity. For this reason, spermiogenesis is absent, although sexual reflexes are sometimes pronounced. The

causes of cryptorchidism are usually associated with a special recessive gene that can be transmitted in a direct line. Cryptorchidism can be one-sided or two-sided. Unilateral cryptorchidism does not disrupt fertility - it is supported by the function of another, normal testis. Bilateral cryptorchidism leads to infertility, such males usually have aspermia. The testicles that linger in the abdominal cavity are reduced in size and have a soft consistency.

Hermaphroditism. It is relatively rare, consists in the development of the sex glands, consisting of ovarian and testicular tissue.Pseudohermaphrodite males have more or less normal testicles, and the adnexal sex glands are similar to the genitals of the female. In hermaphrodites, in most seminal tubulesсертолиевых, the sertoli cell layer contains only single spermatogonia. Therefore, spermiogenesis does not occur.

Prevention measures for this form of impotence are primarily limited to planned work on breeding animals, taking into account the origin of parents and the compatibility of lines and families, and limiting inbreeding.

Alimentary impotence

Symptoms of alimentary impotence are non-specific: weak sexual reflexes or their complete absence, aspermatism, aspermia, teratospermia, necrospermia, oligospermatism, oligospermia, the presence of ketone bodies in semen.

Clinical signs. Lesions of the sexual apparatus may be absent. It is crucial to examine the manufacturer (weak fatness or obesity), as well as to study and analyze his diet in the last 2-3 months.

During the sexual season, the producer produces a large amount of sperm, secrets of the adnexal sex glands, spends a lot of energy on neuromuscular work during sexual intercourse. All these costs can be compensated only by including the necessary amount and a certain quality of feed in the diet.

Insufficient protein content in the diet disrupts spermiogenesis and the activity of the adnexal sex glands; the producer develops aspermatism, aspermia, teratospermia, or sperm resistance decreases. Adding meat and bone meal, milk, and eggs to the diet has a beneficial effect on producers. When feeding vegetable proteins, it is necessary to diversify them by combining different types of concentrates (oats, bran, cake, peas, etc.). However, excess protein and one-sided feeding can interfere with sexual function due to obesity or a disorder of spermiogenesis.

The inclusion in the diet of a significant amount of sour pulp, poor-quality silage causes the formation of poor-quality products, the presence of which can be judged by the examination of the manufacturer's urine for acetone.

Climatic impotence

Climatic impotence manifests itself as a weakening or cessation of sexual reflexes or a decrease in the quantity and quality of sperm (oligospermia, oligospermatism, aspermia or necrospermia). For example, a ram with a long day of light has a violation of spermiogenesis, the number of sperms formed from spermiogonia isreduced to 10 or less (instead of 16).

Climatic factors affect sexual function through the nervous system. So, when the temperature and air pressure change, the excitability of the parasympathetic nervous system increases, and the volume of ejaculate and sperm density change. Heat, rain, and strong wind have an unfavorable effect on these indicators and reduce sexual activity in bulls.

Prevention. Creating an appropriate microclimate for the manufacturer.

Operational impotence

Operational infertility occurs most often due to excessive muscle work or sexual overload. Excessive work (transport work, intensive training, use in field work, etc.) has a depressing effect on the manifestation of sexual reflexes, the quantity and quality of sperm obtained (necrospermia). On the other hand, lack of exercise causes obesity, general lethargy, decreased ejaculate volume, and weak sperm activity. A large sexual load in stallions, bulls, boars and rams causes operational infertility, which is manifested by a violation of spermiogenesis and is expressed by aspermia, oligospermia, aspermatism, necrospermia, teratospermia, and then sexual reflexes are disturbed. Disorder of sexual reflexes can be expressed in their excessive strengthening, inhibition, weakening or perversion.

The forecast is favorable.

Treatment. It is necessary to stop using the manufacturer for some time or significantly reduce the number of coitus; normalize feeding and maintenance.

Symptomatic impotence

Symptomatic impotence is a violation of the reproduction of offspring due to diseases of the genitals or other organs and systems of the male.

The development of inflammatory processes in the genitals of males, a general disease of the body caused by the pathogenic action of microorganisms, as well as chemical, mechanical and other factors, often cause impotence, are manifested by a violation of the dynamics of sexual function. Pain sensations that occur during pathological processes in the pelvic limbs, croup, and lower back can disrupt the hugging and copulatory reflexes.

Violation of the process of spermiogenesis in producers occurs with scrotal skin diseases, periorhitis, orchitis and epididemitis, testicular cysts and leads to impotence.

Damage to the spermatic cord, inflammation ofthe sperm ducts, penile damage and prepuce are common causes of impotence of the manufacturer. Deep lesions of the adnexal sex glands serve as a direct indication for culling the manufacturer. The main measure of prevention of symptomatic impotence is timely andrological medical examination.

Senile impotence

In breeders who have reached the age limit for breeding service, sexual energy decreases, the amount and quality of sperm decreases. аспрматизмAspermatism, aspermia, necrospermia, oligospermia and teratospermia are often noted.In many manufacturers, despite their senile age, clinical examination often fails to establish any morphological changes in the sexual apparatus. In such cases, the assessment of sperm quality is crucial. The conclusion about the unsuitability of a valuable producer due to reaching the age limit should be made with great caution, since

some animals (especially stallions) retain their reproductive capacity for a very long time.

Artificial impotence

Artificially acquired impotence

Artificially acquired infertility is a violation of male fertility due to the layering of vicious conditioned reflexes on unconditional sexual reflexes (hugging, copulating, erections, ejaculation).

Violation of the embracing and copulatory reflexes is caused by blows inflicted on the producer by the female, improper preparation of the artificial vagina, the presence of strangers, a change in the room, the color of the female and other factors.

Clinical signs. Hugging and copulatory reflexes in the normal state of the sexual apparatus and other body systems are inhibited or do not manifest themselves.

Treatment. First of all, they eliminate factors that inhibit sexual intercourse. The producer is kept in isolation for some time in order to achieve the extinction of perverted conditioned reflexes, tested in a different, unusual environment for him.

Violation of the erection reflex. It occurs when vicious conditioned reflexes are layered together due to errors in insemination or sperm production. Often, a sluggish erection or its complete violation is accompanied by a disorder of other reflexes.

Clinical signs. Violation of the erection reflex is manifested by the absence or weak tension of the penis. Violation of the ejaculation reflex occurs from the same reasons as a violation of the erection reflex.

Clinical signs. Violation of the ejaculation reflex can occur in two forms: violation of the dynamics of ejaculate release (aspermatism and oligospermatism) and inferiority of ejaculate (aspermia, oligospermia, necrospermia, teratospermia).

After repeated infertile cages, the producer develops indifference to the female, i.e. other reflexes also weaken. Often, ejaculate is released after coitus.

Treatment. The main element of therapy is the correct maintenance of the animal. The manufacturer, who has come to a very strong excitement, must be distracted by wiring. Individual producers perform sexual intercourse well after a distracting run.

Artificially induced impotence

Artificially directed impotence is a purposeful violation of male fertility in order to get products from them in the maximum quantity and best quality.

Male infertility is achieved by surgical methods (castration, vasectomy, etc.). The importance of male castration is to improve the breeding characteristics of the herd, since male castration is the best preventive measure against related mating.

An artificially directed form of impotence is used in the preparation of male test subjects.

Survey of manufacturers. When determining the causes of infertility, it is always necessary to carefully examinethe producer, since the fertility of females

largely depends on him. When selecting a producer of animals of any kind, it is necessaryto be guided by zootechnical and veterinary-sanitary requirements.

In a clinical study, the producer should firstexclude infectious and invasive diseases that can be transmitted to breeding stock.

The individual clinicalstudy of the manufacturer consists of the following elements: 1) generalexamination; 2) sexual apparatus examination; 3) reflexologicalexamination; 4) semen examination.

General examination and исследование полового examination of the manufacturer's sexual apparatus. A detailedand thorough inspectionis carried out in an open area or in a bright playpen. At the same time, it isnecessary to exclude skin diseases, especially scabies, ringworm, etc., pay attention to the conditionof the lymph nodes, muscles, joints of the limbs, hooves, etc. Carefully palpate the skin of the entire surface of the trunk,mainly near the mane and under the brush. If indicated, the respiratory, circulatory, esophageal, and visual organs are examined using special methods.

Examine the sexual apparatus. At the same time, the condition of the scrotum, testicles, prepuce, penis is determined and, if necessary, the adnexal sex glands, bladder, inguinal canals, and kidneys are also examined.

Normally, the skin of the scrotum of all manufacturers is covered with more or lessthick hair, it is soft to the touch, easily gathers into folds and shifts. The testes and their appendages are freely palpated through the scrotum wall and the vaginal membrane. Their size should correspond to the type and age of the animal. In many animals, oneseed (right) is slightly larger than the other. The surface ofthe testicles and appendages is smooth and even; the consistencyis elastic. The testicles should move freely upward when grippingthe scrotum tip.

Seminal cords are palpated in the form of elastic shifting strands, evenly thickening in the directionof the testis. In older animals, the consistency of the spermatic cordsis more dense, and the volume is somewhat increased. However, normally in a stallion and bull, the neck of the scrotum together with the spermatic cords, it is easy to cover the fingers of the hand. Testovataya консистенсconsistency of the skin of the scrotum, fluctuations in its cavity, immobility of the testes, the presence of nodes, thickenings, seals, flabby consistency, a strongdecrease in the volume of one or both ofthem indicate a pathological condition of the organs.

Usually, mainly in bulls and boars, the penis is examined during sexual intercourse. However, for a detailedexamination of the penis and performing therapeutic techniquesвнутритазовую, intra-phaseconduction anesthesia according to I. I. Voronin is used with a 2%solution раствоof novocaine (on both sides).All drivers are fixed in a standingposition, and restless animals arecautiously given neuroplegics. The point of injection in bulls, rams and boarsis located at the lateral edge of the sciatico-rectal fossa at the levelof the middle of the posterior edge of the sacro-sciatic ligament. After the usual preparation of the monthof injection, novocaine should be injected through the indicated point in two places to block the sacral nerve and part of the pelvic plexus branches and hemorrhoidal nerves with pelvic plexus branches. The duration of anesthesia is 1.5-2 hours.

In bulls, a Bobrov needle is used as a guide and aninjection needle (No. 12120-12150) that freely enters the channel of the guide needle. A Bobrov needle is used to pierce the skin and push it cranioventrally,placing the end on the ulnar protuberance along the inner surface of the sacro -sciatic ligament. An injection needle is inserted through the guide needle, dipping its end at a distance equal to the length of the posterior edge of the sacro-sciatic ligament, and 30 ml of anesthetic solution is injected,shifting the needle end in the sagittalplane. Then theinjection needle is pulled back so that its tip is hidden in the channel of the guide needle, which is also moved back, and, without removing its end from under the skin, it is moved in a horizontal positionto the full depth. After that, the injection needle is immersed to a depth equal to the first injection, and 20 ml of anesthetic is injected. As a resultof anesthesia, after 10-15 minutes, the penis comes out of the preputial sac on its own or is easily removed by hand.

The ram uses needle No. 1090. After piercing the skin, the needle is moved near the inner surfaceof the sacro-sciatic ligament at an angle of 30° to the horizontal plane. The needle is inserted to a depth equal to the length of the posterior edge of the sacro-sciatic ligament, and10-15 ml of anesthetic solution is poured in. Then the needle is pulled back so that its tip remains under the skin, pushed horizontally forward to the same depth as when it was firstplaced, and 5 ml of anesthetic is injected.

Boars use Bobrov's needle or No. 1290. Afterthe skin puncture, 2-5 ml of an anestheticsolution is injected for further painless needle movement (this should alsobe done in animals of other species). The needle is advanced cranioventrally at an angle of 30° along the sacro-sciatic ligament until it stops in the inner edge of the small sciatic notch; pulling it slightly back, inject 20 ml of anesthetic solution. Then the needle is removed, leaving its end under the skin,it is moved cranially in the horizontalplane to the same depth as in the firstintroduction, and 10 ml of anesthetic is injected.

Conducting anesthesia of the penis in a stallion according to I. I. Magda isperformedwith a 3% solution of novocaine. With the left hand, in the middle part ofthe sciatic arch, the skin with the urogenitalcanal lying under it is shifted to the left, after which, having pierced the skin, the needle is moved 2-4 cm from right to left and from top to bottom until its end touches themiddle of the sciatic arch betweenthe legs of the penis. Enter 20 ml of an anesthetic solution. Anesthesia lasts up to 2 hours.

R e f l e x o l o g i c a l s t u d y o fthe producer. To study sexual reflexes, it is necessary, if possible, to reproduce the situation in which coitus is performed. If the producer is intended to be used at an artificial insemination station using a stuffed female, it is necessary to obtain sperm from him on the stuffed animal by means of an artificial vagina. During the test sexual intercourse, the manifestation of sexual reflexes (hugging, copulating, erection and ejaculation) is carefully monitored. The brighter these reflexes are, the more the manufacturer meets the requirements imposed on it. Special attention is paid to identifying vicious conditioned reflexes. It should be borne in mind that breederswho were previously used for free or joint mating may show signs of impotency when tested in a new environment, in the presence of extra people, noise and other external factors that

distract or alarm the stomach, or, conversely, under the influence of frequent coitus in monotonous external conditions, inhibition or weakening occurs sexual reflexes.

Исследование Sperm testing. Решающим показателем качества проThe results of semen testing serve as a crucial indicator of the quality of the producer. High exterior qualities and bloodiness lose all meaning if the manufacturer reveals aspermia or defective sperm. If the sperm is of poor quality, it is examined again. We must not forget that after long breaks in sexual activity (for stallions in the spring), the producer almost always releases low-quality sperm during the first coitus.

Good-quality sperm contains a sufficient number of live, stable in the external environment and able to take part in fertilization of sperm and is free from foreign impurities (blood, pus, microbes). Semen is examined macro-and microscopically.

It is also advisable to study the sperm plasma, for which G. D. Svyatovets recommends taking into account the nature of crystallization. Plasma is obtained by centrifuging semen for 20 minutes at 2500 min^{-1}. A drop of plasma and a dropof 0.9% sodium chloride solution are applied to the slide, mixed and smeared to a diameter of 8-10 mm. Dried at room temperature, the drug is examined under a microscope at an increase of 80-120 times. If there is a pattern of a fern leaf or spruce branch over the entire area, then this indicates the absence of pathological changes. A pattern in the form of rare formations or locatedonly in the center is a sign of a violation of the chemical composition of sperm plasma. The pattern of an amorphous structureless shape or in the form of individual stellate crystals, rods, balls, cellular structures indicates inflammation of the adnexal glands.

Andsperm. It develops with symptomaticinfertility. It should be regarded as a symptom of impaired spermiogenesis (alimentary,exploitative impotence, diseases of the semen, scrotum, etc.) or obstructionof the genital tract from the epididymal canal to the ejaculatory duct. Congenital aspermia is observed in cryptorchidskрипторхидов, as well as as a symptom ofinsecticide and insufficiencyof the endocrine system (pituitary gland, thyroidgland).

After removal of the thyroid gland, aspermia is observed in young rams аспермиядue to impaired spermiogenesis. Under the influenceof thyroxine injections, the function of the sex gland is restored. Injection of gonadotropin has no effect. The decrease inspermogenesis in rams on hot days is also attributed to the weak activity of the thyroid gland, since under such circumstancesthyroxine has the same effect as during thyroidectomy. This data needs to be verified in a production environment.

Symptomatic aspermia is notedin chronic and acute general diseases of the body, especially if they are accompanied by an increasein body temperature. Sometimes aspermia is a symptom of a nervous disorder anda decrease in neuromuscular tone.

Oligospermia. This is the initial stage of aspermia or a symptom of the restoration of spermiogenesis.

In aspermia and oligospermia, it is importantto eliminate factors that negatively affect spermiogenesis.дителям вводят тонизирующие половые Pharmaceutical andbiological preparations (serumand blood of foaled

mares,cytospermotoxins,testolysate, and pantocrine) are administered to producers to tone the genitals, тестолизат. It is very important to keep the breederas long as possible in the fresh air, organize moderate work, exercise, and communication with females.

Necrospermia. It occurs on the basis of inflammatory processes in thetesticles, sperm-carrying tracts,diseases of the adnexal sex glands, and urinary tract lesions. It is often a sign of epididymitis.Long intervals between cages, high external temperature, especially when thescrotum is affected, febrile infectious and blood-parasitic diseases, sometimes lasting only a few days, can causethe death of all sperm in the cage, and create temporary necrospermia for several weeks or even months.

The producer is providedwith the best conditions of maintenance; the diet includes feeds rich in plant and animal protein, vitamins E and A. Frequent coitus is prescribed for the fastest removal of dead sperm stocks. If the testes, appendage, adnexal glands and genitourinary canal are affected, appropriate treatment should be performed.

Teratospermia. (For its description, see"ОценкаSperm assessment at artificialinsemination sites").

In the treatment of males with any diseases of the genital organs, it is necessary to monitor the provision of their vitaswith nom A. The daily rate of its intake with food is 75 - 180 thousand rubles in bulls. MEBoars - 45-75 thousand, cowsand goats - 5-7 thousand ME. Vitamine feed additives are used for at least 3-4 weeks.

Alimentary impotence. Symptomsof alimentary impotence are notspecific. These include weaksexual reflexes or their completeabsence, aspermatism, aspermia, тератоспермияteratospermia, necrospermia, oligo-spermatism, oligospermia, and the presenceof cell bodies in semen.

Clinical signs. Симптомы поThere may be no symptoms of genitaldamage. The manufacturer's examination (lowfatness or obesity), as well as the study and analysis of his diet in the last 2 - 3 months are crucial.

During the sexual season, the producerproduces a large number of sperms, secrets of the adnexal sex glands, spends a lot of energy on neuromuscular work during посexual intercourse. All these costs can be compensated only by including the necessary amount andcertain quality of feed in the diet.

Insufficient protein content inthe diet disrupts spermiogenesis andthe activity of the adnexal sex glands; the producer develops аспермаaspermatism, aspermia, teratospermia, ordecreases sperm resistance. Theaddition of blood orbone meal, milk, and eggs to the dietis beneficial for producers. When feeding vegetable proteins, it isnecessary to diversify them bycombining different types of concentrates (oats, bran, cake, peas, etc.).Protein outflows and in general one-sided feeding can disrupt sexual function due to obesity orlack of spermiogenesis; The inclusion in the diet of a significant amountof acid pulp, poor-quality silocauses the formation of under-oxidized products thatcan be determined by examining the manufacturer's urine for acetone.

Alimentary infantilism. Inmales, it is characterized by a general underdevelopmentof the animal, small sizesof testicles and other organs of the

reproductive system, and lack of reaction to the female when the age of pubertyis reached. These changes are a consequence of under-feeding of repair males.

Diagnosis. All typesof alimentary impotence are diagnosed on the basis of clinical and laboratory studiesof animals, feed; analysis of diets for the previous 2-3 months, and sometimes for a longer period.

Forecast. It depends on the degreeof metabolic disorders and the natureof pathologic changes in the organs of the reproductive system.

Treatment. It requires a long period of time(it should exceed the duration of spermiogenesis) and is based on thecomposition of dietary rations fromgood hay, haylage, sugar beet, carrots, and sprouted grain.

Manufacturers should providevitamin-rich feeds or add vitamin supplements to the feed. It is especially important to provide animals with retinol, the daily norm of whichis 75-180 thousand rubles for a bull. ME, for boar - 45-75 thousand, for ram and goat - 7 thousand ME.Maximum doses should be used in the treatment of alimentary impotence.

The positive effect of rationalfeeding is not immediately apparent. The volume of ejaculate increases, the concentration and activity of sperm increases only a few weeks after the improvement of feeding.Sexual function is stimulated by natural (sun exposure, exercise, dosedcommunication with females) and artificial means; proper-maintenance and operation are organized.

At stations and artificialinsemination points, oats (which contain the essential amino acid arginine) should be introduced into the diet of producers. In the daily diet, along withconcentrates, there should be at least 25 % of hay, green fodder, 5-10 % of root vegetables, especially carrots. Bulls can include 6-8 kg of sugarbeet or beet molasses, 2-10 liters of flour, and up to 100 g of meat and bone meal in their diet.

Operational impotence. This is usually due to two causes: fatigue due to excessive muscle work andweight overload.

Excessive work (transport work, intensive training, usein field work, etc.)has a depressing effect on the manifestation of sexual reflexes and on the quantity and quality of sperm (necrospermia). On the otherhand, lack of exercise causes obesity, general lethargy, decreased ejaculate volume, and low sperm activity. The duration of exercise should be decided in each case strictly individually.Only semen quality indicators can serve as a criterion in this question. Lack of exercise is many times more harmful than work. Regular two - time daily 1.5-or 2-hour posting of stallions, riding them in a rocking chair, feeding them, and releasing them to the levada should be regarded as a zoohygiene minimum, asa professional measure against impotence. The same should be saidfor producing bulls.Pasture keeping of bulls, rams and boars is one of the bestpreventive and curative measures against impotence.

Sexual exhaustion is expressedby a decrease or cessation of sperm production or a violation of the dynamicsof sexual intercourse due to the increased sexual function of the producer.

Clinical signs. Symptoms of sexual exhaustion include aspermatism, aspermia, oligospermia, oligospermatismгосперматизм, teratospermia,the presence of a large numberof immature sperm forms in the ejaculate and a decrease in their activity and переживаемостиexperience. Along with the change in the quality of

sperm,sexual reflexes are weakened: hugging, copulating, ejaculation and especially erection.

Operational impotence is pronouncedin male reindeer. Duringthe sexual season, insemination of the broodstock is carried out by adult strong males. After their sexual exhaustion, "tretyaks" (2.5-year-old males) work as producers, and after the exhaustion of the last remaining unseeded females, they cover them with 1.5-year-old males.

Sexual exhaustion occursmore quickly in stallions and boars; bulls and rams are much more stable in this respect. This is due to the difference intheir energy expenditure during sexual intercourse and in the volume of ejaculate. In animals with uterine insemination, sexual intercourse is longer and the volume of ejaculate is severaltens or even hundreds of times greater than in animals with vaginal insemination.

The forecast is favorable.

Treatment. It is necessary to stop usingthe driver's license for a while or significantly reduce the number of coitus sessions. Atthe same time, feeding and maintenance are normalized

Artificially acquired maleimpotence. This fertility disorder isa consequence of the overlapping of vicious conditioned reflexes with innatesexual reflexes.

Нарушение Violationof the hugging and copulatoryного reflexes. Blowsgiven to the producer by the female,improper preparation of the artificialvagina, and other violations of the insemination technique can causea conditioned inhibitory reflex to the presence of strangers, a female without restraints, a room, an artificialvagina, a female's color, and other factors.

Clinical signs. There is a markedrestriction or absence обнимательноof hugging and copulatory reflexes in the normal stateof the sexual apparatus and other body systems. As a kind of perversion обнимательногоof the embracing reflex, one should notehomosexualism, which often manifests itself in rams in the form of the desire to make cages for rams, and not for females.

Treatment. First of all, they eliminate factors that inhibit sexual intercourse. Producers are keptin isolation for a certain time in order to achieve the extinction of perverted conditional reflexes. To excludevicious reflexes (for a room, an artificial vagina) and other types of impotence, the manufacturer is tested in a newform. Often, stallions, bulls, and baresthat show impotence during manual mating showstrong activity in the school and in the herd. You canuse products that tonethe sexual apparatus and the body.

Violation рефлекса of the erection reflex. It occurs when vicious conditioned reflexes are layered together due to errors ininsemination or sperm production. When diagnosing, it should be taken into account that theerectile reflexis also affected by symptomatic infertility as a result of testicular and prostate damage, diseases of the nervous andendocrine systems; a number of authors link erectile dysfunction with концентthe concentration of cytospermotoxins in the blood цитоспермотоксиновand with alimentary impotence. Often, a sluggish erection or its complete violationis accompanied by a disorder of other reflexes.

Clinical signs. Violation of the erection reflex is manifestedby the absence or weak tensionof the penis, the onset of an erection only after prolonged contact with the female. In some stallions and kobels, prematuregrowth of the glans penis is observed, which makes it impossible to introduce it into thevagina. In the bull's cavernous bodies, theblood pressure is 300-350 kPa when notfully erect and 550 kPa when fullyerect (I. N. Ibragimov).

Violation of the ejaculation reflex. It occurs from the same reasons as a violation of the erection reflex.

Clinical signs. Violation of the ejaculation reflex can occur in two forms:: 1) in violationof ejaculate release dynamics (aspermatism and oligospermatism) and 2) in ejaculate inferiority(aspermia, oligospermia, necrospermia, teratospermia).

After repeated infertilesurgeries, the producer becomesindifferent to the uterus, i.e. other reflexes also weaken. Often, ejaculateis not released after coitus. Slowly draining from the urethra, sperm can enter the bladder and mix with the urine. In producers suffering from masturbation, spermis released prematurely, before insertion into the vagina of the penis, and even beforeor at the beginning of an erection.

During differential diagnosis, it is necessary to exclude organic changes in the testis, appendage,uterine gonads and otherparts of the genital apparatus, since in some cases aspermatism is a symptom of genital tract damage (obliteration of spermatic ducts, prostatic hypertrophy, neoplasms) or is a consequence of pain inthe lumbar region, pelvis and extremities.

Treatment. The main elementof therapy is proper maintenance of the animal. The manufacturer, who has come to a very strong excitement, must be distracted by wiring. Someproducers perform the sexual act well after a distractingrun; in others, on the contrary, the wiring beforethe event causes overexcitation. In onetrotter suffering fromaspermatism, we successfully regulatedsexual intercourse by giving 20-25 gof sodium bromide 25-30 minutes before coitus. Manufacturers who are prone to masturbation, it is useful to use in the work.

In order to prevent onanism, young males - futurefemale drivers-should be provided with regular coitus from the moment of puberty or receive sperm from them on an artificial vagina.

Neurohumoral regulation of male sexual function

External stimuli (exposure to sunlight, food, females) are transmitted to the корycerebral cortex, where they are perceived and analyzed by special centers. Releasing hormone released by the hypothalamus is directed to the anterior pituitary gland. The latter secretes FSH (follicle-stimulating hormone) and LH (luteinizing hormone). FSH causes the manifestation of spermiogenesis, and LH stimulates the development of interstitial cells in the testes. In the testes, Leydig cells produce the hormone testosterone. At this stage, the male shows good signs of sexual activity, especially in the presence of a female.

By this time, the posterior pituitary gland secretes oxytocin, which activates the function of the testis appendage, which is manifested by the promotion of part of the sperm into the ampoules of the sperm ducts. Excess testosterone in the blood increases sexual arousal of the male through the central nervous system, the activity of the vesicoid, bulbous glands and prostate gland. Against the background

of sexual arousal, the male becomes mobile, his breathing rate and heart rate increase. Due to the activation of the erection center in the sacrum, the penis retractor relaxes. The penis, quickly filling with blood, increases, becomes elastic, and a light liquid is released from its channel in the form of drops or sprays out - a mixture of secretions of the adnexal glands (urethral, bulbous).

Sexual intercourse begins with an embracing reflex, followed by a copulatory reflex. There is an excitation of the ejaculation center located in the lumbar region, which ends with coitus. After 5-30 seconds, the male's erection, general and sexual arousal fade, and his heartbeat and breathing return to normal.

Effect of maintenance and feeding on sexual activity of producers and sperm quality

The health status, sexual activity, the level of sperm production and the quality of sperm produced by producers are greatly influenced by the level and usefulness of feeding, the conditions of detention, the season of the year, and meteorological factors.

Feeding producers on the energy level should be such that they are constantly in factory condition. In order to avoid obesity or, on the contrary, reduce fatness, they are weighed monthly.

Diets for producers should be fully balanced in terms of protein and essential amino acids, easily digestible carbohydrates, vitamins, macro-and microbiogenic elements.

The male reproductive system is highly sensitive to protein deficiency. To maintain sexual potency and a high level of spermatogenesis, 135-150 g of perivariable protein should be consumed per 1 feed unit.150 г переваримого протеина.

Sexual function is greatly affected by the availability of essential amino acids (lysine, methionine, tryptophan).

In order to maintain a sufficiently high level of protein and fill in the missing amino acids, the diets of producers, along with high-protein plant feeds (soy and sunflower meal, peas, beans), include animal feed: milk, eggs, meat and bone meal and fish meal.

An additional source of complete protein can be products of the microbiological industry: hydrolytic and hydrocarbon yeasts (eprin, paprin). For normal sexual function, a certain ratio between protein and easily digestible carbohydrates (0.8-1.0:1.0) is important. As a source of easily digestible carbohydrates, it is advisable to use young grass of cereals, pumpkin, beetroot, fodder molasses.

To optimize the sexual function of producers, the availability of fat-soluble vitamins (A, D, E) is of great importance. Even a slight deficiency of them can lead to a violation of spermatogenesis and deterioration of sperm quality. The need for them is met in the summer at the expense of young grass, in winter-grass flour, carrots, vitamin pumpkin, fodder yeast. In case of a lack of these feeds, water emulsions of vitamins A, D, E are prescribed by giving them inside.

From the mineral elements of nutrition, the body of producers needs calcium, phosphorus, magnesium, sulfur, sodium, potassium, iron, copper, cobalt,

manganese, zinc, and iodine. They are part of biologically active substances (enzymes, hormones, vitamins), participate in the regulation of osmotic pressure, acid-base balance, and neuromuscular excitability.

To cover the missing amount of mineral substances in feed and drinking water, premixes are used in the form of briquettes, granules, and aqueous solutions.

When preparing diets for producers, it is also important to observe the optimal ratio between coarse, juicy, and concentrated feeds. One-sided concentrate feeding leads to ketosis. A relative excess of juicy and coarse foods is also undesirable, since the diet becomes too bulky, and this reduces sexual activity and the level of spermproduction.

In winter, breeding bulls are kept in special rooms (bull farms), in stalls on a leash. Stall size: length - 2.5 m, width - 2.0 m. The floor in the stalls is made of wood, expanded clay or rubber bitumen. Animals are tied by a thick belt collar with a double-ended chain. It is forbidden to tie bulls by the nose ring.

In spring, summer and autumn, bulls are kept in the open air under a canopy equipped with feeders and drinkers. Next to the carport, individual walking yards are made of metal pipes. Bull grazing on long-term cultivated pastures is of great health value.

Bulls are cleaned daily with a brush or vacuum cleaner, and contaminated areas are washed with water. In summer, it is desirable to have shower areas for bulls on the territory of the plementerprise. производятHooves are cleaned and trimmed twice a year. At the same time, special machines are used to fix bulls, which eliminates the need for them to fall down.

On plementerprises with a limited land area, forced exercise of breeding bulls is used.

There are several ways to force exercise:

- in a ring corridor with a width of 1 m with a fence made of metal pipes;
- with the help of a mechanical guide in a circle;
- using an electromechanical unit by monorail;
- wiring behind the tractor (4-6 bulls are tied to the tractor trailer, which move at a speed of 2-3km per hour).

Control questions. 1. What is the essence of infertility classification according to A. P. Studentsov? 2. How do gynecologicalstudies of males perform? 3. What is symptomatic impotence? 4. What treatment methods are used to treat males with inflammatory processes in the genitals? 5. What is the purpose andmethodology of using male testers? 6. What does the complex of measures for the prevention of male impotence include?

VETERINARY OBSTETRICS

PRACTICAL LESSON

Lesson 1. Features of anatomical structure and topography of female genital organs

The purpose of the lesson: to study the anatomical structure and specific features of the structure of different parts of the female sexual apparatus. Materials and equipment: drawings, posters, models, training anatomical preparations of the genitals (natural) of various types of female domestic animals, vivarium animals (cows, sheep, goats).

Task: to study the structure of the female genital organs using textbooks and materials and the features of the structure of the sexual apparatus of females of

different species, with the obligatory allocation of features of the anatomical structure of the departments and their topography in the non-pregnant state.

Knowledge of the specific features of the structure of the sexual apparatus of farm animals is necessary when studying and performing artificial insemination of females, during childbirth, during medical manipulations, diagnostic examinations of animals and embryo transplantation.

External genitalia. Vulva –theexternal part of the genitals. It consists of two labia vulvae and a vertical genital cleft located between them (Figs. 1, 2). Each lip (labia vulvae) is covered with skin on the outside and a mucous membrane on the inside. The skin of the labia is thin, gathered in numerous small folds (in the cow they are more wrinkled) and covered with sparse fluffy hair. The skin contains many sweat and sebaceous glands. The заложен сжимательvulva constrictor (m. constrictor vulvae) is embedded in the thickness of the labia minoraconstrictor vulvae. In cows, buffaloes, sheep, goats, pigs, and dogs, the dorsal angle of the genital fissure is rounded, while the ventral angle is sharp and long hair hangs from its lower end. In the mare, on the contrary, the upper spike (commissura labiorum superior) is sharp, while the lower spike (commissura labiorum inferior) is rounded.

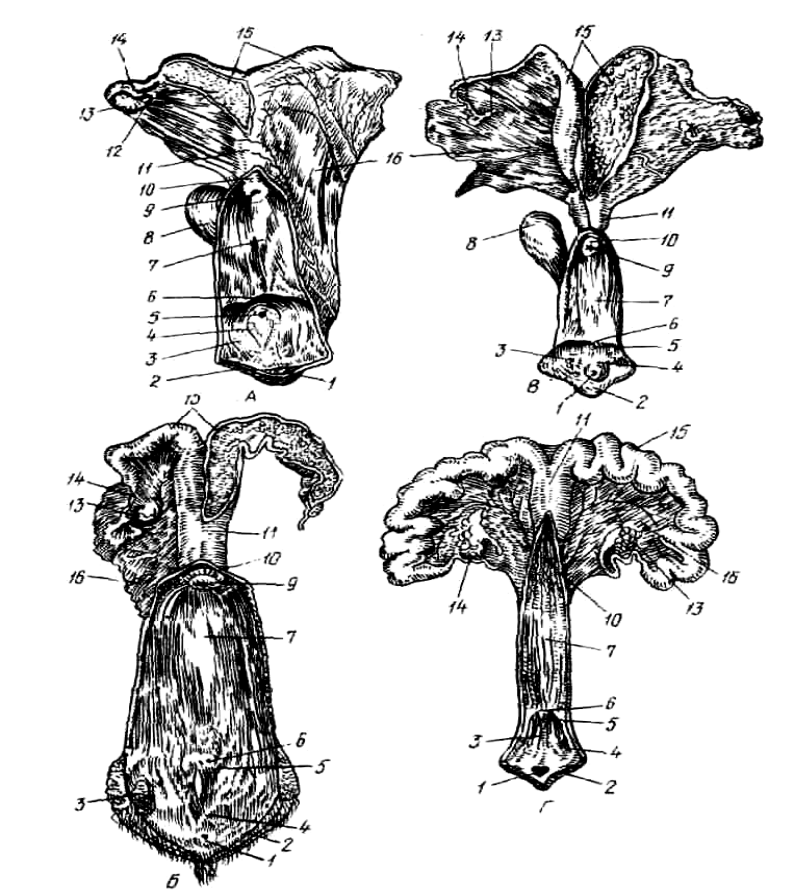
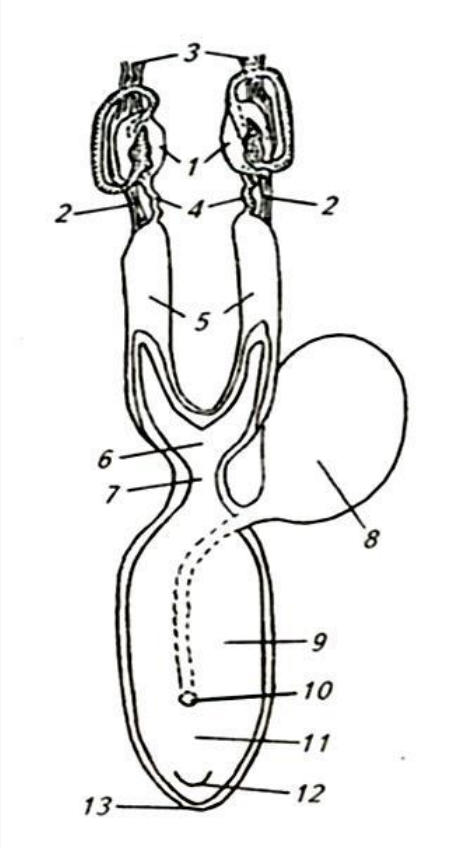


Fig. 1. Female genitals:

A-mares; B – cows; C-sheep; D-pigs; 1 – clitoris; 2-labia; 3-openings of the ducts of the ventral and dorsal vestibular glands;

4-vestibule of the vagina (urogenital sinus); 5-opening of the urethra; 6 – hymen; 7-vagina (opened); 8-bladder; 9-vaginal part of the cervix; 10-cervix; 11-

body of the uterus; 12-special ligament of the ovary; 13-ovary; 14 – oviduct; 15-uterine horn (the left horn is opened in a horse, the right horn in a cow and sheep); 16-mesentery of the uterus (a wide uterine ligament) with arteries passing through its thickness.



2. Sexual organs of dogs and cats: 1-ovaries; 2-own ovarian ligaments; 3-additional ovarian ligaments; 4-fallopian tubes; 5-uterine horns; 6-uterine body; 7-cervix; 8-bladder; 9-vagina; 10-urethral opening; 11-vestibule of the vagina; 12-clitoris; 13-labia minora

The clitoris (clitoris, cunnus) is a homologue of the male penis. It is located in the ventral corner of the genital fissure in the form of a slight elevation.

The clitoris consists of two legs attached to the sciatic bumps, and a body ending in a head. The head of the clitoris is particularly well developed in mares, has a well-defined cavernous body and is rich in nerve endings.

Vestibule of the vagina (vestibulum vaginae) – a short muscular tube that starts from the genital fissure and ends at the opening of the urethra. The vestibule of the vagina in females of large farm animals has a length of 8-14 cm. In cows, and to a lesser extent in pigs, sheep, and goats, the opening of the urethra is divided by a transverse fold into two parts. The front part leads to the urethra, and the back part forms a blind sac-diverticulum (diverticulum suburethrale) with a depth of 2 cm. These anatomical features should be taken into account during catheter insertion during artificial insemination of cows with rectal fixation of the cervix and the introduction of instruments (vaginal mirror, catheters, diagnostic devices). Mares have no diverticulum. Immediately in front of the opening of the urethra on the border of the vestibule of the vagina is a transverse fold of the mucous membrane –

the hymen (hymen). It is pronounced in young fillies and pigs, while in other animals it is barely noticeable or absent. The wall of the vestibule of the vagina consists of three membranes: mucosa, muscle and connective tissue. The mucous membrane is covered with a flat multi-layered epithelium and forms folds of various thicknesses. Paired large vestibular glands (gl. vestibulares major) are embedded in the side walls of the vestibule of the vaginavestibulares major. These glands in large animals are the size of beans and have a convex outer surface. Having prepared and cut them, you can find a mucin-like secret. This secret moistens the mucous membrane of the vestibule of the vagina during the stage of arousal of the sexual cycle (possibly during childbirth). In dogs, there are no vestibular glands in the sub-mucosal layer of the vestibule walls. Dogs and horses have a special cavernous formation in the vestibule wall, called the vestibule bulb (bulbus vestibuli), which fills with blood and thickens during coitus. In mares, there is a yawning of the genital fissure (the mucous membrane of the vestibule of the vagina is visible), and in female dogs, the bulb of the vestibule provides infringement of the glans of the penis of the male during mating with the female.

Behind and on the sides of the opening of the urethra are numerous excretory ducts of small преддверныхvestibulares minores (gl. vestibulares minoresminores), similar to the urethral glands of males. But in dogs, the vestibular glands are absent.

Under the mucous membrane lies a muscular layer consisting mainly of smooth longitudinal and partly striated fibers. The connective tissue membrane is formed by the loose connective tissue of the pelvis.

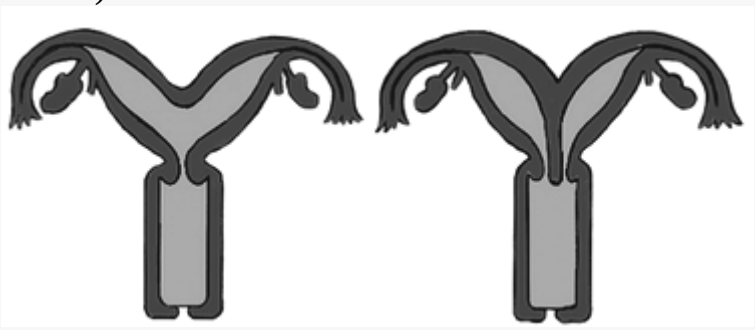
Internal genitalia.The vagina (, colpos) is a rather long tube from the vestibule of the vagina to the vaginal part of the cervix. It is located in the pelvic cavity under the rectum and reaches a length of 32 cm in mares, 30 cm in cows, 12 cm in sheep and goats, 18 cm in pigs, and 10 cm in bitches.

The vagina is the organ of copulation and the excretory canal of the uterus. In ruminants, on the ventral wall of the vagina immediately before the vaginal entrance, Gartner's passages (ductus Gartneri) open slightly to the right and left of the median line with a diameter of 1.5 to 2 mm. ходы (ductus Gartneri These passages are 4-20 mm long and run through the vaginal wall and are a vestige of the wolf ducts. The cranial end of the vagina expands and forms a vaginal vault (fornix vaginae) over the vaginal part of the cervixfornix vaginae. It is well developed in mares, donkeys, cows ,heifers, buffaloes (height 3 cm), to a lesser extent-in camels, sheep, goats, carnivores and is completely absent in pigs (in the latter the vagina is narrow and without sharp borders passes into the cervix).

The vaginal mucosa is covered with a flat multi-layered epithelium, has no glands and forms numerous longitudinal folds (pigs do not have them). The musculoskeletal system consists of circular and longitudinal layers of smooth muscle.

The outer shell (along which vessels approach the vagina) surrounds the muscular layer, it is represented by connective tissue adventitia. The cranial end of the vagina is covered by the peritoneum. The uterus (uterus, hystera, metra) consists of a neck, body, and two horns. In most domestic animals, the uterus is

two-horned and undivided (Figure 3).In rabbits and other rodents, the uterus is double, with two independent necks protruding into the vagina (two-horned and undivided).



A B

3. Schematics of the female uterus structure:
A-two-horned one-part uterus; B – two-horned two-part uterus.

Thecervixis the caudal part of the uterus. It is located between the body of the uterus and the vagina. The entrance from the body of the uterus is called internal (orificium internum), and from the side of the vagina – external mouth (orificium externum). The mouths communicate with each other through a narrow channel of the cervix (canalis cervicis), which opens only during the stage of excitation of the sexual cycle, childbirth and in some pathological processes. In cows, the cervix has an average length of 8-12 cm (in large old animals 10-15 cm), a diameter of 3-6 cm, in heifers it is from 5 to 7 cm long and a diameter of 2.5-3 cm.

The cervix in cows is well defined, thick-walled (walls 1.5 cm thick), it is clearly delimited both from the side of the uterus body and from the side of the vagina. The cervix lies in the pelvic cavity. Through the rectum, the neck is easy to palpate, and therefore it is the initial reference point in the diagnosis of pregnancy and infertility of animals. The zigzag channel of the cervix is lined with a mucous membrane, from which numerous, tightly fitting longitudinal and transverse folds extend. These folds are low at the beginning of the body channel, then reach a significant height, fall off, rise again and fall again. The folds of the cervical mucosa with their tops are directed towards the vagina. Thus, transverse rollers are formed. Most of them are four, rarely three.

The last folded roller forms the vaginal part of the cervix, which is pushed into the vagina to a depth of 2-4 cm in the form of a rosette. The presence of transverse folds (rollers) in the cervix, oriented towards the vagina, makes it difficult to introduce instruments during artificial insemination or medical measures.

On the section of the wall, you can find three membranes: mucosal, muscular and serous. The mucous membrane is covered with a cylindrical epithelium, functions as a gland, secreting cervical mucus. The amount of cervical secretions in non-pregnant cows is insignificant, but during pregnancy there is a large accumulation of it in the external mouth of the cervix, there is a mucous plug. During sexual hunting, mucus is low-viscosity, transparent and secreted in large quantities. The muscular membrane of the cervix consists of three layers.

Directly under the mucous membrane is a powerful circular layer of smooth muscle fibers. Then there is the vascular layer, which is formed from very loose connective tissue. It contains large vessels and nerves.

Inside the vascular layer and outside are smooth muscle fibers of the longitudinal layer of musculature. The outer layer is the serous membrane.

In small ruminants (sheep, goat), the cervix is smaller than in large animals. It reaches a length of 5-7 cm and protrudes into the vagina in the form of a "fish mouth".

In camels, the cervix is poorly defined, it is short (5-6 cm long) and weakly (0.5-1 cm) protrudes into the vagina.

In mares, the cervix is well defined, its length is 5-7 cm,its thickness is 3-4. 5 cm. The neck of mares is much softer than that of cows. It is located in the pelvic cavity, easily palpated through the rectum in the form of a cylindrical dense body. The vaginal part of the cervix protrudes into the vagina in the form of a sleeve. The cervical canal is straight in both infertile and pregnant animals and easily expands with the fingers. The mucous membrane of the cervix forms longitudinal folds. The circular layer of the muscular membrane is less developed than in cows.

In pigs, the cervix is long (12-20 cm) and narrow. The vaginal part of the cervix is absent, since the vaginal cavity краниальнодecreases cranially and passes into the cervix without sharp borders.

The cervical mucosa has numerous (14-20) strongly developed blunted (roller-like) protrusions located mainly on the sides. The protrusions of one side enter the free spaces between the protrusions of the other side, so that the cervical canal becomes tortuous and tightly closed.

In dogs, the cervix is hard, short, has a narrow channel, a thick wall with a well-developed muscle layer. It reaches a length of 1-1. 5 cm and is characterized by the absence of clear boundaries with the body of the uterus and the vagina. The entrance to the cervical canal from the side of the vagina is covered by a post-cervical vaginal fold and is inaccessible for vaginal examination.

The body of the uterus (corpus uteri) is located between the neck and the horns, and it is expressed differently in different animals. Compared to the cervix, the body of the uterus is softer. In cows, buffaloes, sheep, goats, camels and pigs, it is weakly expressed, since it does not serve as a fruit carrier, its length is 2-3 cm. In dogs, the body of the uterus is narrow, short, but comparatively distinct.

In mares and donkeys, it is well defined. The body of the uterus in them reaches a length of 10-15 cm, a width of 7-12 cm, a thickness of 1-1. 5 cm and is a fecundum.

In non-pregnant cows, buffaloes, sheep, and goats, the uterine body is located in the pelvic cavity (at the leading edge of the pubic bones), while in other animals it is mainly in the abdominal cavity.

The horns of the uterus (cornua uteri) extend from the body of the uterus and have different lengths and shapes in different animals. There are left and right horns. The length of each of them is 16-20 cm in cows and buffaloes, 12-14 cm in camels (in older animals, the left horn is usually 3-4 cm longer than the right one),

10-15 cm in sheep and goats, 15-25 cm in mares, and 9-10 cm in bitches. The longest uterine horns in pigs are 100-200 cm long and 2-3 cm wide.

The transverse diameter of the base of the uterine horns in mares is 3-7 cm, in cows, buffaloes and camels-3-4 cm, in sheep and goats-1.5-2 cm. In all animals, the length and width of the uterine horns varies depending on age, breed, feeding, maintenance, and physiological state. The uterine horns of ruminants are fused together at the base for a considerable length and are separated from each other by an internal septum (8-10 cm in cows). From above, the confluence of the horns is expressed in the form of a clear groove (inter-horny groove). This inter-horny groove is easily palpable by hand through the rectum and is of great importance in the diagnosis of pregnancy and infertility.

The place of bifurcation of the uterine horns is called a bifurcation. From this point, the horns branch out and extend first cranially-lateroventrally, and then caudo-dorsally. As a result of this arrangement, the uterine horns become curved in the form of ram's horns. The cranio-ventro-caudal edge is called the major curvature (curvatura major), and the opposite edge is called the minor curvature (curvatura minor).

In mares, the uterine horns are flat, ribbon-shaped and arched to the sides, in pigs they are long and resemble loops of the small intestine. In dogs and cats, the horns are long, straight, narrow and serve asa fruit carrier, they diverge at a slight acute angle, resembling the letter "V". The size of the uterine horns in dogs varies greatly and depends on the size of the animal and the physiological state of the body – the stage of the sexual cycle and the duration of pregnancy. Estrogens enhance васкуляризацию endometrial vascularization and stimulate the growth of endometrial glands. Excessive vascularization of the endometrium leads to leakage (diapedesis) of blood cells into the lumen of the uterus and the appearance of hemorrhagic discharge from the genital fissure in the proestrus stage. Progesterone causes branching of the tubular glands and stimulates the production of royal jelly.

The body and horns of the uterus of female domestic animals have a mucous membrane, a muscle layer and a serous membrane. The mucous membrane (endometrium) is lined with a single layer of ciliated epithelium, the villi of which are directed towards the vagina.

It has numerous wriggling tubules called uterine glands. Their holes can be seen for some time after delivery and during pregnancy. Cattle have more than 100 thousand glands, they are found mainly in the horns. In ruminants, there are special formations on the mucous membrane of the body of the uterine horns – carunculae (carunculae uteri).

In the body of the uterus, they are located randomly, in the horns – in four longitudinal rows. In non-pregnant cows, caruncles reach a length of 15-17 mm, a width of 6-9 mm and a height of 2-4 mm. Their number varies in cows between 86-126, sometimes 39-200, and in sheep between 88-110. Cows have convex oval boils, while sheep and goats have slightly concave rounded boils. Each caruncle has depressions-crypts, which include villi of the chorionic choroid of the fetus. With the development of pregnancy, the size of caruncles and crypts noticeably increases.

The mucous membrane of the uterus of other animals does not have caruncles, its surface is smooth.

The muscular membrane (myometrium) is divided into a strong circular layer and a weaker longitudinal one. The circular layer is very thin at the tip of the horns, and near the cervix it is strongly developed, especially in cattle. Between the layers of musculature is a vascular layer rich in blood vessels and nerves. The serous membrane (perimetrium) forms the outer layer of the uterine wall and passes to the cervix and broad uterine ligaments.

The fallopian tubes or oviducts (salpinx) are paired, strongly convoluted hollow tubes located in their own fold formed by the peritoneum. Their length is 20-30 cm in mares, cows and pigs, 10-15 cm in sheep and goats, 6-10 cm in dogs, and 10 cm in rabbits. Distinguish between the abdominal end and the uterine end. The ventral end is wider and begins with a significant funnel-shaped expansion. The uneven jagged edges of the funnel are called the fringe of the oviput (fimbriae tubae), which sometimes fuses with the ovary. The part of the egg ducts that makesup the continuation of the funnel, which is wide and strongly convoluted in mares and cows (4-8 mm in diameter), is considered as an ampoule of the egg duct. Ampoules are strongly expressed in pigs. Near the uterine horn, the oviduct narrows (1-1. 5 mm in diameter), straightens out and opens without sharp borders to the top of the uterine horn. In horses, and partly yin carnivores, the oviduct ends in a papillary protrusion. яйцепроводаThere are three layers in the wall of the oviduct: the mucous membrane, the muscular layer, and the serous membrane. The mucous membrane, especially in ampoules and the funnel of the oviduct, forms numerous, highly developed folds covered with cylindrical ciliated epithelium, the cilia of which direct the flow of fluid towards the uterus (there are no cilia in dogs). The muscular layer is a continuation of the muscular layer of the uterus, it consists of two layers of smooth muscle. The outer layer with an admixture of oblique bundles is located longitudinally, the inner (circular) one surrounds the egg duct.

In the direction from the ovary to the horns of the uterus, the thickness of the muscular layer increases. Rectal examination of egg ducts in large animals is difficult. They are clearly palpable in tuberculosis, purulent inflammation and other pathological processes.

Ovaries (ovaria, oophoron) are small paired organs. They form female germ cells – oocytes, which in most females are secreted directly from the outer surface of the ovary and fall on the fringe of the oviduct. The ovaries of animals have a different shape and size, which depends on the stages and phases of the sexual cycle, as well as on the age, type and size of animals.

The largest size of the ovaries is reached in mares: the weight of each is 40-70 g, length 5-9 cm, width 3-5 cm, thickness 2.5-4 cm. The ovaries are mostly bean-shaped, with a depression on the underside called the ovulation fossa. The ovaries are located in the abdominal cavity. The right one is suspended under the 3rd-4th, and the left one is suspended under the 4th – 5th lumbar vertebrae. The ovaries of donkeys differ from the ovaries of mares only in smaller sizes. In mares, the entire ovary, except for the ovulation fossa, is covered with a grayish membrane. The ovulatory fossa is lined with rudimentary epithelium. The ovarian section shows

two zones: cortical – follicular and cerebral – vascular. The cortical zone is located in the area adjacent to the ovulatory fossa and consists of delicate connective tissue. This layer contains follicles and yellow bodies. Therefore, in mares, the follicles are located inside the ovary, closer to the ovulation fossa, where the egg is released (ovulation). The degree of maturation of the follicle, its approximate size is determined in mares by rectal examination. Their mature follicle reaches a diameter of 4-6 cm, which can change the shape of the ovary to pear-shaped and even spherical. The presence of a well-developed yellow body gives the ovary an angular appearance, since the yellow bodies of mares are conical in shape. The brain layer is profusely permeated with blood vessels and nerves.

The ovaries of other females are clothed with a protein shell, the surface of which is covered with rudimentary epithelium. Mature follicles are smaller, but they are clearly visible on the surface of the ovary in the form of vesicles and have the following dimensions:: cows and buffaloes – 1-2 cm, sheep and goats-0.5-0.7 cm, pigs-1-1. 2 cm.

In mares, cows, and buffaloes, the follicles are freely palpable through the rectum.

In cattle, ovaries are ellipsoid in shape, weighing an average of 14-20 g, 3.5-5 cm long, 2-2. 8 cm wide, and 1.5-2 cm thick. In heifers and young cows, the ovaries are located in the pelvic cavity, during pregnancy, as well as with uterine atony and other pathological conditions, the ovaries and uterus move to the abdominal cavity. Sheep and goats have ovaries that are more rounded and relatively larger than cows, when the ratio of ovarian mass to live weight is taken into account.

In pigs, the ovaries are cluster-shaped, which is due to the presence of a large number of follicles and yellow bodies. For this reason, their size and weight vary greatly. In mature pigs, the ovaries are 2-3. 5 cm long, 1.5-2 cm wide and 0.9-1.3 cm thick, and they weigh 5-9 g.

The ovaries of dogs and cats are ovoid in shape, somewhat flattened from the sides (Fig. 3). During sexual hunting, the luteal phase of the sexual cycle, and during pregnancy, their shape can be cluster-shaped. The size of the ovaries in dogs varies greatly depending on the morphofunctional state of the organ and the size of the animal. In dogs of large breeds, during the luteal phase of the sexual cycle and during pregnancy, the ovaries can reach 2-2. 5 cm in length and 1-1.5 cm in width. The ovaries are located in the abdominal cavity behind and below the kidneys in the open ovarian bursa. The walls of the ovarian bursa are formed by the mesentery of the ovaries and fallopian tubes. The abdominal opening of the ovarian bursa is small-it does not exceed 1-1. 5 cm in length. With the help of its own ligament, the ovary is connected to the tip of the corresponding uterine horn, and by means of an additional ligament it is attached to the lumbar vertebrae. The extra ovarian ligaments are short, contain a lot of fat and blood vessels. These anatomical features limit access to the ovaries and make their surgical removal difficult.

The ovaries, oviducts, and uterus are enclosed in broad uterine ligaments (ligamenta lita uteri). They are a double fold of the peritoneum, between which are

located numerous smooth muscle fibers, blood vessels and nerves. There are broad uterine ligaments of the uterus, the actual ligament of the ovary and the supporting ligament of the oviduct. Wide ligaments of the uterus are attached to the small curvature of the horns, body and cervix in such a way that the peritoneal leaves, diverging, enclose the uterus. From the cranial edges of the broad uterine ligament, the supporting ligaments of the ovary are formed. One of them is short, connects the ovary to the lateral surface of the uterine horn, it is actually called the ovarian ligament (lig. ovarii proprium). Another ligament, including the oviduct, longer and thinner, goes from the ovary to the top of the uterine horn, this is the supporting ligament of the oviduct (mesosalpinx).

Blood supply and innervation of female genital organs.Theumbilical organs are supplied with blood mainly from the seminal internal artery, the middle uterine artery, and the posterior uterine artery. The internal spermatic artery (a. spermatica interna) originates in the region of the 4th lumbar vertebra from the lower wall of the aorta. It is divided into the ovarian branch-ramus ovaricus and the cranial uterine artery – a. uterina cranialis, which branches in the area of the anterior edge of the uterine horn. The middle uterine artery (a. uterina media) is very developed; it originates in cattle from the initial part of the umbilical artery (a. umbilicalis). Its branches go to the horns, the body of the uterus and form numerous anastomoses between themselves and with the branches of the anterior and caudal uterine arteries. In pregnant cows, the diameter of the trunk of the middle uterine artery increases by an average of four times, which is of great practical importance in the rectal diagnosis of pregnancy. In mares, the middle uterine artery as thick as a goose feather starts from the external pelvic artery (a. Ilica externa) and also forms anastomoses with the anterior and caudal uterine arteries.

The posterior uterine artery in cattle separates from the urogenital artery (a. urogenitalis) and supplies blood to the caudal part of the uterus and the vagina. In horses, the posterior uterine artery originates from the hemorrhoidal artery (a. haemorrhoidalis) and runs along the vagina (from the sides) to the cervix and uterine body, where it gives off branches that anastomose with branches of the middle uterine artery. The vestibule and vagina receive nourishment from the internal pudendal artery (a. pudenda interna) and obturator artery (a.obturatoria) in the horse. The nerves of the genitals form the seminal and pelvic plexus (plexus spermaticus et plexus hypogastricus). The organs of copulation are also innervated by the branches of the sacral plexus (plexus sacralis). Along with this, there are so-called nerve centers in the uterus, consisting of large nerve cells and fibers, which are especially intensively excited during coitus.

Features of the anatomical structure of the genitals of female farm animals. Female farm animals have separate features in the structure of the genitals.

1) On the border of the vestibule and vagina in mares (before mating) there is a strongly developed genitourinary fold (hymen).

Practical significance: mares that have reached an accidental age are not artificially inseminated for the first time, but are naturally mated.

2) The vaginal part of the cervix of the pig is absent, which makes it possible to perform artificial insemination of sows without visual control (the catheter will pass through the vagina into the cervical canal without hindrance).

3) In the cervical canal of mares, there are no large transverse folds of the mucous membrane, which makes it possible to freely insert the instrument during artificial insemination.

4) On the uterine mucosa of cows, sheep and goats there are (in a non – pregnant state) the rudiments of maternal placentas-caruncles. This has an impact on the process of separating the placenta over time. In cows, sheep, and goats, afterbirth separation is slower than in mares and pigs.

5) Ovaries in all animals, except pigs, have a smooth surface (in pigs they are bumpy). In mares, the ovaries are large (about the size of a chicken's egg), flattened laterally, pear-shaped, spherical, or diamond-shaped, depending on the stage of maturity of the follicle.

6) Non-pregnant uterus in cows, sheep and goats is located in the pelvic cavity, between the rectum and the bladder.

7) The uterus in mares is suspended by wide uterine ligaments under the sacro-lumbar vertebrae in the abdominal cavity.

8) Only mares have an ovulatory fossa in their ovaries.

9) The horns of the uterus in pigs are located in the abdominal cavity between the loops of the small intestine and are very similar in appearance to them.

10) The uterus in rabbits (rodents) is double, consisting of two horns with two independent necks protruding into the vagina (two-horned two-part uterus).

11) Type of uterus in cows, mares, sheep, goats and carnivores – two-horned one-part.

12) Mares have the most developed uterine body than other females.

13) The vaginal arch is present in mares, donkeys, cows, buffaloes, sheep, goats and carnivores, which requires additional control during artificial insemination.

Examination of the external genitalia of females. Large animals (cows, mares) are examined in special machines in a spacious playpen. Hold only the tail. If the animal is restless, it is fixed by the horns and nasal septum. Sometimes it is enough to take the cow with one hand by the fold of the skin in the knee joint, and with the other hand to gather the skin on the back into a fold. Small animals are placed or placed on the table. External examination begins with the genital fissure, while finding out whether there are or are no secretions, determine the degree of sharpness of the corners of the genital fissure. Then the labia are examined and their shape, size, position, and tension are determined. With clean, disinfected hands, the labia are parted and the mucous membrane of the vestibule of the vagina and the clitoris are examined, while paying attention to the color of the mucous membrane.

Examination of the vagina. The study determines the condition of the vagina and the vaginal part of the cervix. In large animals, the study consists of palpation and vaginal examination. The studied animals are reliably recorded. When exploring, the assistant moves the cow's tail to the left. Examination of the vagina

and cervix is carried out using a sterilized or профламбированногоproflabated Polyansky vaginal mirror, Skotovod system, Skatkin, etc. For lighting, use special illuminators fixed on the mirror, a frontal reflector, or put the animal's croup to the light. Before administration, the mirror is moistened with saline solution or smeared with sterile vaseline oil, vaseline. Opening the vulva slightly with the fingers of the left hand, enter the mirror smoothly and very carefully, while the branches of the mirror should be closed, and its handles are directed to the side. After inserting the mirror, it is carefully turned so that the handles are directed downwards.

By pressing the handles, браншиthe mirror branches are pushed apart, and the vaginal cavity, cervix and vestibule of the vagina become available for inspection.

Palpate the vaginal mucosa, vestibule and cervix with the left hand. The nails on the hands should be cut and treated with a file. Hands are washed and lubricated with a mild, neutral soap.

This is done in order not to cause pain to the animal when the hand is inserted into the vagina. The external genitalia of the animal should be washed with warm water and soap and disinfected. The examiner gently inserts a soapy left hand into the vagina. In small cows, the genital slit and vestibule of the vagina are narrow and difficult to pass, and in heifers, as a rule, it is not possible to enter the hand into the vagina at all. The vagina is examined when it is relaxed. At the same time, pay attention to the length, width of the container, quantity and quality of mucus. The vaginal walls of healthy cows in the balancing stage of the sexual cycle are smooth, covered with a transparent, somewhat sticky secret. The vaginal part of the cervix, its folds, the entrance to the cervical canal, as well as the pelvic bones and the broad caudal artery of the uterus, located in the middle of the lateral wall of the vagina, are well palpated.

When examining the vagina of small animals, small-sized vaginal mirrors or special vaginoscopes of various designs are used.

Control questions

1. What parts do the sexual organs of mares consist of?
2. What is the clitoris?
3. How to determine the border of the vestibule of the vagina and the vagina in females

different types of animals?

4. Which animals have a vaginal vault?
5. Which animals have well-defined transverse folds in the canal

the cervix?

6. Which animals have an ovulatory fossa?
7. Which animals have bumpy ovaries?
8. In which animals is the uterus located in the abdominal cavity?
9. What type of uterus do mares have?
10. What animals have the rudiments of maternal placentas?

Lesson 2. Features of the anatomical structure and topography of the genitals of male domestic animals.

Task: to study the structure of the male genitals with the obligatory allocation of features of the anatomical structure of different parts and topography of the genitals, using the available teaching aids.

The sexual organs of males consist of the testes, their excretory ducts (appendages of the testes, spermioprovods, genitourinary canal), adnexal genitalia, penis and prepuce.

Testis (testis, orchis, didymis– - paired sex glands, located in a double protrusion of the abdominal wall, called the scrotum (scrotum). The shape and position of the scrotum are different in males of different animals. In bulls, rams and goats, the scrotum is located between the thighs in the form of a drawn bag and has a clearly defined neck. In the stallion, the scrotum is also located between the thighs, but the neck is weakly expressed. In boar, the scrotum is located behind the thighs and does not have a neck, since the testicles fit snugly to the thighs. In the male, the scrotum is located under the sciatic bones of the pelvis, partially between the thighs, and the neck is poorly defined. The skin of the scrotum is usually lightly covered with hair; only in the stallion is it hairless. In cats, the scrotum is located behind the thighs in the area of the sciatic tubercles, the skin is covered with thick hair and contains sebaceous and sweat glands that perform a thermoregulatory function.

On the surface of the scrotum, the scrotal suture (raphe scroti) is clearly visible along the midlineraphe scroti. After cutting the skin, the musculoelastic membrane (tunica dartos) is dissected, which, due to the presence of numerous smooth muscle tissue in it, has great mobility. The musculoelastic membrane is very firmly fused with the skin of the scrotum. Therefore, when smooth muscles contract, the skin of the scrotum shrinks and becomes folded, which reduces heat transfer.

The musculoelastic membrane forms the longitudinal septum of the scrotum (septum scroti), dividing it into two paired halves. Behind the musculoelastic membrane lies the common vaginal membrane (tunica vaginalis), which is a continuation of the parietal leaflet and the transverse abdominal fascia. This shell is very loosely connected to the musculoelastic shell, so that it is easy to separate. Inside each half of the scrotum, the common vaginal membrane forms an extensive serous space around the testis-the vaginal cavity (cavum vaginale), which passes into the narrow inguinal canal and communicates with the abdominal cavity through the vaginal opening.

Adjacent to the outer surface of the common vaginal membrane is a muscle-the externaltesticular lift (m. Cremaster externus), extending from the internal oblique abdominal muscle.

ПоднимательThe testicular elevator is located on the laterocaudal surface of the vaginal membrane.

The common vaginal membrane passes to the testis and, fusing with it, becomes the actual vaginal membrane (tunica vaginalis propria). It covers the appendage, spermatic cord and spermoprovods.

The vaginal or special sheath itself is firmly fused with the underlying albuminous membrane (tunica albuginea testis), which consists of dense

connective tissue with a thickness of 0.5 to 1.5 mm. This shell directly surrounds the testis.

Different topography of the scrotum, the degree of its sagging, the distance of the testes from the inguinal canal cause different positions of the testes relative to their longitudinal axis. In bulls, sheep, and goats, the testicles descend vertically into the scrotum and are palpable. In stallions and males, the testicles are horizontal and in boars they are inclined, with the tail of the appendage pointing towards the anal opening.

Testicles in males are located in the scrotum cavity almost in a horizontal position, and in cats-in an inclined position. They are suspended from the front on the spermatic cord, from the back - on the testis ' own ligament.

The testicles of males of different animals are not the same in shape,thickness and weight.

In the bull, ram and goat, they are ellipsoid, in the stallion – ovoid, in the boar – oval or bean-shaped, and in the male-oval. The testis of a bull weighs 250-350 g and has a length of 12-14 cm; the testis of a ram and goat – 200-300 g and 10-12 cm, respectively; the testis of a stallion-200-250 g and 10-12 cm; the testis of a boar – 400-500 g and 11-12 cm. The diameter of the testes is from 5 to 7 cm. At the junction of the testis with the head of the appendage, the protein shell grows deeply into the testis, forming the mediastinum. Thin connective tissue septa extend from the mediastinum to the albuminous membrane, dividing the testis into 300-400 lobules. Testicular lobules contain parenchyma, which is soft, yellowish in the bull, whitish in the ram and goat, dark brown in the stallion, gray-brown in the boar and brown in the male mass. In each lobule there are 4-5 convoluted seminal tubules with a length of 50 to 80 cm, the total length of all tubules of the testis reaches 200-300 m. Male germ cells – spermatozoa-are formed in the convoluted tubules. To represent the process of sperm development, it is necessary to cut a fresh testicle, slightly squeeze out the contents of the tubules and make a thin smear on a slide; the smear is viewed under a microscope at high magnification. Tubules are clearly visible on specially prepared preparations. The convoluted tubules in the middle of the testis narrow and flow into the straight tubules that form the testicular network (rete testis). From this network, sperm flows through the sperm-carrying tubules (ductus efferens) and mediastinal gates to the epididymal canal. The epididymis (epididymis) of the bull, ram, goat, and cat is closely adjacent to the caudal edge of the testis, while in stallions, boars, and males it is close to the dorsolateral surface of the testis.

Separating the appendage with a scalpel, make sure that its head in bull, ram and goat is located in a wide layer at the dorsal end of the testis and is especially noticeable in its lateral region. Therefore, the head of the testis appendage can be palpated when the scrotum tension is weakened. The body of the appendage is felt to a lesser extent, and it is adjacent to the testis along its caudal edge. The tail of the appendage in bull, ram and goat is located on the vertical end, in boar and male – on the dorsal end of the testis, as a strongly developed, well-palpable formation. The head of the epididymis consists of 13-15 tubules. These thin tubules with a lumen width of 0.1 to 0.3 m flow into a strongly sinuous channel of the testicular

appendage (canalis epididymidis). Its lumen increases and reaches 1 mm. The entire canal that makes up the body of the testicular appendage reaches a length of 40 to 60 m. The lumen of the epididymal canal, especially its caudal part, is overflowing with secretions and sperm. To detect them, the tail of the appendage is incised. A drop of its contents is applied with a glass rod to a slide, a drop of warm (40 ° C) saline solution is added, a smear is made and viewed under a microscope on a heating table at a temperature of 40-42 ° C. The channel of the tail of the testis appendage, greatly expanding, passes into the spermic conduit, which is part of the spermatic cord.

The spermatic cord (funiculus spermaticus) consists of aspermic conduit, blood vessels, nerves, and muscle fibers enclosed in the serous membrane. It originates from the testis and its appendage and stretches in the form of a string directed into the inguinal canal. Its length in a bull reaches 20-25 cm. The spermatic cord contains poorly developed muscle fibers that formthe internaltesticular elevator (m. cremaster internus). The internal seminal artery (a.spermatica interna) and the internal seminal vein (v. spermatica interna) are strongly convoluted in the thickness of the spermaticv.spermatica internacord. In the fold of the serous membrane of the spermatic cord there is a sperm pipeline. The sperm duct (ductus deferens) is a long tube with numerous folds of the mucous membrane, covered with a layer of smooth muscle and a serous membrane outside. There are left and right spermioprovods, each of which departs from the tail of the testis appendage, goes along the spermatic cord, passes through the inguinal canal into the abdominal cavity and reaches the dorsal surface of the bladder. Here, the sperm conduits of the bull, ram, goat, male, and stallion form clearly defined extensions called ampulla ductus deferentis (ampulla ductus deferentis). Their length in large species is 12-15 cm, the thickness is 4-8 mm, in the bull they are well felt during rectal examination. The wall of ampoules of males contains secretory active tubular glands. Boar and cat don't have such vials. In the walls of the sperm ducts there are profusely branched glands (they are not present in the boar), which secrete a liquid secret that mixes with sperm during ejaculation. In bulls, sheep and goats, ampoules also serve as a place of accumulation of sperm during sexual arousal. Above the neck of the bladder, both sperm conduits merge into a common small excretory duct, which flows into the initial part of the urethra (canalis urethralis). In the future, this channel is called the genitourinary canal (canalis urogenitalis), as both urine and semen pass through it. The urogenital canal first goes inside the pelvic cavity towards the sciatic arch, and then, skirting it, is located on the ventral surface of the penis, on the head of which it ends in a small hole (orificium urethrae externum).

This is easily confirmed by probing the genitourinary canal with a thin urinary catheter. If there is urine in the bladder, then by squeezing it, you can observe the leakage of urine. The penile part of the genitourinary canal in males is surrounded by spongy tissue and is located in a special groove of the genital bone.

In the pelvic cavity, the urogenital canal is surrounded by the urogenital muscle (m. urogenitalis). Before leaving the pelvis, there is a bulbous-cavernous muscle

(m. bulbocavernosus) on the root of the penis, reaching 16 cm in length and 3 cm in thickness in the bull.

These muscles form the outer muscle sheath of the urogenital canal.

Serous membrane – vascular, or cavernous, body (most developed in the stallion). During sexual arousal, the cavernous body is strongly filled with blood, swells, as a result of this, the lumen of the genitourinary canal expands and the movement of sperm is facilitated. The inner mucosa contains numerous small urethral glands. The ducts of the adnexal sex glands flow into the urogenital canal. The penispenisis the organ of copulation. It distinguishes between the root, body, and head. The root consists of two legs originating from the ischial tubercles. These legs, surrounded by a well-developed sciatic-cavernous muscle, soon converge and form the body of the penis, ending in the head. In males, the legs, surrounded by a developed bulbous-cavernous muscle (M. bulbospongiosus) and in cats by the sciatic-cavernous muscle, connect above the urogenital canal and together form the body of the penis, ending in the head. The base of the penis consists of two cavernous bodies and one spongy body that surrounds the genitourinary canal and forms the bulb of the penis in males. These bodies are covered with protein shells and contain numerous interconnected cavities (caverns) that canaccumulate blood and cause penile erection when the bulbous-cavernous (erector) muscle contracts in males and the sciatic-cavernous muscle in cats during sexual arousal.

On the dorsal surface of the penis body there is a small groove for the artery and vein, and on its ventral surface there is another, much larger groove for the genitourinary canal.

In bulls, sheep and goats, the head of the penis is weakly expressed and pointed. In the male, the head is thickened, and there is a bulbous thickening in its caudal part, which swells during erection.

In the penis of carnivores there is a sex stone. In dogs of large breeds, the sex bone reaches 8-10 cm in length, in cats-1 cm. The head of the penis of cats is covered with denticles and has a conical shape.

In the stallion, the head of the penis is strongly developed and is a mushroom-shaped formation.

On the head of the penis are distinguished: the neck, the process of the genitourinary canal and the cover (cap). The bull has a seam (ligament) on the neck of the head, which is rounded to the left along its course to the head. During ejaculation, the suture is stretched, and the final part of the penis bends to the side, describing an almost complete circle with a diameter of 12-14 cm. Such a turn of the tip of the penis can be reproduced on a fresh sexual organ. The process of the genitourinary canal in a bull does not reach the end of the penis, and in a goat and, especially in a ram, it continues beyond it by 3-4 cm. At the same time, the process of the genitourinary canal is curved in a ram, and straight in a goat. In a stallion, the process of the urogenital canal is located in the fossa of the glans penis.

In bulls, sheep, goats, and boars, the penis forms an S-shaped curve. It is well defined in the bull and is located above and behind the scrotum, where it can be felt. In a boar, the S-shaped bend is located in front of the scrotum. In the area of

the ventral knee of the S-shaped bend of the penis, there are smooth muscle fibers that form the retractorвтягивательof the penis (m. retractor penis). It originates from the first caudal vertebrae, stretches from the anus down in the form of a paired string and ends at the glans penis.

The basis of the penis is the cavernous, or cavernous, body. They consist of a dense connective tissue shell that forms numerous partitions inside. They are clearly visible on a cross-section of the penis. Between the septa there are large interconnected spaces (caverns), which are strongly filled with arterial blood during sexual arousal, resulting in an erection of the penis. At this time, the penis increases and reaches a length of 90-120 cm in stallions and bulls, 40-50 cm in sheep and goats, and 50-70 cm in boars.

The prepucium (preputial sac) (praeputium) in all males is a skin cavity in which the cranial part of the penis is located.

In a bull, the preputial sac is 40-50 cm long and 2.5-3.7 cm in diameter. It is covered with skin, inside there are two leaves: parietal and visceral. The parietal leaflet lines the inner wall of the preputial sac. In bulls, sheep, and goats, there are tubular glands in the thickness of the parietal leaf of the prepuce. In the caudal part of the preputial sac, the parietal leaflet passes into a visceral leaf devoid of tubular glands, which clothes the penis. This leaf is very gentle and gives the glans of the penis great sensitivity.

In boar, the parietal leaf of the preputial sac is devoid of glands. The prepuce cavity is divided by a circular fold into narrow caudal and wide cranial parts. In the dorsal wall of the cranial part of the prepuce, there is a small opening leading to the blind sac – the diverticulum of the prepuce (diverticulum praeputii).

Caudal to 3-5 cm from the navel is the external opening of the prepuce, surrounded by hair. In most animals (bull, ram, goat, rarely boar), the prepuce contains two special muscles (mm. praeputialis cranialis et caudalis). The cranial preputial muscle pulls the prepuce forward, the muscle originates in the xiphoid cartilage of the chest bone from the large skin muscle and ends in the parietal leaf of the prepuce. The caudal preputial muscle originates from the yellow abdominal fascia and ends in the skin leaf of the prepuce, near the preputial opening; it pulls the prepuce back.

In the stallion, the preputial sac is more complexly constructed than in other males. It forms a double skin sac, in which the external and internal prepuce are distinguished, consisting, in turn, of the external and internal leaflets.

In males, the prepucium is located on the ventral surface of the abdomen, in cats, the prepucial sac is located behind the thighs near the sciatic tubercles under the scrotum and directs the penis caudo-ventrally. The parietal leaflet of the prepuce does not contain preputial glands. In the preputial sac, the penis is held by a special retractor muscle (m. Retractor penis), consisting of smooth muscle fibers. The muscle starts at the first caudal vertebrae and ends at the base of the glans penis. The bulb of the penis swells strongly, which contributes to the coupling of the male and female genitals during sexual intercourse.

The adnexal sex glands – vesicoid, prostate and Cooper's-are located along the urogenital canal.

Vesicular glands (glandulae vesiculares) are the largest, paired glands are oblong, easily noticeable in large animals during rectal examination.

In the stallion, the vesicoid glands are shaped like bags with a flat surface, in the bull, ram, goat they are bumpy, in the boar they are smooth. The largest vesicoid glands in boar (length 12-15 cm, width 6-8 cm, thickness 3-5 cm). In other animal species, they are shorter (in stallions-12-14 cm, bulls-10-12 cm, sheep-4-5 cm, goats-3-4 cm). Vesicoid glands are located dorsally from the bladder in the genitourinary fold and laterally from the sperm ducts. They are complex tubular-alveolar formations containing wide excretory ducts inside, which open into the genitourinary canal along with sperm ducts. The secret of vesicular glands in bull, ram, goat and boar is watery, and in stallion – thickish. The dog and cat do not have these glands.

The prostate gland (gl. prostata) is a glandular formation consisting of the body and the scattered part. The body lies across the neck of the bladder at the junction of the urethra to the genitourinary canal. The scattered part is located in the wall of the pelvic part of the genitourinary canal. The body of the prostate gland is most developed in stallions and males and has the appearance of lobules, the scattered part is absent or poorly developed. In the bull and boar, on the contrary, the scattered part is well expressed. The body of the gland in the bull is small, in the form of a barely noticeable strip, and in the boar it is well developed, with a bumpy surface. The ram and goat have only the scattered part. Numerous ducts of the prostate gland flow into the lumen of the genitourinary canal. In males and cats, it is dicotyledonous, tubular-alveolar in structure. The prostate gland produces a secret that is part of the sperm.

Cooper's (bulbous) glands (gl. bulbourethralis) are paired glands located in front of the exit from the pelvic cavity.

In stallions and bulls, they are the size of walnuts (approximately 2.8-3 cm long and 1.8-2 cm thick). Palpation of these glands through the rectum is impossible, since the main part of them is covered by the bulbous-cavernous muscle. In sheep and goats, Cooper's glands are 2-2. 5 times smaller than in bulls. Very strongly developed Cooper's glands in the boar. They have the form of oblong plates 12-18 cm long, 3-4 cm wide and 2-3 cm thick. Weight 150-200 g. Having cut the Cooper's glands, they find a secret in them.

In stallions, bulls, sheep, and goats, it is watery-serous, while in boars it is thick. The excretory ducts open into the urogenital canal.

The bulbous gland is present in cats, it is paired, and in males it is absent. Located in the pelvic cavity above the neck of the bladder, the ducts open into the pelvic part of the genitourinary canal.

Blood supply and innervation of male genitals.

The scrotum is supplied with blood from the very thin external seminal artery (a. spermatica externa) and the highly developed external pudendal artery (a.pudenda externa). The scrotum is innervated by the branches of the parietal nerve (n. pudendus), the external seminal nerve (n. spermaticus externus), the medial branches of the iliohypogastric nerve (n. iliohypogastricus), and the ileo-inguinal nerve (n. ilioinguinalis). The testes are supplied with blood by the internal

seminal arteries (aa. spermaticae internae) and innervated by branches extending from the seminal plexus (plexus spermaticus).

The penis receives its nourishment from the internal pudendal artery (a.pudenda interna) and the external seminal artery (a. Spermatica externa), and in the stallion also from the obturatoria (a. obturatoria), which runs from the internal iliac artery (a. iliaca interna).

The penis is innervated by the dorsal nerve of the penis (n. dorsalis penis), which is a continuation of the pubic nerve (n.pudendus), and the external seminal nerve (n. Spermaticus externus). The terminal parts of the nerves are represented in the form of bodies, which are morphologically very diverse and are important in the reception and further management of thermal, mechanical and tactile stimuli. The prepuce receives sensory fibers from the preputial branch of the parietal nerve (n. pudendus), the external seminal nerve (n. spermaticus externus), the ileo-hypogastric and ileo-inguinal nerves (n.n. iliohypogastricus et ilioinguinalis).

Features of the anatomical structure of the genitals of male farm animals У Male farm animals have separate features in the structure of the genitals.

1) The adnexal sex glands in boars function more energetically than in other animals, which causes large volumes of ejaculates. In this regard, boars more often than other males have inflammation of the adnexal glands and one of the signs of inflammation is an admixture of blood (sucrose) in the sperm.

2) Spermoprovods in bulls and rams before flowing into the urethra (at the neck of the bladder) have extensions called ampoules of spermoprovods. In them, after each ejaculation, a part of the sperm remains, which eventually lose their fertilization properties. Therefore, when taking sperm from bulls and rams, the first ejaculate (after a long break) is checked for quality separately from the second. Due to this feature, sperm can be obtained from breeding bulls by massaging the ampoules of the sperm ducts with your hand through the rectum (one of the methods of taking sperm).

3) The body of the penis in bulls, rams and boars has a well-defined S-shaped bend. This makes it possible to prepare a probe surgically by suturing the lower knee.

4) With age, boars have a sagging abdominal wall and a flow of urine is formed in the prepuce cavity with each urination. The remaining urine enters спермоприемникthe sperm collector and the ejaculate is rejected, so the prepuce must be washed before taking the semen.

5) The testis in stallions is located horizontally in the scrotum, and in bulls, rams and goats vertically.

6) The tail of the testis appendage in bulls and rams is located at the ventral end of the testis, and in boars and males – at the dorsal end.

7) Unlike all males, the skin of the scrotum is covered with thick hair, which disrupts the thermoregulation of the testes during the artificial insemination season (July-August). Therefore, at the time of cutting, you need to remove the hair cover from the skin of the scrotum, otherwise by the time the rams are used for artificial insemination of sheep, they will not give high-quality sperm.

8) The scrotum neck is weakly expressed in stallions, males, and cats, while it is absent in boars.

9) The skin of the scrotum in stallions is hairless and contains sweat and sebaceous glands.

10) The largest testis mass in boars is 400-500 g.

11) Stallions and males have the most developed prostate body.

External examination of male genitalia. Having studied the genitals according to tables, diagrams and organs of slaughtered animals, they begin an external study of the genitals of healthy males. The study consists of examination and palpation. The study should be conducted in a bright playpen in daylight. Artificial lighting does not allow a good view of the affected areas, the condition of the mucous membrane of the preputial opening and penis. The animal must be well fixed. When examining the bull, the head is raised up, the tail is pulled to one side. The examination begins with the scrotum. Determine its shape, the nature of folds, consistency and sensitivity, determine the asymmetry of the testes, their position in the scrotum and size. Usually the right testicle is slightly larger than the left one. Palpation examines the mobility of the testicles in the scrotum, their consistency and turgor. The testicles of healthy males are smooth, easily displaced upwards, and have an elastic consistency. As the male ages, the consistency changes and the testicles become harder. Together with the testes, the appendages of the testes are also examined. It is most accessible to examine the tail of the appendage, which in bull, ram and goat stands out at the ventral end of the testis in the form of an elastic small semicircular formation. The head of the appendage, located at the dorsal end of the testis, is hardly palpable. It has the form of a slightly protruding expanded formation, smooth and of a tighter consistency than the testis.

A more complete picture of the size of the testes can be obtained by performing testimetric measurements. These data are also necessary for the clinical diagnosis of congenital and acquired testicular anomalies. Testimeters are used to measure the testes. In bulls, the length of the testes is determined, including the appendages, the length of the testis (dorso-ventral axis) and the head of the appendage, the thickness and width of the testis. Then measure the thickness of the skin fold at the widest point in the middle of the scrotum. Measuring tape measures the circumference of the scrotum at its widest point. Sometimes the volume of the testicles is determined. To do this, they are lowered into a water-filled cylinder with divisions. The volume of the testes will be equal to the volume of water displaced from the cylinder.

For practical purposes, three basic measurements are sufficient: the height, width, and thickness of the testes. In sexually mature bulls, these indicators are approximately as follows:: height 12-20 cm, width 6-10 cm and thickness 7-10 cm. By multiplying three dimensions, the testis size index is set. According to these data, the development of the testes is judged. The height, width, thickness of the testes, and, consequently, the index of the size of the testes depends on many factors and, above all, on the age of the animal. Unfortunately, we do not have standards for testicular biometrics for any animal species. Meanwhile, with the development of artificial insemination, such data are needed in order to prevent

various types of congenital infertility. Spermatic cords and spermoprovods are examined only by palpation, paying attention to their thickness, consistency and soreness.

When examining the preputial sac, its length, mobility, sensitivity, and diameter of the preputial opening are determined. In healthy males, the mucosa of the preputial opening is pink, smooth, and clean. The mucosa of the prepuce, the penis, and its head are examined during the cage for the female.

In calm bulls, at this time, it is possible to grab the prepuce with the left hand in order to direct the penis to the side and examine it.

Examine the mucosa, determine its dryness or humidity, color. A long-term examination of the penis is possible only when it is removed from the preputial sac, which is achieved by using various methods of anesthesia.

Adnexal sexual (mainly vesicular) glands in stallions and bulls are examined rectally.

Control questions

1. What are the membranes of the testicular sac?
2. What is the roleof the externaltesticular lifter?
3. What is the difference between the structure of the glans penis in boar and asp ??
4. Which animals have a weak scrotum neck?
5. Which animals have their scrotum behind their thighs?
6. Which animals have the largest testis mass?
7. What is included in the spermatic cord?
8. What is the name of the urethra from the place of confluence of sperm ducts?
9. What is the consistency of the secret of the vesicoid gland in a bull, ram, boar, stallion?
10. Which animals have the most developed prostate gland?

Lesson 3. Assembly and preparation of artificial vaginas for sperm collection from manufacturers. Receiving sperm from producers of different types of animals and birds.

Material and equipment: disassembled artificial vaginas of bulls, sheep, boars, stallions, sperm collectors, rubber chambers, corncangs, cotton swabs soaked with 96% ethyl alcohol, dry sterile swabs and gauze napkins, tweezers, sterile vaseline, towel,compressor, mock-ups of machines for receiving sperm from bulls.

The set of artificial vaginas for bulls-producers includes:

1) a rubber cylinder with a hole in the middle of the length for pouring water and injecting air into межстенноеthe inter-wall space through an ebony tap; the length of the rubber cylinder is 30-50 cm, the diameter is 8 cm; 2) an ebony tap;

3) a rubber chamber with one polished surface;

4) sealing rubber rings – 4 pcs.;

5) glass double-walled sperm collectors with a lid or stopper, and a disposable polyethylene spermcollector;

6) rubber retainer of the sperm collector.

There are three types of vaginas for taking sperm from bullsвагин:

1) an artificial vagina of the 1942 model;

2) a shortened artificial vagina with a disposable sperm receiver made of plastic film, the length of the cylinder is 30 cm;

3) artificial vagina with balloon-like expansion, consists of an aluminum cylinder.

The set of artificial vaginas for boar includes:

1) rubber cylinder, as for bulls, but shortened, length

26-41 cm, diameter 8 cm;

2) ebonite faucet;

3) inner rubber chamber;

4) sealing rubber rings – 4 pcs.;

5) rubber coupling for connecting the sperm receiver to the cylinder, there is a hole in the middle of the length of the coupling;

6) sperm collector – a wide-necked glass jar with a volume of 500-1000 ml, or a graduated cylinder with a filter;

7) Insulation cover for the sperm receiver, if the sperm is taken at a temperature of 18°C and below.

The set of artificial vaginas for a stallion of the 1952 model includes:

1) aluminum cylinder with a pipe into which the plug is screwed: cylinder length 54 cm, diameter 13 cm;

2) rubber chamber, fixed with rubber rings;

3) a rubber spermcollector, which is put on the narrow end of the cylinder.

The set of artificial vagina for sheep includes:

1) ebony cylinder, length-20 cm, diameter-5,5 cm;

2) ebonite faucet with rubber gasket for connecting to the cylinder;

3) the camera is rubber;

4) the sperm receiver is double- walled or single-walled, used depending on the ambient temperature.

The set of artificial vaginas for males includes:

1) outer elastic rubber cylinder with a size of 15 × 15 cm;

2) inner elastic rubber tube.

Depending on the ambient temperature, single-wall, double-wall sperm collectors and thermal insulation covers for sperm collectors are used for receiving sperm.

When the ambient temperature is not lower than +18°C применяют , single-wall sperm collectors are used, at lower temperatures, double-wall or single-wall ones are closed in a heat-insulating cover.

Rules for assembling artificial vaginas Assembly begins with checking for defects. All parts of the artificial vagina are thoroughly washed with a brush, a nylon wipe with a hot 2-3% solution of bicarbonate of soda (t=40°C).

After washing, rinse thoroughly and wipe dry with a clean towel. Then a rubber chamber is inserted into the cylinder with a smooth surface inside, and the ends are aligned. The chamber is wrapped alternately on the ends of the cylinder and secured with rubber rings. The pipe opening is closed with an ebonite tap or plug.

Before receiving sperm, they are re-boiled for 20 minutes or disinfected with cotton swabs moistened with 96% ethyl alcohol-rectified. Then the vagina is placed on a stand and hot water is poured (Table 1). Table 1 The amount of water poured into the vaginaand its temperature for different manufacturers

Artificial vaginas filled with warm water вагиныcan be placed in a thermostat cabinet with a temperature of 42-43 ° C and stored in it until sperm is received.

Before receiving sperm, the inner lumen of the artificial vagina is lubricated with sterile vaseline or synthetic sperm dilution medium. At the vagina of the bull and ram, a 3-4 cm section is left unlubricated at one end for attaching the sperm collector. To create the necessary pressure in artificial vaginas for a bull (sample of 1942 and shortened), a ram and a boar, air is pumped so that the walls of the chamber close over the entire length (pressure 40 mm Hg).

View Animal type	Sample Artificial vagina sample	Quantity Water quantity, ml	Temperature Water temperature, oS
Bull	1942 With balloon expansion	400-500 1200-1500	60-70 50-55
Ram	Shortened 1942	300	60-65
Boar	Rubber	150-180	50-55
Stallion	Aluminum	300-400	60-65
		1500-2000	50-60

In an artificial vagina with a balloon-like expansion for a 1952 bull and a stallion, air is not pumped, the necessary pressure in it is created by a column of water when the vagina is tilted during sperm production. Before receiving sperm, the temperature in the vagina should be between 40-42°C.

Receiving sperm from producers is organized in special playpens designed for receiving sperm, equipped with machines for fixing dummy animals, mechanical or wooden stuffed animals. The playpen communicates with the premises of the washing room and the sperm assessment laboratory through special technological windows that provide aseptic working conditions in these premises. In the playpen, water is sprayed before semen is collected and the floor is moistened to remove dust particles and germs. The playpen is irradiated with bactericidal lamps (BUV-30, PRK-7) installed on the ceiling near the machine. Before entering the playpen, the animals are cleaned, doused with clean warm water, and dried in a dryer.

Getting sperm from a bull. Sperm from the bull is obtained in the playpen 2 hours after feeding and drinking on a dummy bull or stuffed animal. Each ejaculate

is received in a separately prepared vagina. Then, before taking the sperm, stand for 5 minutes.

At the time of the producer's cage (a manifestation of the hug reflex), the vagina is held with the right hand at the level of the pelvis of the fixed animal at an angle of 400 -450, respectively, in the direction of the penis. With the left hand, carefully move the preputial sac with the penis to the right side, directing it into the lumen of the artificial vagina.

Of great importance is the timely placement of the artificial vagina to the penis, premature and belated insertion of the artificial vagina causes inhibition of ejaculation.

The copulatory reflex and ejaculation last 6-10 seconds. Volume of 4-5 ml of semen. Sperm from bulls is obtained 2 times a week, taking into account the implementation of double cages for one capture.

After receiving sperm into the shortened vagina, the polyethylene sperm receiver is sealed with a "Lightning" device, cut off with scissors and transferred to the laboratory, where the volume is determined using a beaker or on an electronic scale. It is assumed that 1 ml of sperm has a mass of 1 g. Then determine the concentration and motility of sperm. The used vagina is transferred to the washing room.

Getting sperm from a ram. Sperm from rams is obtained mainly in the same way as from bulls. The artificial vagina is fixed at the level of the animal's pelvis at an angle of 35° . Ejaculation in a ram occurs in 1.5-2.0 s. The volume of 1.0-1.5 ml of sperm.

Getting sperm from a boar. Sperm is obtained on a wooden stuffed animal, where a nest for an artificial vaginais arranged, which can be heated. In the back of the stuffed animal's back, there is a hinged lid for placing an artificial vagina.

Before receiving sperm, the boar prepuce is washed outside and inside with warm water, preferably with the addition of glucose and baking soda in the ratio of 3 g of glucose and 0.5 g of soda per 100 ml of boiled water or other preparations. The prepared vagina is inserted into a stuffed animal and a boar cage is organized in the playpen. Ejaculation lasts 7-8 minutes. The end of ejaculation is determined by the absence of pulsation of the anus. After receiving the sperm, the boar is taken out of the playpen, the artificial vagina is removed from the stuffed animal, the filter with the secret of Cooper's glands is removed and transferred to the laboratory. On average, a boar releases about 250 ml of sperm per cage.

Getting sperm from a stud. The stallion's cage is allowed for a mare in sexual hunting with a random harness. The tail is bandaged from the turnip to half, so that it does not interfere with the time of receiving sperm. During the stallion's cage, the prepared vagina is pressed against the mare's rump on the right side and given a position corresponding to the direction of the penis. The stallion's penis is gently guided with the left hand into the artificial vagina. During the copulatory reflex, it is necessary to release part of the air, since the glans penis increases 2-3 times.

The onset of ejaculation is characterized by a rhythmic contraction of the muscles of the root of the tail and perineum. At the end of ejaculation, the artificial vagina, without removing it from the penis,is tilteddown with a sperm receiver so

that sperm flows into it. In an inclined position, the artificial vagina is fixed until the end of sperm release. Ejaculation lasts 10-20 seconds, the volume of 50-120 ml of sperm. After receiving the sperm, the sperm collector is separated from the vagina, the sperm is filtered from the secretion of the vesicoid glands and transferred to the laboratory.

Receiving sperm from a male. The first few times the sperm is taken in the presence of a female in a state of sexual hunting. In males, the method of massage stimulates the erection of the penis. If there are signs of an erection, the penis is removed from the preputial sac and sent to an artificial vagina. The artificial vagina creates a pulsating pressure that promotes the onset of ejaculation. After stopping copulatory movements, the penis and vagina are carefully turned 180° C and pulled back until the end of ejaculation.

Getting cum from a cock. Sperm from a rooster is obtained by massage. In roosters, the feathers around the cloaca and the long tail feathers are trimmed. The cloaca area is treated with a solution of furacilin (1: 5000). The technician, sitting on a chair, clamps the legs of the rooster with his knees, holding a sterile warm (35 ° C) polyethylene or glass sperm collector between the middle and ring fingersспермоприемник, and massages the lower part of the rooster's body in the abdominal area with the thumb and little finger of the right hand. At the same time, the technician massages the entire dorsal area with his left hand, starting from the area of the last cervical vertebrae and ending with the root of the tail.

Massage 3-4 times for a few seconds until the rooster responds by raising its tail. Then the technician begins to massage the back of the rooster's abdomen easily with the thumb and index finger of his left hand, which leads to an erection of the copulatory organ (protruding from the ventral wall of the cloaca). At this point, the technician substitutes the sperm receiver with his right hand and squeezes the cloaca with the fingers of his left hand, squeezes the sperm into the sperm receiver. Ejaculation is instantaneous.

Getting sperm from a turkey. To obtain sperm from turkeys, a special machine is used in which the turkey is fixed and covered with a net. Let the male in and massage the soft part of the abdomen during mating. After 30-40 seconds, sperm is released, which is collected in a warm, sterile spermcollector. Sperm is obtained 2 times a week. Turkeys secrete 0.25-0.4 ml of sperm with a sperm concentration of 2-3 billion in 1 ml.

Getting sperm from a gander. Sperm from geese is obtained in the same way as from turkeys. Geese secrete 0.1-1.3 ml of sperm with a sperm concentration of 0.3-0.9 billion in 1 ml.

Control questions

1. The device of an artificial vagina of the 1942 model for a bull.
2. What is the need for balloon-like expansion in an artificial vagina, proposed by I. I. Rodin?
3. The device of an artificial vagina for a stallion of the 1952 sample.
4. Dimensions of cylinders of artificial vaginas.
5. A variety of sperm collectors for producers of farm animals.

6. What should be the temperature of the water poured into the artificial vagina?

7. How to sterilize disposable sperm collectors made of plastic film?

8. How are rubber sperm collectors disinfected?

9. At what temperature and how автоклавируютmuch do artificial fruits autoclave?

vaginas?

10. Methods of obtaining sperm from producers of farm animals.

Classes 4. Artificial insemination of cows and heifers

The purpose of the lesson: to learn practical techniques and get

skills of existing methods of artificial insemination of cows and heifers.

Materials and equipment: microscopes, slide and cover glasses, heating tables, glass sticks, thermos with semen, anatomical tweezers, metal tripods for instruments, glass syringes-catheters, vaginal mirrors, kits for manocervical and, rectocervical insemination of cows, five jars with lapped lids for 1% sodium bicarbonate solution or 2.9% solution sodium citric acid, 70% rectified ethyl alcohol, for cotton swabs soaked in alcohol (96%), salinesolution, sterile gauze wipes, alcohol lamp, towel, cotton wool, warm water, soap, bucket

Task:

1) learn how to work with tools for insemination of female cattle and learn the rules for their processing;

2) master practical techniques of cow sampling in sexual hunting and artificial insemination techniques.

Terms of insemination after childbirth. Under the condition of full feeding and good maintenance of cows, both in summer and in winter, the involution of the genital organs ends no later than three weeks after delivery. By this time, postpartum discharge completely stops, well-defined maturing follicles are found in the ovaries, which causes the manifestation of a full-fledged stage of arousal of the sexual cycle.

The organization of insemination of cows in the first month after delivery is an important measure to prevent infertility, increase the productivity of animals, and obtain a strong offspring. This is the main way to intensify the reproduction of cattle.

Fertilization during this period strengthens the animal's body, preventing it from excessive lactation stress, and makes it possible to get from 100 cows to 115 or more calves annually. In the absence of a stage of arousal of the sexual cycle in the first month after giving birth, cows are carefully examined and the causes of this "abnormal" phenomenon are immediately eliminated.

Time, multiplicity, and doses of sperm during artificial insemination during the arousal stage of the sexual cycle. Sexual hunting in cows and heifers always occurs later than estrus and does not always coincide in time with sexual arousal. Therefore, insemination only on the basis of taking into account the signs of estrus

and sexual arousal is ineffective, since at this time the mucus is viscous, uterine motility is weak and the introduced sperm quickly die.

A more accurate sign of a cow's readiness for fertilization is the presence of sexual hunting, which is easy to detect by a bullfighter.

When establishing sexual hunting with a vasectomy probe, the cow should be inseminated immediately and once.

In this case, double insemination is unnecessary, since it does not increase оплодотворяемостиfertilization (since sexual hunting under the influence of coitus stops by this time). If operated probes that are incapable of coitus are used, 40-46% of animals are still alive by the time of repeated insemination (after 10-12 hours), and their fertilization rate increases during insemination.

The insemination dose for cervical administration of undiluted semen is 0.3-0.5 ml and diluted – 1.0-1.5 ml. When inseminated with frozen sperm, the dose is reduced to 0.25-0.40 ml.

It is necessary that the spermodose contains at least 10-12 million sperm cells. active sperm cells. Sperm activity during its evaluation should not be lower than 4 points and 3 points if the bull is tested for the quality of offspring.

Modes of defrosting sperm. If the artificial insemination point receives frozen sperm in payettes, it is thawed in a water bath at a temperature of 38 ° C for 10-11 seconds, dropping it into the water with a factory plug and constantly moving it. To thaw out unglazed granules with a volume of 0.25-0.5 ml,° C a sterile vial or ampoule with 1 ml of 2.9% sodium citrate solution is placed in a water bath with a temperature of 40-42 ° C for 5 minutes.

Then the granule extracted from the Dewar vessel is lowered into the vial, thawing should last 8 s. Spermodoses in lined granules do not require thawing in a solution of sodium citrate, since they are packed in plastic packaging. Their defrosting mode is similar to that of unglazed pellets.

Thawed sperm is removed from the water bath and stored at a temperature of 18-20° ° C before its use, but not more than 10-15 minutes.

During this time, it is necessary to inseminate the female in the hunt.

Thawed sperm can not be frozen again.

Tools for insemination of cows and heifers. Tools for artificial insemination of cows and heifers can be divided into basic and auxiliary, as well as disposable, reusable and combined.

Combined tools include metal syringes for artificial insemination of cows and heifers with sperm in payettes (straws).

There are many foreign and domestic modifications of these instruments, in our country the most common syringes are SHO-3.

They consist of a metal housing, a plunger-pusher and a single-use polystyrene cover used for a single dose of sperm. The cover is fixed on the housing with a pressure plate, and the tightness of the tool is ensured by the sealing sleeve of the polystyrene cover.

When preparing the tool, it is necessary to insert the paillette with the plug inside, and at the opposite end, cut the plug exactly and only then put on the cover.

ПайеттуAfter defrosting, the payette is pre-shaken so that the air bubble located in the middle moves to one of the ends of the payette.

The plug is cut off from the side of the air location. After using the tool, the case along with the paillette should be removed and sent for recycling.

The following disposable instruments are used: polystyrene pipettes with a length of 40-45 cm, pipettes for manocervical insemination, polyethylene ampoules and syringes with adapters (Fig. 17). These instruments are designed дляосеменения for insemination with frozen sperm in unglazed pellets.

For insemination with sperm in lined granules, disposable pet syringes are used, which can be supplemented with extendersfor- rectal and визоцервикальногоvisocervical sperm injection methods. All instruments of this group are sterile and packed in plastic tapes.

Reusable sperm injection tools require preparation before insemination of each animal. These instruments include glass syringes-catheters. These devices are used for the introduction of diluted unfrozen sperm, as well as frozen sperm in unglazed granules after defrosting. To process glass syringes-catheters, you need 5 jars with lapped lids (tampons):

No. 1 – saline solution or 1% solution of baking soda.

No. 2 – 70% ethyl alcohol.

No. 3-saline solution or 1% soda solution.

No. 4 -2.9% sodium citrate solution;

No. 5-cotton swabs in 96% ethyl alcohol.

The procedure for processing glass syringes-catheters at different stages:

1) after use, remove the remaining sperm;

2) wipe the outer side from the plunger to the end of the catheter with an alcohol swab;

3) then wipe the syringe-catheter with a second swab;

4) then collect 5-6 times the solution from the jar No. 1, remove

put the remaining saline solution in the drain container.

5) washing in a jar No. 2 (disinfection);

6) washing with saline solution from jar No. 3 (5-6 times);

7) then from jar #4 (5-6 times);

8) swab the instrument from the end of the catheter to the syringe and collect sperm.

After insemination of one animal and before insemination of another, the syringe-catheter is wiped with an alcohol swab from the syringe to the catheter.

As auxiliary tools, vaginal mirrors are used separately for heifers and cows, vaginal mirror illuminators (vaginal mirror illuminator, head lamp, lantern, etc.), as well as disposable polyethylene gloves for artificial insemination.

Methods of sperm injection. Cows and heifers are injected with sperm into the cervix – cervically. All instruments that come into contact with semen should be warm (38-40^{o}° C) and sterile.

Before insemination, sperm activity must be determined. In the conditions of operation of the artificial insemination center, this is an objective indicator that characterizes the quality of sperm. Therefore, the determination of sperm activity

must be made before each insemination. There are always microorganisms in the cow's vagina, the number of which increases during insemination in the cowshed stalls. To avoid this and other negative aspects, cows should only be inseminated in a special machine at an artificial insemination station that meets all the necessary veterinary and sanitary requirements. One of these requirements is to maintain the room temperature at least +18°C. At a lower temperature, the instruments quickly cooldown, which negatively affects the results of insemination (the process of sperm movement in the female genital tract is disrupted, and the quality of sperm decreases).

In artificial insemination of cows, sperm is injected into the cervical canal in one of three ways: rectocervically, manocervically or visocervically.

1) Cervical insemination of cows and heifers with rectal fixation of the cervix (rectocervical method) is carried out in the following sequence: a polyethylene glove is put on the right hand for artificial insemination, the labia are parted with the fingers of the left hand, and an insemination tool is inserted into the vagina through the genital slit with the right hand. Insert the instrument first at an angle of 30 ° -40°, along the upper wall of the vagina until it stops in the vaginal vault. After inserting the instrument up to half the length of the vagina, the labia are released and a hand in a plastic glove is inserted into the rectum, while holding the instrument with the left hand. Pre-moisten the glove with soapy water or a 1% solution of bicarbonate of soda. Using rectal palpation, we find the uterus and determine its condition.

As tools for sperm injection in this method, you can use a metal syringe for artificial insemination SHO-3, a polystyrene pipette 40-45 cm long with an ampoule or syringe, as well as a pet syringe with an extension cord.

The instrument inserted into the vagina is moved to the cervical canal under the control of the hand. If it gets into the fold of the vagina, then the cervix must be removed somewhat cranially.

After the end of the instrument is brought to the opening of the cervical canal, a more detailed examination of the uterus and ovaries is carried out. Examination of the uterus and ovaries allows you to determine some signs of the presence of a stage of arousal of the sexual cycle: good rigidity of the uterus, the presence of a well-developed preovulatory follicle on the ovary, and a positive reaction of the female to massage of the internal genitalia (прогибаниebending of the back, pulling the tail to the side, discharge ofestrus mucus from the genital slit).

After completing all the preparatory work, you should fix the cervix and insert the instrument cannula into its channel.

Fixing can be done in one of three ways.

1) The cervix is fixed between the index and middle fingers, and the opening of the cervical canal is felt with the thumb and an instrument is inserted into it under the control of this finger.

2) The vaginal part of the cervix is wrapped around the entire hand, and the pipette is inserted under the control of the little finger.

3) The cervix is pressed to the bottom of the pelvis with your fingers and, under the control of the palm, the instrument is inserted into the cervical canal.

Then the hand grabs the cervix and gently, turning in different directions so as not to injure the mucous membrane, move the catheter into the depth of the canal by 6-8 cm. To ensure that the sperm is injected not in one place, but over a certain length of the channel, it is necessary to slightly pull the instrument back at the time of its introduction.

Cervical insemination of cows and heifers with rectal fixation of the cervix has several advantages.

1) Eliminates irritation and injury of the vaginal mucosa with a metal mirror, as well as cold and painful sensations that violate the oxytocin reflex.

2) Reduces infection of the vagina and cervix with bacteria and fungi that enter there together with the air when the vagina is opened with a mirror.

3) The use of disposable sterile plastic instruments (covers) allows insemination in aseptic conditions, eliminates the need for sterilization of instruments inserted into the genital tract.

4) The introduction of sperm into the deeper part of the cervix is ensured, which prevents its reverse flow into the vagina and contributes to a faster achievement of the oviduct by spermatozoa, while maintaining a high fertilizing ability.

5) Performing a finger massage of the genitals when examining them during insemination removes the defensive reaction of animals to the introduction of instruments into the vagina, and also stimulates uterine motility.

6) Rectal examination of the internal genitalia before insemination makes it possible to identify pregnant or sick animals, which eliminates cases of erroneous insemination.

7) Under the condition of rectal monitoring of the ovarian condition (maturation of follicles and ovulation process), it is possible to inseminate cows once in one sexual hunt.

2) Manocervical method. In this method of insemination, sperm is introduced into the cervical canal using a metal SHO-3 catheter or a sterile polyethylene ampoule (syringe) and a shortened polyethylene pipette. The end of the catheter is directed into the cervical canal with the fingers of a hand inserted into the cow's vagina. The manocervical method can only be used for insemination of cows. For insemination of heifers, it is not suitable, since heifers have a narrow vagina and injuries are possible when hands are inserted into it, so it is recommended to inseminate them in other ways.

Insemination is carried out using a disposable plastic glove, worn on the working hand, moistened with saline solution and one of the tools, the choice of which depends on the packaging of sperm doses. The animal's vulva is washed and treated with furacilin solution. By inserting your hand into the cow's vagina, gently push it forward and determine the degree of opening of the cervical canal. Then, for one minute, massage the vaginal part of the cervix so that the animal calms down. Then, after removing mucus from the mouth of the cervix, under the control of the index finger, the instrument catheter is inserted into the cervical canal to a depth of 6-7 cm. Enter the sperm should be at the time of relaxation of the cervix, which is accompanied by its suction action. After administration of a dose of

sperm into the cervical canal, the catheter is removed and the cervix is additionally massaged for 1-2 minutes. The hand should be removed carefully, otherwise a strong convulsive contraction of the uterus is possible, and sperm is ejected from the cervix into the vagina.

3) The visocervical method of insemination of cows and heifers is carried out using a vaginal mirror, its illuminator , a glass syringe-catheter, a metal catheter (SHO-3), a polystyrene pipette 40-45 cm long with an ampoule or a pet syringe with an extension cord.

The vaginal mirror should be sterile and warm, which is achievedby flambing itor boiling it in a sterilizer.

The prepared vaginal mirror is irrigated with sterile saline solution and carefully inserted into the vagina in a closed state, opening the labia with your fingers, directing it first craniodorsally at an angle of 45 ° until it stops in the vaginal vault. The tool handles should face sideways. After the introduction of the mirror, turn the handles down and openthe branches. Holding an open vaginal mirror in your left hand, place the illuminator in its lumen, then examine the vaginal cavity and cervix. If the examination does not reveal signs of the disease (purulent exudate, erosion, spotting, etc.) and clearly visible signs of estrus (open cervical canal, the presence of estrus mucus) proceed to insemination.

The prepared instrument for sperm injection is inserted with the right hand through an open mirror into the vagina, the opening of the cervical canal is found, the catheter is carefully inserted into it to a depth of 4-6 cm (usually 2-3 transverse folds pass) and a dose of sperm is slowly pressed by pressing the plunger. If the catheter is inserted to a smaller depth, then sperm can flow out into the vagina. The curved end of the glass syringe-catheter should be directed downwards, otherwise some of the sperm will flow through the catheter from the cervical canal during insemination.

At the time of sperm injection, the vaginal mirror is slightly pulled back, which helps to compress the cervix and prevents sperm from leaking into the vagina. After insemination, first remove the insemination tool, and then the vaginal mirror with not fully closedbranches, so as not to infringe on the vaginal mucosa between them. Subsequently, a light massage of the clitoris or the posterior surface of the udder should be performed, which favorably affects the progress of sperm in the female's genital tract and the results of fertilization.

After insemination, cows and heifers are kept in the machine for several minutes. Then the cow is taken out of the machine and kept in the stall for at least 12 hours.

The effectiveness of artificial insemination is monitored by a probe bull 18-20 days after insemination by reflexological method. If another sexual hunt is detected, repeated artificial insemination is performed. In the absence of sexual hunting, ultrasound diagnostics of pregnancy are planned 30 days after the date of insemination, and when using the rectal method of diagnosis, 60 days later.

Control questions

1. Stages of sexual arousal.
2. Features of the manifestation of the phase of sexual arousal in cows.

3. What factors determine the time of insemination of cows and heifers?

4. What options for the cervical insemination method do you know?

5. List auxiliary and basic tools for осем insemination of roofs.

6. Method of treatment of glass syringes-catheters.

7. Advantages and disadvantages of the visocervical method of insemination of cows.

8. Advantages and disadvantages of rectocervical method of insemination of cows.

9. Technique of manocervical insemination.

10. Dose of insemination of cows and heifers and what does it depend on?

Lesson 5. Artificial insemination of mares, sheep and goats

The purpose of the lesson: to study the technique of artificial insemination of mares and practical techniques of artificial insemination of sheep and goats.

Materials and equipment: microscopes, slide and cover glasses, heating table, pipettes, glass sticks, cotton wool, foam thermos, distilled water, synthetic sperm dilution medium, 0.9% sodium chloride solution, drying cabinet, water bath, gauze wipes.

Materials and equipment: mares in the hunt, freshly obtained undiluted and diluted semen; fixation machine, magnetic harness; microscope, slide and cover glasses, heating table, glass sticks or eye pipettes, glass syringe for 30-40 ml or ampoule of Rastyapin; ebony catheter, Ivanov design catheter, 70% ethyl alcohol, boiled water, sperm dilution media, alcohol swabs, sterile cotton swabs, chickens, turkeys, geese, sterile wipes and test tubes, glass sticks, microscope, slide and cover glasses, turkey fixing machine with mesh, freshly obtained sperm, semi-automatic syringes, polystyrene or glass pipettes with polyethylene (rubber) cans, 70% ethyl alcohol, cotton swabs, swabs soaked with 96% alcohol, sodium chloride, potassium chloride, calcium chloride, magnesium chloride, sodium acetic acid, sodium phosphoric acid di-substituted, potassium citric acid, sodium glutamic acid, fructose (glucose), sodium citric acid, distilled water.

Task 1: master the technique of artificial insemination of mares.

Classes are held at the training center. Students are divided into subgroups (3-4 people each) and given specific tasks.

First, sexual hunting is diagnosed using a probe stallion. Then the mares in the hunt are brought into the machine, rectal monitoring of the ovary condition is performed to determine the stages of follicle maturation, the external genitalia are treated, tools are prepared, sperm quality is determined and the mares are inseminated. In order to master the techniques of insemination of mares, students change their duties.

Determination of the degree of follicle maturity. By the method of rectal examination, the shape of the ovaries, their size, consistency, and the presence of fluid fluctuations in the maturing follicle are determined (according to Zhivotkov). These signs indicate the stages of maturation of the follicle: - stage 0-bean-shaped

ovaries, length 5-7 cm, width-3 cm, thickness-2 cm, tight-elastic consistency, no follicle;

- stage 1-the beginning of follicle maturation, the ovary in the form of an incorrect bean due to an increase in one of its zones, in which the follicle grows in the form of a slight softening;

- stage 2-mature follicle, pear-shaped ovary, enlarged, weak fluctuation in the follicle;

- stage 3-the follicle is almost ripe, spherical in shape and strongly fluctuates;

- stage 4-the follicle is ripe, spherical, tense fluctuations, its walls are thinned (the consistency resembles a chicken egg without a shell);

- ovulation – the tension of the follicle walls has weakened, at the end of ovulation, the ovary is greatly reduced in size, and there is no fluctuation at the site of the follicle.

- yellow body – in place of the ovulated follicle, a yellow body with a diameter of 2-4 cm, of a mildly elastic consistency.

The first artificial insemination of mares is carried out on the second day (in the evening) after sexual hunting is detected and repeated until lights out in 48 hours, and in the presence of a pronounced hunt - in 24-36 hours. If you combine the test of mares for hunting with a stallion probe with rectal ovulation control, then the first insemination is carried out in the third, or even better in the fourth stage of the follicle. After 24 hours, a rectal examination is performed again, and if ovulation does not occur, the mares are inseminated again.

Technique of artificial insemination of mares. The mare is brought into the loom or put on a long harness to fix the hind legs. Before insemination, the vulva is washed with a cotton swab moistened with clean boiled water and wiped with cotton wool or toilet paper. The mare's tail is bandaged half a foot from the root. Before insemination, a rubber catheter and a glass syringe (or ampoule) are washed in clean water and disinfected by boiling or 70% ethyl alcohol, followed by washing with an isotonic sodium chloride solution, and before collecting sperm – with a synthetic medium (Fig. 19). Outside, the catheter is disinfected with an alcohol swab.

A rubber catheter is inserted into the uterus manually, after putting on a disposable polyethylene glove for artificial insemination. Fig. 19. A rubber catheter with an ampoule for insemination of mares

For insemination of mares, unfrozen sperm with an activity of at least 5 points is mainly used. The sperm is heated at room temperature for 30 minutes and used for insemination of mares immediately. Frozen semen in aluminum bags is removed from liquid nitrogen (two 13 ml bags), quickly transferred to a water bath for defrosting at 40°C for a minute, then wiped dry with a clean gauze cloth, open one end and collect the contents in a syringe or ampoule.

A decontaminated rubber catheter is inserted by hand into the mare's vagina, and its narrow end is directed into the cervical canal to a depth of 8-10 cm. A syringe with semen is attached to a rubber catheter and inserted into the uterus in a volume of 25-30 ml. Mares of heavy breeds and recently foaled semen is administered in a volume of 35-40 ml. The minimum dose of semen for

insemination of mares is 20 ml. The activity of thawed sperm should be at least 2 points. In a dose of sperm, the presence of 300-400 million mg is required. active sperm cells. After insemination, the catheter is wiped with a dry swab and disinfected with an alcohol swab. The syringe is filled with sperm and the next mare is inseminated. The effectiveness of insemination of mares is monitored by daily (or every other day) testing of mares for hunting by a probe stallion from day 8-9, for 30 days after insemination. 40 days after insemination, mares are examined for pregnancy and infertility by rectal method.

Task 2:

1) master the technique of sheep sampling in hunting;

2) study tools for artificial insemination of sheep;

3) learn how to inseminate sheep.

Selection of sheep in the hunt. Sheep in hunting are selected with the help of rams-samplers. The number of probes assigned to flocks is set at the rate of 1 probe per 80-100 ewes.

A sheep is considered to be detected in the hunt if, when the probe tries to make a cage, it does not run away from it, but shows a motionless reflex, allowing the male to make a cage.

Time and frequency of insemination. A dose of sperm is administered cervically to sheep. For insemination, freshly obtained undiluted sperm with an activity of at least 8 points with a sperm concentration of at least 2 billion in 1 ml, at a dose of 0.05 ml, is used.

Diluted and cooled to a temperature of 2-4o C, sperm is used during the day in a dose of 0.1-0.15 ml with a content of at least 80 million mg. active sperm, as well as frozen with an activity after defrosting of at least 4 points in a dose of 0.25-0.4 ml.

Sheep are inseminated twice with an 8-12-hour interval.

Insemination of sheep is carried out in special machines of various designs (individual, group).

Tools. The following tools are used for artificial insemination of sheep: glass micro-syringes, glass micro-syringes-semi-automatic machines and a vaginal mirror. For insemination of yarks, the same micro-syringes are used, but with a blunted tip without using a vaginal mirror. Veterinary and sanitary requirements for the preparation and use of the tool are the same as for cows.

Artificial insemination technique. The labia of ewes fixed in the machine are treated with a cotton swab moistened with warm water and irrigated with a 1% sodium bicarbonate solution. A clean vaginal mirror is disinfected over the flame of an alcohol lamp or by boiling in a sterilizer. The micro-syringe is treated like a glass syringe-catheter for insemination of cows. The method of introducing a vaginal mirror is the same as in cows. Sperm is inserted into the cervical canal to a depth of 2-4 cm.

In young women, a micro-syringe is inserted along the upper arch of the vestibule of the vagina until it stops in the cranial part of the vagina, above the cervix. Then, pulling it back by 1.0-1.5 cm, sperm is injected into the cervix. The dose of sperm is increased 2-3 times in comparison with the cervical method.

Inseminated queens are marked on the back of the head or croup. If the flock is large, then a new flock is created from the number of inseminated queens. After 10-12 days, probe rams are allowed into such a flock to identify possible hunting (repeated). After 20-25 days, sheep are allowed to enter the flock after the end of artificial insemination work for free mating with queens that are not fertilized by artificial insemination.

Goat breeding adheres to similar principles of organizing artificial insemination. However, the sexual hunting test is resumed 5 days after the start of insemination.

Control questions 1. Ways to identify sows in hunting.

2. Age and live weight of guinea pigs at first insemination.

3. Sow insemination dose.

4. The technique of insemination with diluted sperm.

5. Fractional insemination method.

6. Why do you need to warm up your sperm?

7. What is used as a placeholder?

8. Maintenance of sows after insemination.

9. Rules of sterilization of the device POS-5.

10. For what purposes are sows inseminated with mixed sperm рмойfrom different boars?

11. Selection of ewes in hunting.

12. Ovine insemination dose.

13. Methods of insemination of ewes.

14. Keeping ewes after insemination.

15. Tools for insemination of sheep.

16. Rules for the treatment of a syringe-catheter for ewes.

Lesson 6. Artificial insemination of pigs, birds, and dogs.

The purpose of the lesson: to study the technique of artificial insemination of pigs and dogs, the composition of diluents and ways to preserve sperm, the organization and conduct of artificial insemination of birds. To study the forms of accounting for the work of plementerprises and artificial insemination pointsand the procedure for filling themout.

Materials and equipment: microscopes, slide and cover glasses, heating table, pipettes, glass sticks, cotton wool, polyethylene devices (POS-5) for insemination, universal probe UZK-5, foam thermos, distilled water, synthetic medium for sperm dilution, 0.9% sodium chloride solution, drying cabinet, water bath, gauze wipes.

Task 1:

1) master practical techniques of sow sampling in hunting;

2) study tools for insemination of pigs;

3) master the technique of insemination of sows.

Manifestation of sexual hunting in sows. The signs of general agitation are most pronounced: the sow worries, screams, refuses to feed, rushes around the

machine, does not lie down, jumps on other pigs. Sexual hunting is recorded a day after the first signs of estrus appear and lasts 48-60 hours. It is characterized by the appearance of a reflex of immobility during the boar cage. Ovulation occurs on average in 18-24 hours from the start of hunting. The duration of ovulation in adult sows is up to 12-15 hours.

Eggs released from the follicles retain the ability to fertilize for 8-10 hours from the moment of ovulation. Insemination of adult sows is recommended 20-24 hours after determining the start of hunting, and young sows-24-30 hours after the start of hunting. Boar sperm retain the ability to fertilize in the uterus of pigs for an average of 12-18 hours.

Sampling of sows in sexual hunting is recommended to be carried out 3 times a day (in the morning, at noon, in the evening), allowing sows with signs of estrus of the probe boar. Artificial insemination results are significantly better with a three-fold sample of sows in a hunt than with a two-fold sample, since the start of the hunt is more accurately determined. When performing artificial insemination in a short time, in farms with a large number of sows, a check to detect hunting can be carried out once a day (in the morning). In this case, it is necessary to inseminate both the main and young sows twice: immediately after the hunt is detected and 10-12 hours after the first insemination, and sometimes after 24 hours.

Young sows (single ones) are inseminated at the age of 8-9 months with a live weight of 80-90 kg, pigs intended for herd repair (checked) are inseminated at 9-10 months of age when they reach a live weight of 100-120 kg. Estrus and sexual hunting in sows occurs 5-7 days after weaning piglets (provided that they are well fed). You can inseminate sows in a special playpen, in special cages for fixing or directly in the pigsty machines. Caged fixation is particularly desirable when inseminating young sows.

Before the introduction of sperm, the external genitalia of the pig are treated with warm boiled water, a 1-2% solution of bicarbonate of soda or a solution of furacilin using a piece of cotton wool held by a kornzang. Currently, two methods of artificial insemination of pigs are used: a) insemination with diluted sperm (the VISH method); b) fractional method.

Insemination of pigs with diluted sperm (Vizhevsky). The newly obtained sperm is diluted with a synthetic medium in such a way that the insemination dose contains at least 3 billion mg. active sperm cells. The dose of sperm for insemination is 1 ml per 1 kg of animal weight, but not more than 150 ml. For the introduction of sperm, reusable polyethylene devices POS-5 are used, which are sterilized by boiling. Imported reusable instruments are supplied to Russia: a soft-tip catheter (foam type), a soft-tip catheter for deep insemination (foam type) and a spiral-type catheter (spirella), which are equipped with 100 ml vials. The dose of sperm when using these instruments should not exceed the volume of vials (100 ml), but should contain the required amount of active sperm. Before insemination, vials of semen should be heated to a temperature of 38-40OC C in a water bath for 8-10 minutes. When inseminating a large number of sows, bottles of sperm are heated as needed. Before administration спермодозыof spermodose, sperm

activity should be checked under a microscope. Sperm activity should be at least 5 points.

After treatment of the external genitalia, the cap is unscrewed from the bottle and a sterile catheter is screwed on instead. Then the catheter is carefully inserted into the pig's vagina until it stops in the cervix. The sperm bottle is lifted upside down above the animal's level. The introduction of sperm is carried out by gradual, slow squeezing of the vial and should ensure the introduction of sperm within 5-6 minutes. Sperm entering the pig's genital tract should be absorbed into the uterus, which indicates a positive reaction of the sow to insemination. To simulate sexual intercourse with a boar, it is useful to put your hand on the pig's back and occasionally make lateral oscillatory movements with a catheter.

Fractional method of insemination of pigs (Poltava) consists in introducing first slightly diluted sperm, and then a diluent in order to push the sperm into the uterine horns and oviducts. Semen and diluent should be administered warmedup, just as in the case of the Vizhevsky method.

Slightly diluted semen is used in a volume of 40-50 ml. In one dose of sperm, the total number of motile sperm should be: for adult sows – 3 billion, for young ones – 2 billion. The sperm is placed in a separate vial. After the sperm, a glucose-saline solution is introduced into the uterus, which is also filled in a separate bottle at the rate of: adult sows 100 ml, young ones 70-80 ml. Air is pumped into the UZK-5 system to create pressure. After inserting the catheter, the instrument is pressed on the button that provides the output of a dose of sperm into the genital tract.

After waiting for the end of the sperm injection, click on the placeholder injection button and wait for the end of its introduction. When the filler penetrates the uterine horns, it moves the sperm deeper into the horns and simultaneously dilutes it. The fractional method allows to reduce the concentration of active sperm for young sows and increase their fertility in comparison with the Vizhevsky method.

After insemination, sows are kept until the end of the hunt in individual machines or kept for 1-2 days in the machines in which they were inseminated, since when transferred to general machines, animals with still incomplete sexual hunting jump on each other and the sperm introduced to them can flow out.

Materials and equipment: microscopes, slide and cover glasses, vaginal mirrors, micro-syringes, syringepoluautomat, glass sticks, tweezers, scissors, instrument stands, jars with warm 1% sodium bicarbonate solution and 70% ethyl alcohol, gauze napkins, cotton swabs and tampons soaked in 96% alcohol, alcohol lamps, enamel mugs.

dogs, the composition of diluents and methods of preserving sperm, the organization and conduct of artificial insemination of birds. To study the forms of accounting for the work of plementerprises and artificial insemination points and the procedure for filling them out.

Task 2: to study the method of insemination of poultry.

Organization of artificial insemination of birds. Sperm collection rooms and a laboratory will be set up next to the rooster breeding facility. Artificial

insemination of chickens is carried out by a team consisting of two links. One link (consisting of two people) receives sperm from roosters, the second link (consisting of two or three people) artificially inseminates chickens. One link can inseminate up to 500 chickens in 1 hour.

For artificial insemination of turkeys, a small laboratory, a washing room, a sperm collection room and an isolated room for insemination of turkeys are equipped in the poultry house. Sperm from turkeys is obtained by one or two people. Insemination of turkeys is carried out by two people and two or three feed and fix the females.

For artificial insemination of geese, a point is equipped where males are kept. It should have a laboratory, a washing room, and a sperm collection room. In the room where the geese are placed, a room is equipped for their insemination. The geese are inseminated by a team of four people. A laboratory assistant and a technician receive sperm from geese. They also evaluate the quality and dilute the sperm. Two others (a technician and his assistant) catch and inseminate geese. About 2,400 geese are assigned to the team.

Several synthetic media are recommended for diluting bird semen (Table 5).

Dilution of goose sperm is carried out with VNIITIP medium, and other media are necessary for diluting the sperm of roosters and turkeys. An improved VNIITIP-C2 medium of the following composition is proposed for rooster semen (d): sucrose (chemical composition) - 4, d-glucose-1, sodium acetic acid-1, sodium bicarbonate-0.15, potassium phosphoric acid di – substituted-0.15, acetic acid 10% - 0.2 ml, distilled water-100 ml.

Sperm is diluted approximately 2-3 times. Dilute semen is stored in vials at temperatures of 2-5°C. Sperm diluted with VIRG-2 medium can be stored for 3-4 hours without reducing its fertilizing capacity.

Tools. Insemination of birds is carried out with semi-automatic syringes, which are used for insemination of sheep, individual polystyrene or glass pipettes with a polyethylene (rubber) canister.

Multiplicity and time of sperm injection. Birds are inseminated in the afternoon: chickens-once every 5 days, geese-once every 6 days, turkeys-at the beginning of the season 2-3 times with an interval of 1-2 days, and then every 10-12 days. In the spring and summer season, when оплодотворяемостиthe fertilization rate of eggs decreases, turkeys are inseminated every 7 days.

Requirements for spermodoses. For artificial insemination of birds, thick and medium sperm with a sperm activity of at least 7 points is used. The dose of sperm for chickens should be 100-150 million. active sperm, for geese – 30-50 million, for turkeys – 80-100 million. active sperm cells.

When inseminating birds, undiluted or diluted sperm is used in the following doses: chickens-0.028-0.03 ml; geese-0.05-0.2 ml, turkeys-0.025-0.03 ml of sperm. The main criterion for choosing a sperm dose is to ensure that it contains the required amount of active sperm.

Technique of artificial insemination of chickens. Sperm is injected into the oviduct of chickens with a micro-syringe for artificial insemination of sheep, shortening the catheter by half. Artificial insemination of chickens is best done

together. The assistant holds the chicken with his left hand and uses his right hand to press on the left side of the abdomen in the area between the pubic bones and the chest, where the oviduct is located.

At the same time, the bird's cloaca slightly protrudes. Opening it is also facilitated by bending the tail to the back. The technician stretches the cloaca slightly with his left hand and presses near it until the opening of the oviduct, located slightly to the left, appears. With his right hand, he inserts a syringe catheter into the oviduct to a depth of at least 4-5 cm and squeezes out a dose of sperm (at this point, the hand pressing on the stomach should be removed). In an hour of work, two specialists can inseminate 120-150 chickens.

Technique of artificial insemination of turkeys. Before insemination, the assistant technician takes the turkey by the legs with his left hand, turns it upside down and holds it between the arm and the body so that the bird's stomach is pressed down. With his right hand, he pulls the turkey's tail feathers back to its back. The inseminating technicianopens the turkey's cloaca with the index finger and thumb of his left hand, drawing the fold down. Having found the opening of the oviduct, he inserts a sperm catheter with his right hand to a depth of 4-5 cm. Once the catheter is inserted, the assistant releases pressure on the abdomen, and the technician quickly injects sperm and removes the catheter from the oviduct. If you use a pipette with a soft cap, then it is removed from the oviduct, without relaxing the pressure on the cap. After insemination, the turkey is released into the pen for inseminated birds.

Technique of artificial insemination of geese. The assistant technician fixes the goose on a special machine, pressing its left wing and bending the tail. The technician inserts the index finger of the left gloved hand into the goose's cloaca, feels the opening of the oviduct (located 2-4 cm to the left and below the entrance to the cloaca) and inserts sperm into it using a micro-syringe or pipette. It is recommended to artificially inseminate geese that are laying, their oviduct is soft and the entrance to it is open. In non-laying geese, it is almost impossible to insert a pipette into the oviduct.

Task 3: master the technique of artificial insemination of dogs.

Time of insemination of dogs. Dogs are inseminated on the 10th and 12th days after the start of estrus, on the 4th and 6th days of sexual hunting, or on the 2nd and 4th days after the manifestation of the preovulatory peak of luteinizing hormone, recorded according to the results of a blood test.

Requirements for sperm doses. The dose of semen before freezing should contain at least 150-200 million mg. active sperm cells. Sperm activity after thawing should be at least 3 points. The volume of diluted semen administered should not exceed 3 ml for large breeds and 2 ml for small breeds, otherwise the sperm may flow out of the female's genital tract.

Insemination technique. Two methods of artificial insemination of dogs have been developed – vaginal and uterine.

The vaginal method remains the main one today. The female is held in a standing position. The genitals are washed with warm water and irrigated with a 1% solution of sodium bicarbonate. A shortened sterile polystyrene pipette 25 cm

long is inserted along the upper arch of the vestibule of the vagina and vagina.полистироловую The movement of the catheter to the cervical canal is controlled by hand through the abdominal wall. Using a silicone tube, a sterile disposable syringe with semen is attached to the catheter. The rear part of the dog's body is lifted onto the left thigh of the inseminatorsitting on a chair. The dog is held in an inclined position: in front of the collar – the owner, behind-the inseminator.

With his left hand, the inseminator holds the female by the left thigh, and with his right hand, he slowly inserts sperm from the syringe into the vagina. The catheter is removed, and a thumb is inserted into the vestibule and caudal part of the vagina for 10 minutes to simulate a "sex lock" and stimulate antiperistaltic contractions in the uterus. The inclined position of the female with the finger inserted into her vagina contributes to the rapid penetration of sperm into the uterus. After insemination, the dog is walked for 30 minutes, not allowing it to run, jump and sit down. Good results are obtained when inseminating dogs with freshly obtained sperm.

Intrauterine insemination is rarely practiced. This method is designed to increase the efficiency of insemination with frozen sperm.

Control questions

1. Methods for identifying sows in hunting.
2. Age and live weight of guinea pigs at first insemination.
3. Dose of insemination of sows.
4. Technique of insemination with diluted sperm.
5. Fractional insemination method.
6. Why do I need to warm up my sperm?
7. What is used as a placeholder?
8. Maintenance of sows after insemination.
9. Rules for sterilization of the device POS-5.
10. What are the purposes of insemination of sows with mixed sperm рмойfrom different boars?
11. What are the requirements for sperm doses for birds?
12. What media are required to dilute bird semen?
13. Describe the technique of artificial insemination of chickens.
14. What is the technique of artificial insemination of turkeys?
15. What is the technique of artificial insemination of geese?
16. What is the method of artificial insemination of dogs?
17. What are the requirements for sperm doses for dogs?

Lesson 7-13. Features of the structure of the genitals of pregnant animals. Aboutfetal age limits

The purpose of the lesson: to study the structure, topography and specific features of the anatomical structure of the genital organs of female farm animals (cows, sheep, pigs) at various stages of pregnancy.

Materials and equipment: wet preparations of the genitals of females of various animal species at different stages of pregnancy and infertile animals; schemes of fetal development and fetal membranes, fetal blood circulation; large cuvettes; scissors; anatomical tweezers; scalpels; button probes; measuring tapes; graduated cylinders and glasses with a capacity of 100, 500, 1000 ml; surgical gloves; scales; magnifying glasses.

Task 1: get acquainted with the features of the anatomical structure of the female genitals with the help of training and museum preparations.

Pregnancy is accompanied by large changes in the genitals and throughout the female's body. Significantly increase in the size of the uterus, its mass. In particular, in cows by the end of pregnancy, it weighs 4-6 kg, and together with the contents-50-60 kg.

The shape of the uterus in cows becomes asymmetric as a result of an increase in the horn-fecundity, with twinsплодовместилищем, both horns can serve as a fecundity. The length of the uterine horns of pregnant pigs reaches 2-3. 5 m, and the width is 17-18 cm, in the places where fetuses are located, it is expanded in the form of ampoules, similar extensions are observed in other multiple animals (dogs, rabbits).

In mares, the fetus is located in the body and horn of the uterus.

Examination determines the shape of the pregnant uterus and other genitalia. Then dorsally cut the vulva and the upper vault of the vagina, as well as the uterus along the large curvature of the horns. The mucous membrane of the vestibule and the vagina itself is pale with a bluish tinge, slightly covered with sticky mucus.

The cervical canal is tightly closed, between the folds there is a thick translucent mucous plug that juts into the vaginal cavity. The viscosity and elasticity of the mucosal plug increases with the development of pregnancy, and in the last quarter of the fruiting period it can be removed from the cervix entirely and examined. A few days before delivery, it begins to soften, liquefy and is released out through the genital tract.

Carefully, without violating the integrity, separate the uterus from the vascular membrane of the fetus and examine its mucous membrane.

Velvety skin, numerous crypts (in mares) are clearly visible on it, and caruncles of various sizes (from beans to goose eggs) are also visible on the ruminant uterine mucosa, on which depressions (crypts) are also noticeable. On the uterine mucosa in pigs, uterine (placental) zones and crypt-free areas are visible, in dogs, the maternal placenta is located in an ampoule-like extension of the horn, where it acts as a thickening, having the shape of an arrangement in the form of a belt.

The ovaries are examined from the outside and on the incision from the side of the pregnant and free horns. Here, numerous follicles are clearly visible in the form of translucent yellowish bubbles of various sizes (up to 10 mm in diameter). Larger follicles are found in the ovary from the side of the free horn. In most cases, the corpus luteum in singleton animals is located on the side of the pregnant horn, in multiple animals-in both ovaries.

On the incision, the size and structure of the corpus luteum are visually established, its color, consistency, lobule is studied, and attention is paid to the deep ingrowth of the corpus luteum in the ovarian tissue.

Then proceed to the study of the amniotic membranes, amniotic fluid and fetus.

Choroid-chorionthis is the uppermost membrane, it completely covers the fetus. In the early stages of embryo development, it is colorless and transparent in free areas, and white in the area of the villi, in other places its color ranges from yellow-brown to intense red-brown.

In cows, the vascular membrane has the shape of a two-horned sleeve, the mass of which reaches 3-5 kg by the end of pregnancy. The chorion is loosely connected to the amniotic and allantoic membranes, so it can be separated with scissors and tweezers.

The villi of the choroid are grouped into cotyledons (fetal placenta), which in combination with caruncles form 80-120 separate placentas.

In pigs, the chorion has the shape of an elongated sac, tapering to the ends in the form of horns. From the first month of pregnancy, the fetal bladders begin to slightly press into each other, while the area of their placental connection decreases.

Camels have the same vasculature as ruminants, and the placenta is built like a mare's.

In carnivores, the vascular membrane with a villous zone in the middle part, in the form of a belt 2-5 cm wide. The shell is greenish in color due to the pigment biliverdin.

The urinary membrane (allantois) is located in the chorionic cavity and is connected to the fetal bladder through the urachus urinary ductypaxyc, which runs as part of the umbilical cord from the umbilical opening of the fetus.

It is convenient to examine the urinary membrane in ruminants by removing the vascular one. It is thin, transparent, and has vessels running along its walls. The shell is located mainly on the side of the abdominal wall of the fetus, but in the first 1.5-2 months. allantois in the form of a roller filled with liquid covers the embryo from the side of the head and back, and then, falling off in the middle part, it fills the horns of the uterus. The cavity of the allantois contains urinary fluid, which turns from colorless, cloudy by the end of pregnancy to cloudy brown in the amount of: cows – 4-8 liters, mares-5-10 liters, sheep and goats-0.5-1.5 liters, dogs and cats-10-50 ml, pigs-25-100 ml.

In mares, the urinary membrane is located between the water and vascular membranes, covering the fetus from all sides.

The pig allantois consists of a short body and two blindly ending arms. At the beginning of the second month, the allantois breaks the chorion at the ends, and the urinary processes, laced with ring-shaped constrictions, enter the uterine cavity.

Water membrane, amniotic, amniotic (amnion) - internal, it covers the fetus from all sides. This is a thin transparent shell, through which the fetus is clearly visible, surrounded by amniotic fluid. The inner surface of the water shell contains a large number of yellowish nodules ranging in size from a pinhead to a pea seed.

In horses, this membrane fuses with the inner leaf of the urinarytract, forming an allantoamnion, in which large, mainly obliterating vessels pass. In other animals, the amniotic membrane is loosely connected to the urinarymembrane. In order to examine the water membrane, it is necessary to carefully remove the vascular one and separate the urinary one. In multiple animals, the membranes are formed for each fetus separately. After examining the water membrane, they pierce it and collect amniotic fluid, examine its color, smell, consistency, and the presence of inclusions (meconium, fetal lobes).

At first, the amniotic fluid is colorless and transparent, and by the end of pregnancy it becomes cloudy, becomes cloudy and viscous, slimy, which facilitates the process of removing the fetus, moistening the birth canal and protecting them from injury. The amount of amniotic fluid by the end of pregnancy is 2-4 liters in cows, 3-7 liters in mares, 0.5 – 1.2 liters in sheep and goats, 40-150 ml in pigs, and 10-30 ml in dogs and cats.

The umbilical cord is a cord consisting of two umbilical arteries, two (in calves, lambs, and goats) or one (in foals and piglets) vein, the urinary duct (urachus), and the remainder of the yolk sac.

These elements are enclosed in a shell (continuation of the amniotic membrane) containing a small amount of transparent jelly-like mass. Consider the umbilical cord on a longitudinal or transverse section, try to break, in which the stretching of blood vessels and a decrease in their diameter are clearly visible. Urachus is convenient to consider together with the allantoic shell, since its walls are very thin and poorly visible. Blood vessels in the umbilical cord, urachus, and yolk vesicle are dissected. Embryos or fetuses are extracted from the water shell. Examine, weigh, measure their length and determine their age. All measurements must be recorded. They make schematic sketches of the material under study.

Task 2: master the method of determining the age of the fetus.

Sometimes it is necessary to know the age of the fetus to resolve issues of a forensic nature (when slaughtering animals or during abortions to determine the time at which the expulsion of the fetus occurred).

Sometimes this is required for a differentiated diagnosis of the nature of abortion (brucellosis, trichomoniasis). When determining the age, you need to take into account a number of circumstances.

1) The growth of the fetus has a certain pattern, its length, weight, laying of individual organs, the beginning of hair growth on certain parts of the body at certain times have a certain constancy, characteristic of animal species. At the same time, depending on the breed, height and body weight of the parents, the intensity of feeding, multiple pregnancies, the age of the mother, and the conditions of her maintenance, these values can have large fluctuations. The calf's birth weight may not exceed 18-20 kg (if feeding is not nutritious enough). Meat-fed cows sometimes give birth to calves up to 75 kg.

2) Fetal growth in the first half of pregnancy is very weak. Growth is especially intense in the last quarter of pregnancy. During the first half of pregnancy, the weight of the fetus can reach 10% of the weight of the newborn.

3) The fetus of a mare reaches half of the newborn's weight by 9 months of pregnancy, the foal's birth weight should be 1/15-1/16 of the mother's weight.

Method of determining the age of the fetus. In the first half of pregnancy, the age can be determined by the formula B = fetal length-1,

where B is the age of the fetus, in months.

the length of the fetus is from the occipital crest to the root of the tail, cm..

Example: the length of the fruit is 64 cm.

Calculation: 64 1 7 months.

When determining the age of the fetus, morphological features of thestructure and development of the fetus should also be taken into account

Task 3: to study the signs of differences between the genitals of pregnant women and changes that occur as a result of certain pathologies of the genitals.

Examining the animal can be taken for signs of pregnancy changes in the uterus in some of its diseases. In practice, there are often cases when in the presence of pathological tumors in the uterus or in its walls, the diagnosis of pregnancy in cows may show an incorrect result.

In the uterine cavity there are fibroids, fibroids, cystic tumors weighing up to 5-10 kg, in the presence of which the uterus descends into the abdominal cavity, which imitates the signs of the topography of a pregnant uterus. To avoid mistakes, it is necessary to carefully palpate both uterine horns and ovaries, then according to the available signs it is possible to distinguish the fetal bladder from various tumors in the uterine cavity (the absence of placentomas, the fetus, the presence of a dense tumor, etc.). Cows may have pyometritis (inflammation of the uterus, in which the uterine cavity accumulates and lingers for a long time). long-term pus with mucus in the amount of several liters) observed against the background of endometritis and metritis. This disease can be confused with pregnancy of 3-5 months, as the uterus is lowered into the abdominal cavity, the uterine cavity is filled with liquid pus and fluctuates, which imitates pregnancy.

However, with pyometritis, there is no vibration of the middle uterine arteries, the fetus is not detected in the uterus, the entire uterine cavity is filled with liquid pus, the uterine walls are edematous, thickened, and painful on palpation. In the vaginal examination of patients withpyometritis, the mucous membrane is red (due to the development of vaginitis), the mucus is not viscous. The cervical canal is slightly open, purulent exudate is released from it.

After rectal and vaginal examination, you should perform the following:

1) if clearly expressed signs of pregnancyare established,the animal is immediately registered, given appropriate instructions on feeding, maintenance, and also set an approximate launch date for it in dead wood;

2) if the signs of pregnancy are not clearly expressed, then a second study is carried out in 10-15 days and a conclusion is given;

3) if the animal is infertile, then establish the reason why it was not fertilized;

4) if, after rectal and vaginal examinations, a disease of the reproductive system is found that interferes with the manifestation of sexual activity and fertilization, the animal is not allowed to inseminate until full recovery and is treated.

Control questions 1. What changes occur during pregnancy in the uterus?
2. How to determine the types of placental connections?
3. How to properly examine the horns of the uterus, ovaries?
4. Features of the structure of allantois in mares.
5. The amount of amniotic fluid in mares and sows at the end of pregnancy.
6. How to determine the age of the fetus?
7. Characteristics of the fetus in sheep at 2, 3 months.
8. Characteristics of the fetus in pigs at 1, 2 months.
9. Formula for determining the age of the fetus.
10. During what periodof pregnancy is intensive fetal growth?
11. What is the topography of a pregnant cow and mare uterus?

Classes 8. Clinical methods for determining pregnancy in animals. Determination of pregnancy in animals using UTT.

The purpose of the lesson: to study clinical methods for diagnosing pregnancy in cows, mares, sheep, and pigs.

Materials and equipment: female farm animals at various stages of pregnancy; diagrams and models of the genitals of pregnant and infertile females; dressing gowns; aprons; armbands; rubber boots; disposable gloves; random iodine tincture; curved scissors; dezrasvor; soap; bucket; warm water; alcohol lamp; stethophonendoscopes; vaginal mirrors; insemination log the device "TUR-TD-20S"; a solution of copper sulfate with a density of 1.08; 10% sodium hydroxide solution, 1% barium chloride solution, slides and cover glasses.

Task 1: to study the classification of methods for diagnosing pregnancy and methods for determining pregnancy by laboratory methods.

Pregnancy diagnosis is an integral part of the overall reproduction process. Based on the data of pregnancy diagnostics, all documentation is maintained: the insemination and calving plan, the launch schedule for cows, a set of measures for infertility prevention is developed, stands for the effectiveness of artificial insemination and calendars of the inseminator technician at artificial insemination points are maintained.

All the methods used to diagnose pregnancy can be divided into 2 groups.

Group I-clinical (the study is conducted on the animal itself):

1 subgroup – external methods:

a) inspection;
b) palpation;
c) auscultation;
d) ultrasonic;
e) radiographic;
f) reflexology;

2 subgroup – internal methods:

a) vaginal examination;

b) rectal examination;

Master clinical methods of pregnancy diagnosis in females of various animal species.

When diagnosing pregnancy by clinical methods, it is necessary to adhere to a certain order of research that allows you to create the most complete and accurate picture of changes in the body of females that occur during pregnancy. The complex of information obtained makes it possible to establish not only the fact of the presence, but also the duration of pregnancy.

External methods of pregnancy diagnosis include thefollowing external methods of pregnancy diagnosis.

1) Examination makes it possible to establish pregnancy by changes in the configuration of the abdominal walls and abdominal volume (increase in abdominal volume), the degree of change in the external genitalia (swelling of the labia, the appearance of discharge of viscous mucus-a mucous plug), an increase in the volume of the udder. In the second half of pregnancy in ruminants, there is an asymmetry of the contours of the abdomen, manifested by sagging and protruding of the right abdominal wall. All these signs appear at the end of pregnancy, and therefore are not of practical value for early diagnosis of pregnancy. The exception is changes (enlargement of the udder and nipples) in pregnant heifers, which appear in the second half of pregnancy. Therefore, for this category of animals, the examination allows you to identify pregnant heifers from the group of inseminated heifers in 5-6 months without conducting a rectal examination. However, this is not so important for the production of intensive animal husbandry and early detection of infertile animals.

2) Palpation – palpation. This method is widely practiced among all females except tallow sows.

It involves probing with the fingers of the hand or the entire hand of the abdominal wall in the area of the alleged location of the pregnant uterus in order to detect an enlarged uterus, fluctuations in the uterine horns filled with fetal membranes, amniotic fluid and fetus, and sometimes to determine the number of fetuses in multiple animals. In large animals, the main criterion for pregnancy in this case is the detection of the fetus.

In cows, the fetus is probed by the method of push-like palpation, performing short pushes with the back of the palm of the right hand into the abdominal wall on the right side at the intersection of the lines at the level of the knee joint and the hungry fossa. At the same time, the sacrum of the test animal is held with the left hand. The fetus can be felt in five or more months.

In mares, it is better to feel the fetus by a push-like palpation with the palm of the left hand through the left abdominal wall in its lower third. The right hand should be placed on the sacrum. The fetus can be detected in the sixth month of foaling.

In carnivores, the palpation method can be applied one month after mating (90% accuracy). Palpation is performed simultaneously on both sides of the abdominal wall with the fingers of the hands, probing the abdominal cavity

throughout its entire length. From 26 to 30 days, the fruits are spherical formations, reaching a diameter of 15-30 mm. After 45 days of pregnancy, the uterine horns are displaced to the ventral part of the abdominal wall. The most accurate results can be achieved after the 55th day of pregnancy, since the degree of tension of the abdominal wall affects the informative value of palpation.

In small ruminants (sheep, goats), the fruits are palpated on the right side. A positive diagnosis can be established only from the second half of pregnancy. Animals should be kept on a half-day starvation diet before the study. It is advisable to place the animal so that its pelvic girdle is higher than the front of the trunk. It is useful to lift the animal by its hind legs. Palpate with both hands.

Standing on the right next to the test animal, the left hand is wrapped around its torso on the left, and the right hand-on the right and gently squeeze the abdominal walls under the lumbar vertebrae.

By pressing harder on the left wall, it is possible to shift the uterus to the right, to the abdominal wall. At the top, under the vertebrae, fruits can be probed in the form of various sizes and shapes of hard areas (fetal organs).

If palpation is hindered by tension in the abdominal walls, it can be eased by grabbing the skin in a fold above the dorsal vertebrae.

In mass studies, the following technique is used. Sitting down on the left side of the animal, their right leg, bent at the knee, is brought under the belly of the goat (sheep), gently lifting the ventral abdominal wall up and to the right. Simultaneously, the uterus is palpated with the right hand.

In pigs, the palpation method is not of practical value. Partly, it is possible in non-anal breeds of pigs, while palpating the abdominal wall along the white line of the abdomen.

In rabbits, pregnancy diagnosis by palpation is possible 12-14 days after insemination. At the same time, uterine horns are found with ampoule-shaped thickenings the size of cherry fruits. These thickenings can be mistaken for fecal masses in the intestines, so only clearly arranged and fluctuating ampoules can indicate the presence of fruits. Palpate very carefully so as not to cause an abortion.

The use of the palpation method in livestock farms is possible in the study of individual animals. Mass research is of little use for zootechnical accounting, since it does not allow for early diagnosis of infertility.

3) Listening is based on the ability to hear the fetal heart tones (in large animals) in the last third of the gestation period using a phonendoscope or directly through the ear through the abdominal wall. This technique is very rarely used in practice.

4) Ultrasound examination involves the use of ultrasound stationary or portable devices.

This method of research is based on the reflection of ultrasound waves from animal and fetal tissues. The strength of the reflected ultrasound waves depends on the degree of ultrasound permeability of the studied tissues. There are hyperechoic tissues and media (coarse-fibrous connective tissue, bones, gaseous media), anechoic media (amniotic fluid, peritoneal fluid, pathological exudate, urine,

transudate) and hypoechoic (muscles, parenchymal organs, blood, infiltrates, some neoplasms, fibrin clots).

The reflected ultrasound signal is fed to the device, where it is processed and displayed on the screen as an image reflected from anatomical structures. Hyperechoic tissues and media are displayed as contrasting white images. The lower the permeability of the medium for waves, the more distinct the picture. Anechoic media freely transmit ultrasound, so areas of darkening are visible on the device screen. Hypoechoic tissues pass ultrasound to a moderate degree, so they are visualized on the screen of the ultrasound machine in the form of gray low-contrast images with darkening of various intensities.

This method of pregnancy diagnosis is very widespread in small domestic animals (cats, dogs), to a lesser extent in large animals. For ultrasound examination of female cattle and mares, a rectal sensor is required in addition to the ultrasound machine.

Features of the carnivorous ultrasound technique. It is necessary to use sensors that generate sound vibrations with a frequency of 2-7 MHz (from 2 to 7 million vibrations in 1 second). At the time of the study, the animal is given a dorsal position, the abdominal wall in its lower third is smeared with ultrasound gel. Leaning the sensor in the area of the bladder projection, find it on the ultrasound picture directly under the abdominal wall (presented as a rounded cavity filled with fluid), then move the sensor laterally to detect the uterine horns above the bladder. A pregnant animal will have fluid-filled uterine horns and fetuses. The severity of the signs depends on the duration of pregnancy. Already on the 11-14 day of pregnancy, germ bladders (blastocysts) with a diameter of 1-2 mm can be visualized in the uterine cornea, and embryos can be detected on the 15-17 day. Heartbeat in embryos is noted on 16-20, fetal movements-on 28-30 days of pregnancy. The most optimal time frame for diagnosing pregnancy and multiple pregnancies is 25-35 days of pregnancy.

Features of ultrasound techniques for cows and heifers. Ultrasound examination allows you to determine pregnancy for a period of 30 days or more. The technique consists of guiding the scanner sensor into the rectum for ultrasonographic scanning of the uterus.

In the presence of pregnancy, the fullness of the uterus with fluid (amniotic fluid) and the fetus are recorded. With an increase in the duration of pregnancy, the fetus also increases in size, which can be determined by measurements performed by the device. For longer periods of time, the fetus is visualized by images reflected in the form of artifacts (acoustic shadows) from the spine and ribs of the fetus.

Features of the swine ultrasound technique. An ultrasound device "TUR-TD-20S" can be used in pigs. The device allows you to determine pregnancy between 30-70 days after insemination with a 95% guarantee. Stationary and portable ultrasound scanners of various brands can also be used, they are more preferable, as they allow you to detect pregnancy from the 30th day of pregnancy and at a later date. During ultrasound, the sow being tested should stand. The sensor is placed on the right abdominal wall, about 5 cm above the nipples, between 2 and 3 nipples. A

5 MHz sensor is used. If the result is negative, repeat the test on the left side of the animal. The principles of diagnosis are similar to those of other animals.

Unfortunately, ultrasound is still an expensive method of diagnosing pregnancy and, in addition, does not allow you to accurately determine the size of the litter in multiple animals.

5) The X-ray method is not a special method for diagnosing pregnancy. However, in the veterinary practice of small domestic animals, quite often in the case of a survey radiography of the abdominal cavity and pelvis, radiopaque images of fetal skeletons are found in the third trimester of pregnancy, which informs the veterinary specialist about the need to take into account the physiological state of the female during the appointment of medical measures for a disease that is an indication for radiography. This method cannot be used for mass pregnancy tests due to its negative impact on the fetus, mother, high cost, and inability to diagnose pregnancy early.

6) Reflexological – based on the assessment of the female's reaction to the male upon their contact. A positive reaction is characterized by the manifestation of sexual instinct in the form of a series of sexual reflexes:

approach, immobility of the female, erections, cages of the male (hug reflex) and copulation (copulatory reflex).

Male probers are most often used as the male, and the process of identifying infertile animals is based on the detection of another sexual hunt in the female after insemination.

Its onset indicates the absence of pregnancy. If cows, heifers, sheep, goats and pigs do not allow a male within a month after insemination, they are conditionally considered pregnant, and the final diagnosis is established by the most accurate methods at a later date. This method makes it possible to detect infertility only in normocyclic females (with full sexual cycles).

Internal methods of pregnancy diagnosis Internal methods of pregnancy diagnosis in females are invasive, that is, they involve the introduction of a vaginal mirror into the vagina or the researcher's hand into the rectum.

1) The vaginal method is based on visual recording of changes in the vaginal mucus and the state of the vaginal part of the cervix. In pregnant animals, the vaginal walls are covered with a thin layer of very viscous (sticky) mucus. With the introduction of a vaginal mirror, it is difficult to enter even after moistening it.

The vaginal part of the cervix is compressed, pale in color, the cervical canal is closed with a yellowish mucous plug.

2) Rectal method. This method is the most common, reliable and accurate in the diagnosis of pregnancy in females of large animals (cows, heifers, mares, camels).

Safety precautions for rectal examination ДТо prevent over-infection of animals and infection of persons conducting research, work should be carried out in special clothing, after the examination, the hand is washed with warm water and soap and disinfected with a 70% solution of ethyl alcohol, it is better to conduct research in a disposable polyethylene glove.

Before the study, the nails are cut short, and the burrs are treated with a file.

Research is carried out only with an assistant, who, when fixing cows, should be on the side of the animal, and the skin in the withers or groin area should be taken in a fold.

When examining a cow, neighboring cows should not lie down (risk of udder injuries).

Be wary of sideways and backward kicks (approach confidently but carefully).

To complete the study, it is necessary to carry out preparatory work:

1) write out from the insemination log all cows inseminated 50-60 days ago;

2) notify livestock breeders about the upcoming study; 3) prepare the necessary equipment and materials;

4) plan the study after milking (so as not to reduce the milk yield).

Technique of conducting rectal examination After fixing thecow, carefully rotate the right hand folded in a wedge (boat) (heavily soaped or smeared with vaseline) into the rectum to the level of the third phalanges. Then the fingers are slightly opened, opening the intestinal cavity, as a result of which air enters the rectum, which reflexively causes its contraction and the act of defecation.

In the absence of defecation, the ventral wall of the rectal mucosa is stroked with the crumb of the fingers, after which defecation usually occurs. If these techniques do not reach the goal, the rectum is released mechanically by a deeply inserted hand. Palpation of the genitals should be started only when the rectum is completely freed from fecal matter and at the moment of its relaxation. The hand should be inserted to a depth of about 35-40 cm, where the rectum has a longer mesentery and due to this it is mobile, easily moves in any direction. Having made sure of this, the hand with the movable part of the rectum" put " on it is returned back to the pelvic cavity and begins to find the cervix, which serves as the initial reference point for finding and palpating all other parts of the internal genitals.

Finding the cervix, it should be sure to pull up to yourself.

This is a very important diagnostic technique that accelerates the search and palpation of all other genitalia, not only in infertility, but also in the initial stages of pregnancy. After fixing the cervix, the hand is moved slightly forward and the body of the uterus is found to be of a softer consistency, and the horns of the uterus are immediately groped forwardsмежроговой. Next, reach 8 to the place of bifurcation (bifurcation) of the uterus and proceed to palpation of the horns, bringing four fingers of the hand under the base. After reaching the top, mobile ovaries of a bean-shaped shape are found on the side or at the bottom.

To develop skills in rectal examination, it is recommended to start with non-breeding cows.

The main criteria for evaluating the genitals in ре ктальномa rectal pregnancy study are:

1) the size and location of the uterine horns (identical or different in size, where they are located: in the pelvic region, slightly hanging in the abdominal, in the abdominal cavity);

2) the condition of the inter-horn sulcus (palpable or not palpable);

3) the consistency (degree of softness or density) of the enlarged horn is slightly pasty after pregnancy, filled with fluid and fluctuates during pregnancy;

4) the condition of the uterine arteries (pulsation or vibration). The uterus is fed by six uterine arteries (anterior, middle, and posterior on each side). The middle uterine artery feeds the uterine horns. It is enlarged during pregnancy from the side of the pregnant horn;

5) the size of boils – they can be probed and compared in size with certain objects (acorn, pigeon or chicken egg);

6) the presence and size of the fetus;

7) to accurately determine the duration of pregnancy, it is advisable to use all the signs in a complex. When it is established that the animal is not pregnant, there is no need to use these signs.

Signs of a non-pregnant condition:

1) the uterus (this concept includes horns, body, neck) is located in the pelvic cavity or slightly hangs down into the abdominal cavity;

2) when stroking the hand, both horns contract, and the uterus becomes very elastic (rigidity);

3)the inter-horny furrow is clearly palpable;

4) pulsation of the uterine arteries, as a rule, is not detected.

Exceptions to this rule:

1) in older cows (6-8 years of age), as a rule, the right horn is thicker than the left (the result of hypertrophy). This is very similar to a one-month pregnancy.

2) in the winter-spring period, many cows have a swollen uterus. 135

on into the abdominal cavity, but when massaged, it contracts and rises into the pelvic cavity. This phenomenon is called uterine hypotension (due to a lack of active movement, sunlight, and lack of feeding). Atony is a loss of tone, which is easily restored when active exercise is resumed.

3) in cows after calving, as well as in old cows, you can catch the pulsation of the mid-uterine artery, and this is a sign of pregnancy.

In this case, it is necessary to take into account the consistency of the uterus (in calving it is dough-like, in pregnant women it looks like a bubble filled with water) Signs of pregnancy during rectal examination of cows and heifers During thefirst month of pregnancy. The cervix is located in the pelvic cavity, the horns of the uterus on the anterior edge of the pubic bones or slightly lowered into the abdominal cavity. The entire uterus, as in infertile cows, is easily pulled up by the neck, grasped in the hand, the inter-horny groove is clearly defined, the edge of the pubic fusion is freely palpable. The horn of the placenta is slightly enlarged (5-6 cm in diameter), of a softer consistency, and its wall is thinner. The fetal bladder with a small embryo is mobile, elastic, easily slips when feeling with the crumb of the fingers, and at this moment a fluid transfusion (fluctuation) is noted. In the ovary, from the side of the horn плодовместилищаof the fetus, the yellow body of pregnancy is probed. Differential diagnosis should take into account that a slight increase in one of the uterine horns may occur with its hypertrophy due to multiple pregnancies or in sick cows with different forms of endometritis. In the first case, when massaging the uterus, its rigidity is significantly increased (the horns are rounded due to contraction), and in the second case, the uterine walls are thickened, crepitation is noted, and exudate often flows out.

Two months pregnant. The cervix moves to the entrance of the pelvis, the uterine horns and ovaries are lowered into the abdominal cavity. Characteristic features are the asymmetry of the uterus due to an increase in the pregnant horn by 1.5-2 times compared to the free horn and a clear feeling of fluctuation in it. The uterus does not contract, or its contraction is weak. The anterior edge of the pubic bones and the inter-horny groove are palpated, which becomes less noticeable.

Three months pregnant. The cervix is located at the leading edge of the pubic bones, horns and ovaries in the abdominal cavity. The horn плодовместилищеof the placenta is a thin-walled, clearly pronounced fluctuating bubble the size of an adult's head (3-4 times magnification), circled by hand, but the inter-horny groove is not palpable (smoothed). When palpating the uterus, a "floating" fetus is often found. In some cows, there is a very weak vibration of the middle uterine artery of the pregnant horn.

Sometimes a full bladder is mistaken for a three-month pregnancy. To avoid this, it is always necessary to fix the cervix with your hand and, pulling it towards you (in the caudal part of the pelvis), it is easy to make sure that the palpable formation is the uterus, since it has a close connection with the cervix. It is also advisable to investigate the bifurcation of the uterus.

Four months pregnant. The cervix is localized at the entrance to the pelvis, and the uterus, due to the greater development of the fetus, descends even more into the abdominal cavity, representing a thin-walled fluctuating bag that cannot be circled by hand. Caruncles and cotyledons increase in size. Together, they form placentomasthat are easily palpable through the rectum in the form of lumpy formations the size of a hazelnut or bean, and the fetus is often palpated. On the side of the horn of the placenta, vibration of the middle uterine artery is detected, the diameter of which increases (up to 0.5-0.7 cm), it becomes tortuous, and when compressed, a characteristic buzzing ("uterine noise") is perceived.

Five months pregnant. The cervix, uterus, and ovaries are located in the abdominal cavity. Placentomas reach the size of an acorn (2-4 cm). Vibration of the middle uterine artery (its diameter is 0.7-0.8 cm) and slight vibration of the free horn artery of the same name are clearly felt, the fetus can be palpated.

Six months pregnant. The cervix and the entire uterus are deeply lowered into the abdominal cavity. The fetus, as a rule, is not palpable. Placentomas with walnut. The vibration of the middle uterine artery of the horn of the fetus is strongly expressed, and the vibration of the middle uterine artery of the non-pregnant horn is barely perceptible.

Seven months pregnant. The cervix rises (returns) to the entrance of the pelvis. A large number of placentomas ranging in size from walnuts to chicken eggs are palpated. Vibration of the middle uterine arteries, especially the horn of the fetus, is clearly expressed. In some cases, there is a vibration of the posterior uterine artery from the horn of the fetus.

Eight months pregnant. The cervix is located at the entrance to the pelvis or in the pelvic cavity. The uterus and fetus are well palpable. Placentomas the size of a chicken's egg. Both middle uterine arteries vibrate strongly and one posterior uterine artery is very clear.

Nine months pregnant. The cervix and adjacent parts of the fetus are located in the pelvic cavity. Vibration of the middle and posterior uterine arteries is sharply expressed. By the end of pregnancy, the diameter of the middle uterine artery of the horn of the fetus increases 5-6 times. There are harbingers of labor (swelling of the labia, swelling of the lower abdominal wall, etc.).

Each rectal examination of a group of animals for pregnancy is drawn up by a certificate in two copies, which indicates the owner, who conducted the study and its result.

Security questions 1. Explain the classification of ways to diagnose pregnancy.

2. Describe the methods of studying cervical secretions. 3. Where is the method of external examination used to diagnose pregnancy? 4. On which side of the abdominal wall is palpation performed in mares for pregnancy? 5. What is the basis of the vaginal method for determining pregnancy? 6. What preparatory work should be done before the rectal examination? 7. Technique of rectal examination. 8. What is the principle of ultrasound examination for pregnancy? 9. Indicate the signs of a non-pregnant state of the uterus in cows. 10. What is the safety procedure for rectal examination?

Lesson 9. Diseases of pregnant animals: diagnosis and treatment

The purpose of the lesson: to study the basic methods of diagnosis and medical care for the most frequently registered diseases of pregnant women.

Materials and equipment: wet preparations of aborted fetuses; posters on the topic; tables; a set of anatomical instruments for dissection; medicines: 0.9% sodium chloride, 2% novocaine solution, 10% calcium chloride solution, 20% calcium borgluconate solution, 40% glucose solution, 20% caffeine sodium benzoatesolution, oxytocin, sinestrol; suture material: silk or nylon thread #8-10.

Task 1: perform an analysis of abortions with the expulsion of a dead fetus and with various outcome options (maceration, mummification, andepurification).

First, students, together with a museum medicine teacher, analyze abortions with various outcomes in detail, establish a diagnosis, explain the etiology of this abortion, clinical signs, prescribe treatment and write prescriptions.

Abortion (abortus) is the interruption of the development of an embryo or fetus in the uterus. Abortion outcomes can include embryo resorption, maceration, mummification,eperification (putrefaction of the fetus), and expulsion of the miscarriage (dead fetus) or prematurity (live fetus) from the uterine cavityнедоноска.

Abortion with the expulsion of a dead fetus is the most common outcome. Signs of abortion are clinically well marked and resemble normal labor. The cow shows increasing anxiety, moo-ing, raising its tail, and arching its back. There is a contraction of the abdominal wall muscles(attempts), swelling of the labia, reddening of the vaginal mucosa and the release of grayish-red mucus from it. The quality of milk is deteriorating. After the expulsion of the fetus, the afterbirth is often delayed, followed by the development of endometritis. For diagnostic

purposes , the aborted fetus should be carefully examined. Exclude the presence of congenital anomalies from the fetal membranes and the fetus itself, as well as injuries and pathological processes.

Write out a referral to a veterinary laboratory for the study of an aborted fetus, in order to exclude possible infectious or invasive diseases in the etiology. Then the fruit or its parts are packed in a watertight container to be sent by express. The mother's blood is also sent. If подозрении на vibriosis or trichomoniasis is suspectedабортировавших коров берут , cervical mucus is taken from aborted cows.

First of all, brucellosis, vibriosis and trichomoniasis should be excluded from infectious diseases that cause abortion in animalsвибриоз. Practice shows that mass abortions in animals are observed with infectious diseases and feeding disorders.

In cases of identification of a specific infectious disease that caused an abortion, measures are taken in accordance with veterinary legislation. If the fetus is alive, covered with hair and has a well-defined sucking reflex, then it should be dried as soon as possibleскорееобсушить, placed in heat (25-30°C), covered and overlaid with hot water bottles, fedmother's milk heated to 37-38° C. Abortion with the expulsion of a miscarriage (dead fetus) may be accompanied by the appearance of colostrum in the female, swelling breast cancer, as well as a decrease in milk yield in lactating animals, coagulation of milk during boiling. In some cases, abortion outcomes may include mummification or desiccation of the fetus, maceration of the fetus, i.e. softening and liquefaction of its tissues in the uterus after termination of pregnancy, putrefaction of the fetus (emphysematous fetus) and abortion with embryo resorption (hidden abortion). Mummification of the fetus (mumificatio fetus) is observed in all animal species, but more often in cows, pigs, sheep and goats. Mummification is possible in cases where the uterus is free of putrefactive and pyogenic microbes, and dried fruits can remain in the uterine cavity for years. dandagnostics of a mummified fetus is based on the detection of the following clinical signs: the absence of harbingers of expected labor or the cessation of the growth of signs of pregnancy, anaphrodisia, the presence of a solid body in the uterus, the absence of fluctuations and boils in it, palpation in one of the ovaries of the corpus luteumтелаю. The complex of therapeutic measures includes a double subcutaneous injection with an interval of 12 hours of 1% synestrol oil solution, intramuscular administration of a cloprostenol group drug (estrophan, estrophanthin, prosolvin or magestrofan). It is also advisable to perform low sacral anesthesia with a 2% solution of novocaine (5-10 ml), expand the cervical canal by 4-5 fingers, introduce a sterile mucosal decoction or an oil emulsion of furacilin, syntomycin, etc. into the uterine cavity.

Oxytocin is injected subcutaneously or intramuscularly to restore uterine тонели внутримышечно : cows and mares – 30-60 units, sows-30 units, other animals-3-15 units. If the fetus does not come out, it is removed by the present part using an obstetric loop or a Cray-Schottler hook. Then antiseptic drugs (antibiotics, sulfonamides,iodopovidoneor ichthyol solutions) are introduced into the uterine

cavity. If conservative methods do not provide removal of the fetus from the uterus, it is extracted by caesarean section.

Maceration of the fetus (maceratio fetus) is observed more often in cows and pigs, when the dead fetus softens by enzymatic means in the absence of putrefactive microorganisms in the uterus or sometimes when the latent microflora of the uterus is activated with the development of purulent-catarrhal endometritis. The diagnosis of fetal maceration is made on the basis of the following signs: the increase in signs of pregnancy stops, fluctuation is detected in the uterus, and a yellow body is found in one of the ovaries, white or brown masses with fetal bones are periodically released from the uterus.

For therapeutic purposes, subcutaneously with an interval of 12 hours, a 1% solution of synestrol is administered twice. Then the cervical canal is widened with your fingers and a mucosal decoction or oil emulsion is inserted into its cavity to better remove fetal bones. After that, antiseptic solutions are introduced into the uterine cavity. In case of an increase in body temperature, antibiotics are administered intramuscularly in accordance with the instructions.

Putrefaction of the fetus (putrescentia fetus), or emphysema, is more common in cows if the abortion is caused by the penetration of putrefactive microbes (anaerobes) into the fetal tissues, while gases accumulate in the subcutaneous and intermuscular tissue, in the thoracic and abdominal cavities and the fetus takes a bag-like shape.

In the aborted animal, attempts are weak or absent. The general condition is depressed, the body temperature is 40-41°C, breathing and pulse are rapid. Ruminants often have tympania, and mares have colic. Vaginal examination reveals redness of the vaginal mucosa, dryness of the genital tract and discharge from the uterus of exudate with a putrid smell. During rectal examination of the uterus, an increase in the fetus and crepitation of its tissues are detected, which indicates the accumulation of gases in the subcutaneous tissue. Such an outcome of an abortion is dangerous for the animal, as it provokes the development of sepsis. When providing assistance to an aborted animal, special attention should be paid to personal prevention measures, since it is possible to infect microflora through damaged skin of the hands.

To avoid this, the damaged areas of the hands are smeared with a 5% alcohol solution of iodine and filled with collodion, after which 10% ichthyol ointment is thoroughly rubbed on vaseline or lanolin. Help should be provided in a gynecological glove.

Before fetal extraction, a 20% solution of caffeine sodium benzoate, intramuscularly antibiotics, intravenously glucose mixed with a solution of calcium chloride are injected subcutaneously. The birth canal is lubricated with antiseptic emulsions (furatsilinovoy or iodopironovoy).

In order to reduce the volume of the fetus, deep incisions are made on its skin and tissues. After that, they begin to extract the fetus from the birth canal. If it cannot be extracted without additional operations, then fetotomy is resorted тофетотомии. In all cases , the afterbirth is separated, the external genitalia are irrigated with antiseptic solutions, then intrauterine sticks or tablets are inserted

into the uterus. Additionally, uterotonic agents (oxytocin, uterotone, metrostim) should be prescribed.

The extracted fruit and afterbirth are doused with a 10% solution of bleach lime and destroyed by incineration.

Abortion with embryo resorption or latent abortion (abortus latentus) is manifested without clinically pronounced symptoms (hidden), its diagnosis is difficult. This outcome can be assumed based on the manifestation of the stages of arousal of sexual cycles at intervals of time longer than the total duration of the stages of inhibition and balancing of the sexual cycle. Latent abortion is also fashionable to assume in the diagnosis of 1-2-month pregnancy in cows and mares and the absence of its signs in a second study after 2-3 months. In all cases of abortion, it is necessary to examine the fetal membranes (afterbirth), since their pathology is often the cause of termination of pregnancy.

Task 2: master the basic methods of diagnosis and treatment of vaginal prolapse.

Eversion of the vagina, or prolapse (inversio vaginae, prolapsus vaginae) is a protrusion of the vaginal tube from the genital slit to the outside. According to the degree of protrusion, there are: 1) partial, incomplete eversion of the vagina, when its dorsal wall protrudes from the genital fissure in the form of a fold; 2) complete eversion of the vagina, in which the entire vagina protrudes out of the vulva along with the cervix enclosed in its fold (Fig. 26).

26. The state of the zone of the pathological process with complete prolapse of the vagina: a-in a goat; b-in a cow.

Through the dilated opening of the urethra, the bladder can also be turned out. In this case , two spherical formations protrude from the vulva, the upper one is the vagina, the lower one is the bladder, and the holes of the ureters that secrete urine are visible on its surface.

In the animal, the general condition does not change at first, and if treatment is delayed, stagnant edema of the vaginal mucosa appears and cracks and erosions appear on its surface. Over time, the animal begins to worry, it has frequent attempts due to constant irritation of the vaginal mucosa with urine and feces. Acts of defecation and urination are disrupted.

Treatment. The main goals of therapeutic measures are timely reduction of the vagina and prevention of repeated eversion. Before setting the vagina, you need to wash the vulva, perineum, tail root, and mucous membrane of the vestibule of the vagina with solutions of furacilin (1:5000), potassium permanganate 1: 1000-3000, or other antiseptic agents. Wounds, cracks and erosions are treated after mechanical cleaning with 5% alcohol solution of iodine, synthomycin emulsion, ichthyol and other ointments. After that, the animal must be given a position in which the pelvic part would be higher than the chest. To do this, cows are placed in stalls where the floors are inclined to the feeder at an angle of about 10° - 15o . Feeding should be carried outwith low-volume, nutritious, non -fermenting feeds. Small animals are lifted by the pelvic limbs before setting the vagina. To eliminate attempts and facilitate the reduction of the vagina, low sacral anesthesia is used by injecting эпидуральное пространство a 1.5-2% solution of novocaine (8-10 ml to

a cow, 2-5 ml to a sheep and goat) into the epidural space according to the method of low sacral anesthesia (Fig. 27).

The vagina is set in one of two ways. The first method is that the entire fallen part of the vagina is wrapped with a towel or napkin treated with an aseptic solution, then slightly pressing with both hands, the vagina is set in the pelvic cavity in the upward and forward direction. When using the second method, a hand clenched into a fist and wrapped with a napkin is applied to the area of the vaginal part of the neck and the vagina is smoothly inserted into the pelvic cavity by pressure on it.

Fig. 27. Needle position diagrams for performing sacral anesthesia:

A – for cattle; B – for horse

After setting the vagina, it must be strengthened to prevent repeated inversion. There are several ways to do this.

The most reliable method is to fix the vagina with a roller-shaped suture or with a pouch suture (Fig. 28).

28. Schemes of stitches for fixing the vagina: 1, 2 – roller; 3 – pouch (a-thread inserted under the skin, b – rubber tubes for the outer thread); 4-wire seam; 5 - tools for applying a wire seam.

Applying 5-6 sutures to the vulva with rollers is carried out as follows. First, the skin of the vulva and perineum must be treated with a 5% alcohol solution of iodine.

Rollers are made of sterilized rubber tubes or gauze with a thickness of 5-6 mm and a length of 1.5 cm for large animals, and 8-10 mm for small ones. In cows, the needle is inserted at a distance of 3-4 cm, in sheep and goats – 1.5-2 cm from the edges of the vulva, and removed in cows, retreating by 5-7 mm, in sheep and goats – 3-4 mm from the edge of the vulva, so as not to damage the mucous membrane of the vestibule of the vagina. On the opposite side of the labia, the needle is inserted at the same distance, but begins from the transition of the vulva skin to the mucous membrane, retreating 5-7 mm in cows and 3-4 mm in sheep and goats. After that, the needle is removed, and a roller is placed between the free ends of the ligature and fixed with a sea knot.

Fixation of the vagina with a pouch seam is carried out in the same way as indicated above. Before suturing , the needle insertion site is lubricated with a 5% alcohol solution of iodine. The needle is inserted from the lower corner of the vulva at a distance of 3 cm from the edge of the mucous membrane, and it is removed at a distance of 2-3 cm from the injectionдsite. Stitches are applied first on the right side from the bottom up, and then on the left side from the top down to the lower corner of the vulva. To prevent injury to the vulvar tissues, after each needle insertion, a piece of rubber tube is put on the ligature.

At the lower corner of the vulva, the ends of the ligature are pulled together and tied in a knot, leaving a gap for the release of urine. After the suture is applied, the needle insertion sites are treated with a 5% alcohol solution of iodine or antiseptic ointment. After fixing the inserted vagina, the animal is placed in a

special stall and the animal's condition is monitored until the attempts stop, after which the stitches or structures are removed. Sometimes long -term fixation of the vagina is required until the onset of labor. In such animals, during childbirth, not only the vagina, but also the uterus may fall out, so they need timely help from an obstetrician during labor.

There are other methods of fixing the vagina: applying a bandage, metal clamps and rope loops, using a Minchev skin-vaginal suture Минчевуor a modified Fless gate, and others.

Task 3: to study the methods of diagnosis and therapy in case of stale pregnancy.

Lying down of pregnant women (Paraplegia gravidarum) is a decrease in the tone of the muscles of the croup and pelvic limbs with simultaneous weakening of the ligamentous apparatus of the pelvis and spine caused by trophic disorders in the body of a pregnant woman and lack of exercise. Prenatal stalling is more common in cows and goats, less common in mares. The disease manifests itself gradually or suddenly a few days or even weeks before delivery, and in the winter stall period it can become widespread. At first, the animal shows signs of" staggering", lameness, difficulty getting up, then it stops rising. The cow crawls from one place to another. When an animal is forced to stand up, it usually does not respond. The closer to delivery the disease occurs, the more favorable the prognosis. When the disease appears long before delivery, the animal is upset with the activity of the gastrointestinal tract, bedsores appear complicated by septicopyemia.

Treatment – intramuscular injection of 0.5-1 ml of 0.5% alcohol solution of veratrin in 2-3 points on each side (total 4-6 ml) in the croup area with repeated injections in 1-2 days. It is useful to massage the limbs, croup and careful turning 2-3 times a day to prevent bedsores, create a deep bedding and regularly change it. The diet should consist of concentrates and vitamin-rich feeds. Inject vitamin preparations-retinol, calciferol, B vitamins B, caffeine бензоатsodium benzoate, intravenously 10% calcium chloride solution, 40% glucose solution, give fish oil, calcium and phosphorus salts.

Security questions 1. основеWhat data is used to determine the cause of abortions?

2. What are idiopathic and symptomatic abortions?

3. What are the conditions under which mummification, maceration , and putrification, of the fetus occurs?

4. What is a hidden abortion?

Classes 10. Delivery assistance. Providing assistance in case of abnormal childbirth associated with the mother's body of the animal.

Material and equipment: phantom with fetal dummy, obstetric tool kit, ropes 0.5-0.7 cm thick and 3 m long, special clothing, 5% alcohol solution of iodine,

sterile vaseline, soap, towel, tables, diagrams, video on obstetric care during childbirth.

Task 1: to study the specific features of the course of normal (physiological) labor in animals.

At the beginning, under the guidance of a teacher, you should study the features of the pelvic structure in various types of females, in particular, in cows, horses, sheep and pigs.

The birth canal of females consists of a bone-ligamentous base and soft tissues. The pelvis is formed by three paired bones: the iliac, sciatic and pubic. They restrict the birth canal from above, from the sides and from below. The upper arch is represented by the sacral bone and the first caudal vertebrae. The pelvic floor is formed by the pubic and sciatic bones. The construction of the pelvic axis depends on the bottom of the pelvis, the setting of the iliac bones, as well as on the severity of the sciatic tubers . The pelvic axis is an imaginary line running inside its cavity at an equal distance from the walls. The course of labor depends on the structure of the pelvis and the location of its axis.

In a cow, the pelvis is narrow, the entrance is oval, the sciatic tubercles are strongly pronounced, the exit from the pelvis is narrow, the pelvic axis is a broken curve, and when it goes out, it is directed slightly upwards or straight. It is the direction in which the fruit moves.

In mares, the pelvis is extensive, the entrance is rounded, the pelvic axis is curved or straight, since the ischial tubercles are weakly expressed. Childbirth is easy, even for primiparous mares.

In sheep, pigs, and carnivores, the pelvis is wide enough to give birth easily.

Labor is performed by contractions of the uterine and abdominal muscles. Contractions of the uterine muscles are usually called contractions, and the abdominal muscles are called attempts.

In accordance with the nature of contractions, attempts and internal changes in the genitals of females, three periods of labor are distinguished: preparatory, fetal removal and subsequent .

The preparatory period of labor in cows lasts from 20 minutes to 12 hours and is characterized by a relatively calm behavior of the woman in labor. In this period , a bluish allantois first appears from the genital cleft, and then the amnion. Sometimes it's not the allantois that comes out first, but the amnion. The allantois that has come out is soon spontaneously torn apart. This ends the preparatory period for childbirth. During the period of fetal excretion, which lasts from 15 minutes to 4 hours, contractions of the abdominal and uterine muscles begin to increase (attempts), and the amnion ruptures. Attempts and contractions, gradually increasing, become very strong when the fetal head enters the genital slit. When the fetal head passes through the genital gap, there is a temporary weakening of attempts and contractions. However, after some time, they re-strengthen and remove the fetal breast from the genital gap . Then once again there is a small pause, after which the rest – the back part of the fetus-is removed by renewed attempts and contractions. The subsequent stage in cows is longer than in other animals. This is due to the fact that in cows, the fetal and maternal placentas are

more closely connected than in other animal species (desmochorial type of connection), and their separation normally lasts 6-8 hours.

In mares, the preparation period lasts 2-4 hours and is manifested by a slight restlessness of the animal, expressed in looking at the stomach, frequent shifting from one foot to the other, and refusal to feed. During the period of fetal excretion, which lasts from 15 to 30 minutes, a bladder – allanto-chorion-first appears from the birth canal of the mare аллантo, it bursts, and the urinary fluid pours out. After that, strong attempts immediately begin, and a second bladder,the allanto – amnion, comes out of the birth canal, it bursts, and the fetus is quickly removed from the birth canal. Sometimes the shell of the amnion does not break, and the fetus of the mare is born in the amniotic bubble, as they say in "chemise". In these cases , the mare breaks the shell herself with her teeth, or it is done by an obstetrician or assistant present at the birth. The subsequent stage in the mare lasts 30-45 minutes.

In sheep, the preparatory period of labor lasts from 3 to 30 hours, the period of fetal excretion from 15 minutes to 2.5 hours, the subsequent stage – up to 2-5 hours. In multiple pregnancies, the intervals between the births of individual lambs can range from a few minutes to 10 hours. Afterbirth is released after the birth of all fetuses, most often separately for each fetus with an interval of 1-2. 5 hours.

In pigs, the preparatory period of labor lasts from 2 to 6 hours. During this time, the pig worries, breaks the litter and prepares the "nest". The period of removal of the fetus lasts from 2 to 6 hours. Fruits usually come out one from each horn of the uterus or several from one horn. Fetal water is poured out before each fetus leaves. The fetal membranes of each fetus are connected to each other by their ends and form a passage in each horn of the uterus, through which the fruits come out. In this case, each subsequent fruit leaves through the passage section formed by the shells of the previous fruit. After the release of all fetuses, the fetal membranes come out in sets, first from one horn of the uterus, and then from the other for 3 hours.

Childbirth in dogs and cats is usually easy. During the preparatory period of labor, the female tends to seclusion. During the removal of fetuses, the woman in labor usually lies on her side or on her back. She pulls out the fetal bladder with her teeth, breaks the fetal membranes and bites off the umbilical cord. Thus, the afterbirth in dogs and cats is separated along with the fruit. Dead fruits and afterbirth are usually eaten by the woman in labor.

Task 2: to study the criteria for anatomical and topographic assessment of the location of the fetus in the mother's birth canal.

To correctly assess the relationship between the fetus and the mother's pelvic lumen, the following concepts are used: position, presentation, position and membership.

Position is the ratio of the longitudinal axis of the fetal body to the longitudinal axis of the mother's body. Normal is longitudinal, when the fetal spine is parallel to the mother's spine.

Presentation is the ratio of the anatomical parts of the fetus to the entrance to the pelvis. Normal presentations are considered: head and pelvic.

Position is the ratio of the fetus ' back to the mother's abdominal walls. The correct upper position is when the fetus ' back is facing the mother's spine.

Membership is the ratio of the head, tail, and limbs of the fetus to its trunk. Membership is considered normal if the head presentation of the thoracic limbs lie on the bottom of the pelvis and the head is located on them, and in pelvic presentation, the hind limbs and tail are unbent, directed into the pelvic cavity.

Task 3: master the basic techniques of obstetric care during normal childbirth.

During the preparatory period of labor, the external genitalia, surrounding parts of the body, and the tail of the woman in labor must be washed with warm water and soap, and then with a disinfectant solution. With prolonged labor, the degree of opening of the birth canal (cervical canal) is examined by hand, if obstetric care is required to complete the preparatory stage, the membrane of the water bladder is dissected and the fetus is probed, its presentation, location, position and position are determined.

Location of the fetus in the birth canal of a cow at the time of normal labor with head (left) and pelvic (right) presentation andrupture of the water bladder, amniotic fluid is collected in a bucket and after the fetus is removed, the woman in labor is drunk in 40-60 minutes in a volume of 3-5 liters.

During the period of fetal removal, the obstetrician should be close to the woman in labor, but not interfere with her presence, observing the process of childbirth and fetal removal through the window in the door of the delivery box. In case of violation of the course of the stage of fetal excretion (long delay, absence of fetal parts, in the presence of pronounced attempts and contractions), obstetric care is required for the woman in labor to remove the fetus. With weak contractions and attempts , obstetric ropes are applied and pulled only during attempts by the efforts of 1-2 people. In case of dryness of the birth canal, it is allowed to lubricate them with sterile means that facilitate the sliding of the fetus: vegetable oil, vaseline or decoction of flax seed.

All cases of labor disorders due to incorrect placement of the fetus in the birth canal, large-scale infertility and fetal development abnormalities are considered pathological and will be considered in the next lesson.

When providing obstetric care to a woman in labor, it is necessary to follow certain rules – the principles of obstetric care.

Principles of obstetric care.

1) Obstetric care should be aimed at saving the life of the mother and fetus, as well as at maintaining its productivity.

2) Help should be provided taking into account the structure of the pelvis of the woman in labor.

3) The use of force when extracting the fetus is possible only during attempts (contraction of the abdominal wall muscles).

4) Correction of the wrong location, position and position of the fetus is allowed only in the uterus (in the period between attempts and contractions) by pushing the fetus into the uterine cavity.

5) To facilitate the repulsion of the fetus, especially when the birth canal is dry, it is recommended to introduce a warm (35-40^{o} ° C) soap solution (2.0-3.0 l) into the uterine cavity.

6) In case of doubtful prediction of the outcome, it is forbidden to use dezsredstviyathat reduce the veterinary and sanitary quality of products during the forced slaughter of a woman in labor.

7) Rope obstetric loops should be applied to all the present organs, which may take an incorrect position in the uterus when pushed away.

8) Strict compliance with the requirements of asepsis and antiseptics.

9) During the correction of the fetus, do not allow injury to the tissues of the birth canal.

10) Do not tear the fetal membranes before the full opening of the cervical canal occurs.

11) It is possible to remove the fetus only if the fetus is positioned correctly, using the force of no more than two people.

During childbirth, it is necessary to clearly know the structure of the pelvis and the normal relationship of the fetus with the birth canal. During delivery in cows, when the fetus is embedded in the pelvic cavity, and the limbs and the front of the skull are already protruding from the vulva , a small pull up and back is enough to end the labor easily and quickly. All other methods of obstetric care are ineffective. Maternity care for twins. With twins in cows, sheep and goats, one of the fetuses often has a pelvic presentation, and the other – a head presentation. It is important to determine which of the fruits lies closer to the exit and is located on top of the second fruit. The hand determines which limbs and which fruit belong to. Rope obstetric loops are put on the presenting fetal limbs. First, you should remove the upper fetus, and push the lower one into the uterus.

If the lower fetus is more wedged into the pelvic cavity , then it is advisable to give the woman in labor a dorsal position, then the lower fetus will be upper and near. Pulling out the upper fruit , remove the lower one. In order not to confuse the loops attached to the limbs of both fruits, it is recommended to tie the free ends of the ropes from each fruit.

Caring for newborns. After fetal extraction, remove mucus from the nostrils and mouth with a clean towel. Cut the umbilical cord in calf and foal at a distance of 10-12 cm from the abdominal wall, in lambs and goats at a distance of 6-8 cm, in piglets-at a distance of 3-4 cm, and treat with a 5% alcohol solution of iodine.

In case of lack of breathing, asphyxia of the newborn should be assumed, so a complex of resuscitation measures may be required. Asphyxia is especially possible with pelvic presentation of the fetus, prolonged course of the excretion stage and with pathological childbirth. In these cases, the newborn calf or foal should be lifted by the pelvic limbs head down, perform a chest massage of breathing. Fruits of small animals are placed in the hand, holding the head with the fingers of the hand, and the trunk is held with the thumb. Next, perform a series of light shakes with the newborn's head down to remove the aspirated amniotic fluid and simultaneously massage the chest. After the appearance of respiratory movements, the newborn should be wiped with a clean, dry towel and placed in a

warm place until the coat is completely dry, this is necessary to prevent respiratory diseases and normalize the functions of thermoregulation. It should be borne in mind that the newborn should receive the first portion of the mother's colostrum in a timely manner.

Caring for a woman in labor. After the calf is born, the cows are given the opportunity to lick it, and after 40-50 minutes they are given a bucket of warm water (35-37°C).C) water with the addition of 100-150 g of salt, 500-800 g of molasses sugar or 400 g of sugar. It is advisable to simultaneously give amniotic fluid. The cow is monitored during the entire afterbirth stage, and after separating the afterbirth, it is examined and destroyed.

If classes are held in pig stables, stables, or sheepfishes, then they observe the birth of pigs, mares, and sheep.

Control questions

1. What kind of help should be provided during a normal birth?
2. What specific features of the pelvic structure of women in labor are known to you?
3. Duration of the subsequent stage in female farm animals.
4. How do sows give birth?
5. Describe the methods of caring for newborns.
6. Characteristics of the anatomical and topographic relationship of the fetus in the mother's birth canal.
7. Describe the methods of caring for a woman in labor.
8. Obstetric care for twins.
9. List the principles of maternity care.
10. What is the purpose of obstetric care?
11. What characterizes the correct location of the fetus in the mother's birth canal?
12. Define concepts: position, position, presentation and membership.
13. How do cows give birth?
14. How do mares give birth?
15. How do dogs and cats give birth?

Lesson 11. Composition and purpose of obstetric instruments. Obstetric care for abnormal childbirth

The purpose of the lesson: to study obstetric tools and methods of obstetric care in pathological childbirth.

Materials and equipment: obstetric ropes 0.5-0.7 cm thick and 3 m long, loopguides, sticks, obstetric hooks, Afanasiev obstetric kit, dressing gowns, armbands, aprons, rubber boots, 5% alcohol solution of iodine, sterile vaseline, 5% ichthyol ointment, soap, towels, diagrams, tables, pelvic bones animals, fruits of cows and mares, phantom.

Task 1: study the list of instruments used in obstetric practice for obstetric care.

To provide obstetric care in a farm setting, thereis an obstetric tool kit.

Each of the obstetric instruments performs certain functions and belongs to one of the groups.

Auxiliary instruments are mainly represented by loop guides (Lingorst, Zwick) acting as a conductor of the obstetric rope used to fix the presenting parts of the fetus when correcting its incorrect location.

Tools for pushing the fetus away. Repelling the fetus during childbirth is carried out with sticks (Gunter, Kuhn, Becker, Kaiser). These instruments facilitate the movement of the fetus into the abdominal cavity, which makes it possible to correct all pathological locations of the fetus in the birth canal.

Tools for fetal extraction. Fetal removal from the birth canal is impossible without obstetric ropes tied in halter loops, they provide fixation of all the presenting parts of the fetus: the head, limbs, trunk. In addition, obstetric hooks and forceps of various designs are used to extract the fetus (Fig. 31). Obstetric extractors of various designs are widely used, but their use is possible only with the correct location of the fetus and is indicated only for relatively minor narrowness of the pelvis and (or) large-scale infertility.

Tools for fetotomy. Tools of this group are necessary for dissecting a dead fetus if it is impossible to extract it naturally. These include various cutting devices and their guides: a loop saw guide-necessary for carrying a rope or fetotomy saw around parts of the fetus; a saw guide-necessary for carrying a saw around the part of the fetus to be amputated; a hidden obstetric knife with removable blades (abdominal or hook – shaped) - necessary for preliminary dissection of the fetal skin (incisions) at the site of amputation. intended cut; ring-shaped obstetric knives-perform the same function as hidden knives; obstetric saw-a tool for dissecting the fetus (there are various modifications); fetotomas-are necessary for amputation of individual parts of the fetus. Known fetotomes Afanasyev, Pflyants; obstetric chisels-are used to destroy the fetal bone; obstetric spatulas-are used to separate the skin from soft tissues before fetotomy; obstetric hook-is designed to extract fetuses from small animals and individual parts after fetotomy of large fetuses.

Before use, obstetric instruments are sterilized by boiling in a sterilizer for 30 minutes and kept in a metal box with a disinfectant solution.

Obstetric care with the help of these instruments is performed for pathological childbirth caused by: over -development of the fetus, narrowness or deformity of the pelvis, incorrect position, position, presentation or location of the fetus.

Task 2: study the rules of obstetric care and handling of instruments for obstetric care. Initially, students under the guidance of a teacher on the phantom and fetuses master the normal relationship of fetuses with the birth canal, determine the position, position, presentation and location of the fetus. After that, working on the phantom, they diagnose the wrong relationship between the fetus and the birth canal based on modeling the pathology by the teacher, outline ways to correct it, and take turns performing the tasks set.

Over-development of the fetus or narrowness of the pelvis (krupnoplodie). Krupnoplodie occurs when interbreeding, abundant feeding. Pelvic narrowness can

be congenital or is the result of abnormal bone growth (osteophytes) and pelvic deformities resulting from fractures, as well as from insemination of physiologically immature females.

With large-scale infertility, the normal position, position, location and presentation of the fetus are noted, but its dimensions do not correspond to the measurements of the pelvis.

Help. In these cases, the woman in labor is injected into the birth canal with mucosal substances (vegetable oil, etc.). Parts of the fetus , if possible, are lubricated with vaseline (lanolin). An obstetric rope loop is placed on one presenting limb , the rope is pulled and the loop is tightened on the limb. The same operation is performed on the other limb. It is advisable to pull the fetal limbs alternately when removing the fetus. If the pelvic girdle is pinched, it is better to give the fetus a lateral position. When extracting the fetus, the basic principles of obstetric care are taken into account, but it is allowed to use the force of more than two, but not more than five people. If it is impossible to extract the fetus by this method , a caesarean section is advisable.

Incorrect fetal Пmemberships When studying this section, it is necessary to actively use tabular material and phantom. Turning the head to the side. Both forelimbs protrude from the birth canal, but one limb (from the side where the head is turned) is shorter than the other. Sometimes a side turn is combined with a 180° twist of the head, so that the lower jaw is on top. Palpation reveals a curved neck, the head of calves is on the chest, and in foals – on the abdominal wall.

Help. When providing assistance, fix the limbs, and if possible, the lower jaw of the fetus with obstetric loops, you can put a halter on the head. A stick is inserted into the uterus and, resting it on the chest or shoulder of the fetus (controlling its position) , the fetus is pushed into the uterus, then the head is pulled up on the fetal limbs by the ends of the rope. In this case, it is necessary to grab the head with your fingers for the lower jaw or eye orbits and do not let it twist. In cases where the fetal head is located far away (in foals), the rope is circled around the neck. For this purpose, the end of it is tied to theloop guide, which is inserted by hand into the birth canal and, feeling the neck of the fetus, is circled around it from top to bottom, bringing the loop guide out. Then they pull the rope at both ends, simultaneously push the fruit away and pull the head up until it is possible to grab it with your hand. After that, the head is straightened by hand or with a rope loop applied to the lower jaw. In exceptional cases, eye hooks are used, to which a rope is tied and inserted under the control of the hand into the birth canal. Find the edges of the bone orbits of the eye and fix the ends of the hook on them. Controlling the location of the hook in the orbit of the eye with one hand, the other hand pulls the rope, giving the head a normal position.

Inversion of the head downwards is characterized by presentation of the hooves of the thoracic limbs and the occipital part of the fetal head, the forelimbs in the birth canal are straightened.

Help is that the hand is inserted under the muzzle of the fetus, grabbed by the chin and directed into the pelvic cavity, after pushing the fetus into the uterus with a stick.

The head tilt of the fetus is determined by the presentation of the bend of the neck, palpation of the lower jaw and detection of tracheal rings directed upwards. The thoracic limbs are spread out and located in the pelvic cavity. Help consists in grabbing the lower jaw of the head and moving it to the side position, while the fetus is pushed into the uterus. Then they do the same as when turning the head to the side. Correct the position of the head carefully, avoiding injury to the surrounding tissues.

Fetal neck twisting is very rare, more often in dead fetuses. Twisting is determined by the radial folds of the skin that go in the direction of turning the head.

Help. To correct twisting, the fetus is pushed into the uterus, the head is grabbed by the lower jaw and turned in the opposite direction to the rotation. The second option is when the fetal head is fixed, and the woman in labor in the supine position is sharply turned in the direction of turning the head, while simultaneously trying to turn the fetal head in the opposite direction.

Flexion of the limbs in the carpal joints. In this case , the head is wedged into the pelvis, one limb can protrude from the birth canal, and the other is bent at the carpal joint.

Help. Apply a rope obstetric loop to the correctly located presenting parts and push the fetus into the uterus. Grab the metacarpus of the bent limb with your hand, strongly bend it in the carpal, elbow, shoulder joints, then lift the bent carpal joint as high as possible, slide the hand and take the hoof in the palm, unbend the joints, direct the limb to the exit. Flexion of the limbs at the elbow joints. The fetal head is located normally, lying on the carpal joints. The humerus occupies a vertical position, increasing the volume of the thoracic girdle, which prevents the fetus from leaving. In the birth canal , limbs are found, on the hooves of which the nose of the fetal head is located, and in foals the hooves can be at the level of the inter-maxillary region.

Help. For correction, rope loops are applied to the fetal limbs and lower jaw , the fetal torso is pushed into the uterus and ropes attached to the limbs are pulled. Then pull all the ropes and remove the fruit. Flexion of the limbs in the shoulder joints. Only the head is found in the birth canal, the thoracic limbs are bent under the stomach. When one of the limbs is bent, one limb and the head protrude from the birth canal.

Help. Grab the forearm with your hand and push the fetus back into the abdominal cavity, bend the limb in the carpal joint, then correct it as described above (when bending in the carpal joints). If it is not possible to bend the limb in the carpal joint, then a loop is applied to the lower part of the forearm.

The fetus is pushed into the uterine cavity, the assistant pulls the rope, and bends the limb at the carpal joint. Flexion of the limbs in the hock joints or heel presentation. In unilateral calcaneal presentation, one limb emerges from the birth canal with the plantar surface facing up. The other limb is bent at the hock joint. In bilateral flexion, both limbs are bent at the hock joints.

Help. Push the hand deep into the uterus, grab the metatarsal and pull the limb closer to the exit, while simultaneously pushing the fetus back. After that, the hoof

is covered with the palm, the limb is bent at all joints and straightened into the pelvic cavity. The limb can be pulled up with a rope loop на область placed on the put area or distal part of the metatarsal. The fetus is removed by the pelvic limbs.

Flexion of the limbs in the hip joints. When examining the birth canal, the tail, anus, sciatic tubers and fetal limbs bent at the hip joint are probed.

Help. The fetus is pushed into the uterus, the limbs are transferred to the calcaneal presentation by pulling up the tibia. Then close the hoof with the palm of your hand, bend the limb in all joints, then direct it to the exit. It is allowed to extract small fruits without straightening the limb. In the latter case, rope loops are applied to the pelvic part of the fetus through the inguinal region, for which the fetus is removed from the birth canal.

Incorrect fetal positions Lower and side positions. The most characteristic features of the lower position are the direction of the plantar surfaces of the hooves of the thoracic limbs upwards. In the birth canal , the head is found pointing upwards with the lower jaw.

As the arm moves further, the trachea, chest bone, and elbow joints are palpated at the top. In the lower position with pelvic presentation of the sole, the hooves of the hind limbs are turned downwards.

The lateral position is characterized by the fact that the limbs are one on top of the other, the head is not wedged into the birth canal or only its front part protrudes, the side surface of the head and neck is felt from above. With pelvic presentation, the mucklock and the side wall of the abdomen are found.

Help. Correction of the lower position of the fetus is reduced to turning it around the longitudinal axis by 180°, and the side-by 90°. Before turning, rope loops are placed on the protruding limbs, the fetus is pushed back, and 6-7 liters of slime fluid are poured into the uterus. Next, the obstetrician presses on one side of the head, moving it to the side, and then to the upper position.

Assistants, pulling on the ropes placed on the head and limbs, contribute to turning in the direction where the obstetrician turns the fetal head. If the position cannot be corrected in this way, the woman in labor is turned over, and the obstetrician fixes the fetal head with his hand until it takes the upper position. You can turn the fruit with a stick inserted between the bound limbs. For this purpose, it is also allowed to use a torsion fork. Incorrect position in the pelvic presentation is easier to correct. They act according to similar methods, as in the case of head presentation.

Incorrect fetal positions. Transverse position of the fetus with dorsal presentation. The back, withers and ribs of the fetus are probed with the hand inserted into the birth canal .

Help. From the transverse position, the fruit is transferred to the longitudinal, attached to the lateral, and then the upper position. First , the closer part of the fetus (thoracic or pelvic) is captured with obstetric hooks and pulled up, the opposite part is pushed into the uterus. After the thoracic or pelvic part of the fetus is pulled up to the entrance to the pelvis, straighten the limbs and head, and then remove the fetus. Transverse position of the fetus with abdominal presentation.

The head and all the limbs in the bent state are wedged into the birth canal or are located before entering the pelvis.

Help. When providing assistance, the pelvic limbs of the fetus are fixed with obstetric loops, the fetus is pushed away and pulled by ropes, transferring the fetus to a longitudinal position, a lateral position. If the head and thoracic limbs have entered the birth canal more, then it is necessary to push the pelvic part of the fetus, and transfer the anterior part to the head presentation and remove the fetus. From the side position, the fruit is removed using the methods described above. Vertical position with dorsal presentation. In the uterus, the withers, back of the fetus and fetal ribs are palpated.

Help. First, the fetus must be moved to the lower position, for which its neck and head are pulled up to the exit with hooks, and the pelvic part is pushed back. Then they act as if correcting the lower position with a head presentation. Vertical position with abdominal presentation. All four limbs and the head of the fetus are wedged into the birth canal.

Help. If the thoracic part of the fetus is more embedded in the birth canal , then it is necessary to fasten the ropes behind the forelimbs, head and pull them, and push the pelvic part into the uterus first. If the pelvic part is more wedged in, then rope loops are applied to the hind limbs, the front part of the fetus is pushed into the uterus so as to transfer it to the lower position with pelvic presentation, and then proceed as described above.

Control questions

1. What kind of help do you need for incorrect positions?
2. What kind of help should be provided for incorrect positions?
3. What kind of help should be provided for неправильныхincorrect presentations?
4. What kind of help should I provide if I have incorrect memberships?
5. What auxiliary obstetric instruments are known to you ?
6. What obstetric instruments for pushing the fetus are you familiar with?
7. What obstetric instruments for fetotomy are you familiar with?
8. What obstetric instruments for fetal extraction are you familiar with?
9. What kind of care should be given to a woman in labor in case of large-scale infertility and narrow pelvis?

Lesson 11. Providing care for abnormal fetal delivery

The purpose of the lesson: to study obstetric tools and methods of obstetric care in pathological childbirth.

Materials and equipment: obstetric ropes 0.5-0.7 cm thick and 3 m long, loopguides, sticks, obstetric hooks, Afanasiev obstetric kit, dressing gowns, armbands, aprons, rubber boots, 5% alcohol solution of iodine, sterile vaseline, 5% ichthyol ointment, soap, towels, diagrams, tables, pelvic bones animals, fruits of cows and mares, phantom.

Task 1: study the list of instruments used in obstetric practice for obstetric care.

To provide obstetric care in farm settings, there is an obstetric tool kit (Figure 31).

Each of the obstetric instruments performs certain functions and belongs to one of the groups.

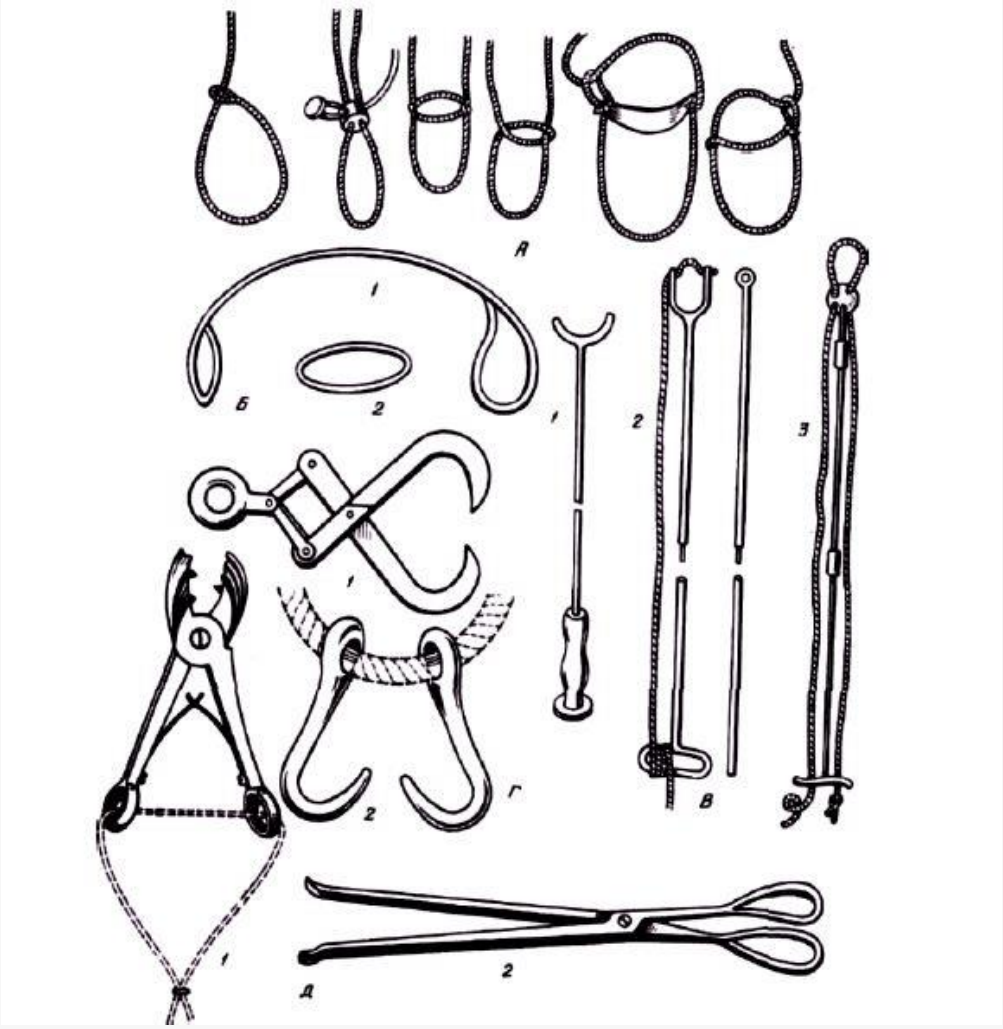


Figure 31. Obstetric instruments:

A-obstetric loop and halters; B-loop guides (1-Zwick, 2-Lingorst); C – sticks (1 – Gunther, 2 – Kuhn, 3 – Becker); D-obstetric hooks (1 – Kray-Schottler, 2 – eye); E-forceps (1-toothed, 2-Witta)

Auxiliary instruments are mainly represented by loop guides (Lingorst, Zwick) acting as a conductor of the obstetric rope used to fix the presenting parts of the fetus when correcting its incorrect location.

Tools for pushing the fetus away. Repelling the fetus during childbirth is carried out with sticks (Gunter, Kuhn, Becker, Kaiser). These instruments facilitate the movement of the fetus into the abdominal cavity, which makes it possible to correct all pathological locations of the fetus in the birth canal.

Tools for fetal extraction. Fetal removal from the birth canal is impossible without obstetric ropes tied in halter loops, they provide fixation of all the presenting parts of the fetus: the head, limbs, trunk. In addition, obstetric hooks and forceps of various designs are used to extract the fetus (Fig. 31). Obstetric extractors of various designs are widely used, but their use is possible only with the

correct location of the fetus and is indicated only for relatively minor pelvic narrowness and (or) large-scaleinfertility.

Tools for fetotomy. Tools of this group are necessary for dissecting a dead fetus if it is impossible to extract it naturally. These include various cutting devices and their guides: a loop saw guide-necessary for carrying a rope or fetotomy saw around parts of the fetus; a saw guide-necessary for carrying a saw around the part of the fetus to be amputated; a hidden obstetric knife with removable blades (abdominal or hook – shaped) - necessary for preliminary dissection of the fetal skin (incisions) at the site of amputation. intended cut; ring-shaped obstetric knives-perform the same function as hidden knives; obstetric saw-a tool for dissecting the fetus (there are various modifications); fetotomas-are necessary for amputation of individual parts of the fetus. Known fetotomes Afanasyev, Pflyants; obstetric chisels-are used to destroy the fetal bone; obstetric spatulas-are used to separate the skin from soft tissues before fetotomy; obstetric hook-is designed to extract fetuses from small animals and individual parts after fetotomy of large fetuses.

Before use, obstetric instruments are sterilized by boiling in a sterilizer for 30 minutes and kept in a metal box with a disinfectant solution.

Obstetric care with the help of these instruments is performed for pathological childbirth caused by: over-development of the fetus, narrowness or deformity of the pelvis, incorrect position, position, presentation or location of the fetus.

Task 2: study the rules of obstetric care and handling of instruments for obstetric care. Initially, students under the guidance of a teacher on the phantom and fetuses master the normal relationship of fetuses with the birth canal, determine the position, position, presentation and location of the fetus. After that, working on the phantom, they diagnose the wrong relationship between the fetus and the birth canal based on modeling the pathology by the teacher, outline ways to correct it, and take turns performing the tasks set.

Over-development of the fetus or narrowness of the pelvis (krupnoplodie). Krupnoplodie occurs when interbreeding, abundant feeding. Pelvic narrowness can be congenital or is the result of abnormal bone growth (osteophytes) and pelvic deformities resulting from fractures, as well as from insemination of physiologically immature females.

With large-scale infertility, the normal position, position, location and presentation of the fetus are noted, but its dimensions do not correspond to the measurements of the pelvis.

Help. In these cases, the woman in labor is injected into the birth canal with mucosal substances (vegetable oil, etc.). Parts of the fetus, if possible, are lubricated with vaseline (lanolin). An obstetric rope loop is placed on one presenting limb, the rope is pulled and the loop is tightened on the limb. The same operation is performed on the other limb. It is advisable to pull the fetal limbs alternately when removing the fetus. If the pelvic girdle is pinched, it is better to give the fetus a lateral position. When extracting the fetus, the basic principles of obstetric care are taken into account, but it is allowed to use the force of more than

two, but not more than five people. If it is impossible to extract the fetus by this method, a caesarean section is advisable.

Incorrect fetal ΠΙmemberships When studying this section, it is necessary to actively use tabular material and phantom. Turning the head to the side. Both forelimbs protrude from the birth canal, but one limb (from the side where the head is turned) is shorter than the other. Sometimes a side turn is combined with a 180° twist of the head, so that the lower jaw is on top. Palpation reveals a curved neck, the head of calves is on the chest, and in foals – on the abdominal wall.

Help. When providing assistance, fix the limbs, and if possible, the lower jaw of the fetus with obstetric loops, you can put a halter on the head. A stick is inserted into the uterus and, resting it on the chest or shoulder of the fetus (controlling its position), the fetus is pushed into the uterus, then the head is pulled up on the fetal limbs by the ends of the rope. In this case, it is necessary to grab the head with your fingers for the lower jaw or eye orbits and do not let it twist. In cases where the fetal head is located far away (in foals), the rope is circled around the neck. For this purpose, the end of it is tied to theloop guide, which is inserted by hand into the birth canal and, feeling the neck of the fetus, is circled around it from top to bottom, bringing the loop guide out. Then they pull the rope at both ends, simultaneously push the fruit away and pull the head up until it is possible to grab it with your hand. After that, the head is straightened by hand or with a rope loop applied to the lower jaw. In exceptional cases, eye hooks are used, to which a rope is tied and inserted under the control of the hand into the birth canal. Find the edges of the bone orbits of the eye and fix the ends of the hook on them. Controlling the location of the hook in the orbit of the eye with one hand, the other hand pulls the rope, giving the head a normal position.

Inversion of the head downwards is characterized by presentation of the hooves of the thoracic limbs and the occipital part of the fetal head, the forelimbs in the birth canal are straightened.

Help is that the hand is inserted under the muzzle of the fetus, grabbed by the chin and directed into the pelvic cavity, after pushing the fetus into the uterus with a stick.

The head tilt of the fetus is determined by the presentation of the bend of the neck, palpation of the lower jaw and detection of tracheal rings directed upwards. The thoracic limbs are spread out and located in the pelvic cavity. Help consists in grabbing the lower jaw of the head and moving it to the side position, while the fetus is pushed into the uterus. Then they do the same as when turning the head to the side. Correct the position of the head carefully, avoiding injury to the surrounding tissues.

Fetal neck twisting is very rare, more often in dead fetuses. Twisting is determined by the radial folds of the skin that go in the direction of turning the head.

Help. To correct twisting, the fetus is pushed into the uterus, the head is grabbed by the lower jaw and turned in the opposite direction to the rotation. The second option is when the fetal head is fixed, and the woman in labor in the supine

position is sharply turned in the direction of turning the head, while simultaneously trying to turn the fetal head in the opposite direction.

Flexion of the limbs in the carpal joints. In this case, the head is wedged into the pelvis, one limb can protrude from the birth canal, and the other is bent at the carpal joint.

Help. Apply a rope obstetric loop to the correctly located presenting parts and push the fetus into the uterus. Grab the metacarpus of the bent limb with your hand, strongly bend it in the carpal, elbow, shoulder joints, then lift the bent carpal joint as high as possible, slide the hand and take the hoof in the palm, unbend the joints, direct the limb to the exit. Flexion of the limbs at the elbow joints. The fetal head is located normally, lying on the carpal joints. The humerus occupies a vertical position, increasing the volume of the thoracic girdle, which prevents the fetus from leaving. In the birth canal, limbs are found, on the hooves of which the nose of the fetal head is located, and in foals the hooves can be at the level of the inter-maxillary region.

Help. For correction, rope loops are applied to the fetal limbs and lower jaw, the fetal torso is pushed into the uterus and ropes attached to the limbs are pulled. Then pull all the ropes and remove the fruit. Flexion of the limbs in the shoulder joints. Only the head is found in the birth canal, the thoracic limbs are bent under the stomach. When one of the limbs is bent, one limb and the head protrude from the birth canal.

Help. Grab the forearm with your hand and push the fetus back into the abdominal cavity, bend the limb in the carpal joint, then correct it as described above (when bending in the carpal joints). If it is not possible to bend the limb in the carpal joint, then a loop is applied to the lower part of the forearm.

The fetus is pushed into the uterine cavity, the assistant pulls the rope, and bends the limb at the carpal joint. Flexion of the limbs in the hock joints or heel presentation. In unilateral calcaneal presentation, one limb emerges from the birth canal with the plantar surface facing up. The other limb is bent at the hock joint. In bilateral flexion, both limbs are bent at the hock joints.

Help. Push the hand deep into the uterus, grab the metatarsal and pull the limb closer to the exit, while simultaneously pushing the fetus back. After that, the hoof is covered with the palm, the limb is bent at all joints and straightened into the pelvic cavity. The limb can be pulled up with a rope loop placed on the put area or distal part of the metatarsal. The fetus is removed by the pelvic limbs.

Flexion of the limbs in the hip joints. When examining the birth canal, the tail, anus, sciatic tubers and fetal limbs bent at the hip joint are probed.

Help. The fetus is pushed into the uterus, the limbs are transferred to the calcaneal presentation by pulling up the tibia. Then close the hoof with the palm of your hand, bend the limb in all joints, then direct it to the exit. It is allowed to extract small fruits without straightening the limb. In the latter case, rope loops are applied to the pelvic part of the fetus through the inguinal region, for which the fetus is removed from the birth canal.

Incorrect fetal positions Lower and side positions. The most characteristic features of the lower position are the direction of the plantar surfaces of the hooves

of the thoracic limbs upwards. In the birth canal, the head is found pointing upwards with the lower jaw.

As the arm moves further, the trachea, chest bone, and elbow joints are palpated at the top. In the lower position with pelvic presentation of the sole, the hooves of the hind limbs are turned downwards.

The lateral position is characterized by the fact that the limbs are one on top of the other, the head is not wedged into the birth canal or only its front part protrudes, the side surface of the head and neck is felt from above. With pelvic presentation, the mucklock and the side wall of the abdomen are found.

Help. Correction of the lower position of the fetus is reduced to turning it around the longitudinal axis by 180°, and the side-by 90°. Before turning, rope loops are placed on the protruding limbs, the fetus is pushed back, and 6-7 liters of slime fluid are poured into the uterus. Next, the obstetrician presses on one side of the head, moving it to the side, and then to the upper position.

Assistants, pulling on the ropes placed on the head and limbs, contribute to turning in the direction where the obstetrician turns the fetal head. If the position cannot be corrected in this way, the woman in labor is turned over, and the obstetrician fixes the fetal head with his hand until it takes the upper position. You can turn the fruit with a stick inserted between the bound limbs. For this purpose, it is also allowed to use a torsion fork. Incorrect position in the pelvic presentation is easier to correct. They act according to similar methods, as in the case of head presentation.

Incorrect fetal positions. Transverse position of the fetus with dorsal presentation. The back, withers and ribs of the fetus are probed with the hand inserted into the birth canal.

Help. From the transverse position, the fruit is transferred to the longitudinal, attached to the lateral, and then the upper position. First, the closer part of the fetus (thoracic or pelvic) is captured with obstetric hooks and pulled up, the opposite part is pushed into the uterus. After the thoracic or pelvic part of the fetus is pulled up to the entrance to the pelvis, straighten the limbs and head, and then remove the fetus. Transverse position of the fetus with abdominal presentation. The head and all the limbs in the bent state are wedged into the birth canal or are located before entering the pelvis.

Help. When providing assistance, the pelvic limbs of the fetus are fixed with obstetric loops, the fetus is pushed away and pulled by ropes, transferring the fetus to a longitudinal position, a lateral position. If the head and thoracic limbs have entered the birth canal more, then it is necessary to push the pelvic part of the fetus, and transfer the anterior part to the head presentation and remove the fetus. From the side position, the fruit is removed using the methods described above. Vertical position with dorsal presentation. In the uterus, the withers, back of the fetus and fetal ribs are palpated.

Help. First, the fetus must be moved to the lower position, for which its neck and head are pulled up to the exit with hooks, and the pelvic part is pushed back. Then they act as if correcting the lower position with a head presentation. Vertical

position with abdominal presentation. All four limbs and the head of the fetus are wedged into the birth canal.

Help. If the thoracic part of the fetus is more embedded in the birth canal, then it is necessary to fasten the ropes behind the forelimbs, head and pull them, and push the pelvic part into the uterus first. If the pelvic part is more wedged in, then rope loops are applied to the hind limbs, the front part of the fetus is pushed into the uterus so as to transfer it to the lower position with pelvic presentation, and then proceed as described above.

Control questions

1. What kind of help do you need for incorrect positions?
2. What kind of help should be provided for incorrect positions?
3. What kind of help should be provided for неправильныхincorrect presentations?
4. What kind of help should I provide if I have incorrect memberships?
5. What auxiliary obstetric instruments are known to you ?
6. What obstetric instruments for pushing the fetus are you familiar with?
7. What obstetric instruments for fetotomy are you familiar with?
8. What obstetric instruments for fetal extraction are you familiar with?
9. What kind of care should be given to a woman in labor in case of large-scale infertility and narrow pelvis?

Lesson 12. Methods of diagnosis and treatment of uterine prolapse and postpartum paresis. Methods oftreatment of placenta detentions in cows.

The purpose of the lesson: to study methods of uterine reduction, diagnosis and treatment of postpartum paresis. To study methods of separation of the delayed afterbirth, reduction of the prolapsed uterus and methods of its amputation, as well as diagnosis and treatment of postpartum paresis. To study methods of diagnosis and medical care in the case of afterbirth arrest.

Materials and equipment: obstetric phantoms, genitals of killed pregnant animals (uterus, vagina, vulva), sick animals, small surgical kit, Esmarchmug, bucket, syringes for 10 and 20 ml, injection and surgical needles, suture nylon material No. 8-10, surgical gloves, 1-5% novocaine solution, 1:5000 potassium permanganate, 5% alcohol solution of iodine, antibiotics, glucose, sterile bandages, towel, sheets, soap, thermometers, Evers machine. Zhivotnye with postpartum retention, thermometers, phonendoscopes, uterus of a pregnant cow for a period of 7 to 9 months, korntsangi, alcohol swabs, vaseline, towel, soap, gynecological gloves.

Task 1: master the technique of reducing the prolapsed uterus.

First, the teacher explains on the phantom the technique of reducing the prolapsed uterus, applying fixing stitches to the vulva. Then, together with students, in the conditions of a farm or vivarium, he sets the fallen uterus, and at the end puts stitches on the vulva.

Uterine prolapse is usually caused by too strong contractions and attempts, as well as rapid forcible extraction of a large fetus. Often, the causes of uterine prolapse are atony and hypotension of the uterus, which occur with dropsy of the fetus and its membranes.

The disease can occur during labor and in the first 6 hours after its onset. The uterus protrudes beyond the labia in the form of a pear-shaped bag and usually hangs down to the hock joint. When the uterus is completely prolapsed, it is initially red and relatively elastic, and as the edema develops , it becomes dark blue or dark brown. The animal is most often lying down, which causes contamination of the uterus with feces, urine and foreign particles that injure the uterine walls.

Reduction technique. If the animal is lying down, then an oilcloth is placed under the fallen uterus, then antiseptic treatment of the uterus is carried out with non-irritating antiseptic solutions of potassium permanganate (1:5000), furacilin (1:5000). If there are wounds, catgut stitches are applied to them, and then the entire surface of the uterine mucosa is covered with Vishnevsky ointment or other antimicrobial ointment. An epidural (low sacral) anesthesia should be performed, and oxytocin should be injected into the uterine walls to a depth of 0.5-1 cm at several points in doses: cows 60 units, small animals 5-20 UNITS. 5 minutes after the oxytocin injection, the volume of the uterus is reduced by 30%, it is compacted and easily set.

In cases of severe swelling, the fallen uterus is tightly bandaged with a sterile wide bandage moistened with antiseptic. Bandaged from the top of the fallen uterine horn towards the vulva. Then , before setting, remove part of the bandage from the uterus, close it with both hands, lift the nearest part to the vulva and gradually insert it into the pelvic cavity. After that, the next part is captured, unwrapped and set, this is done throughout the operation. After reduction, antiseptic drugs are injected into the uterus.

To exclude a recurrence of uterine prolapse, the cow is placed in a machine with a slope of the floor towards the head, and periodically an эпидуральнуюepidural is performed. The vulva is sutured with rollers or a pouch suture, as described in lesson 21 on diseases of pregnancy.

Task 2: to diagnose and treat animals with postpartum paresis.

Postpartum paresis is a severe, acute disease of animals, accompanied by paralysis of the pharynx, tongue, intestines and limbs with loss of consciousness. The disease is more common in cows. Characteristic clinical signs: the cow lies on its chest with its limbs bent, or if on its side, then with outstretched limbs, the head is thrown back on its side, or the neck is S-shaped , the pupils are dilated, the gaze is meaningless, the cornea of the eyes is cloudy, the tongue hangs from the half-open mouth, the animal does not respond to skin injections, the body temperature is lowered to 35°C-36The skin at the base of the horns is cold, there is no peristalsis, the bladder is full, and the separation of urine is stopped (Fig. 35).

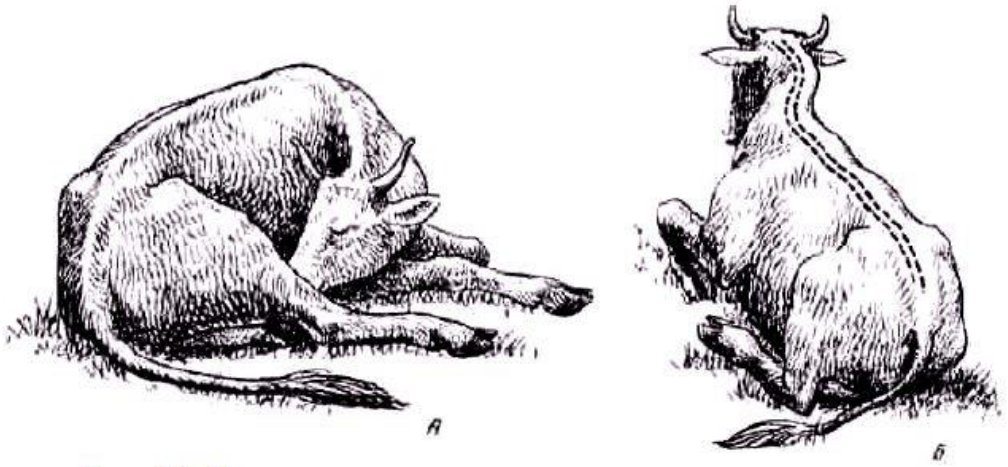


Рис. 35. Положение коровы при послеродовом парезе:
А, Б – тяжелая и легкая (S-образное искривление шеи) формы

The most effective method of treatment is the introduction of air into the breast cavity using the Evers apparatus (Fig. 36). The cow is given a dorso-lateral position, milk is given out and the tips of the nipples are treated with an alcohol-cotton swab, sterile milk catheters of the device are inserted into all four lobes of the udder and air is gradually pumped until the folds of the breast skin are straightened and a sonorous tympanic sound appears when a finger is clicked on the udder. After pumping air, the tips of the nipples are tied with a piece of gauze or bandage for 20-30 minutes so that the air does not leave the nipple.

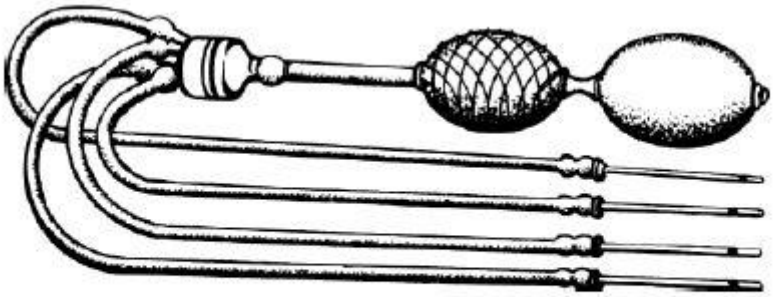


Рис. 36. Аппарат Эверса

If the animal does not improve, the air is pumped again after 8 hours. V. S. Kirillov recommends injecting Жанэ500 to 2000 ml of fresh milk from a healthy cow into the udder with a Zhane syringe instead of air .

After the introduction of air or milk, the lower back, croup, and pelvic limbs are vigorously rubbed with a straw tourniquet, then the cow is covered with a warming material. Subcutaneously inject 20% caffeine solution in a dose of 5-10 ml, intravenously inject 10% calcium chloride solution in a dose of 100 ml and 40% glucose solution in a volume of 300-400 ml. If all of the above procedures do not have a therapeutic effect, the veterinary specialist should submit for commission consideration the question of whether further treatment is appropriate.

Task 3: master the basic techniques for diagnosing and treating afterbirth retention in cows.

Retention of the placenta is a complication of the third stage of labor (postpartum stage), characterized by non-separation of the fetal membranes within

6 hours after the birth of the calf. This pathology of the birth act entails the development of postpartum diseases of the uterus and prolonged infertility.

There are three forms of afterbirth detention: complete, incomplete , and partial. Complete retention of the placenta occurs in about 15% of cases and is characterized by the preservation of the connection of the chorionic choroid with caruncles of both horns of the uterus. Only a part of the transparent membranes (allantois and amnion) hang from the genital fissure. If the placenta is not fully retained, which is most widespread, the chorion is retained only in the horn of the placenta. From the genital fissure, the amnion, allantois and part of the chorion of dark color with the presence of cotyledons usually hang.

The diagnosis of partial retention of the placenta is made on the basis of examination of the separated fetal membranes, since плодовместилищеonly part of the chorion or individual parts of the fetal placenta remain in the horn of the placenta. To do this , it is advisable to examine each detached afterbirth, spreading it out on the table or on the floor. Partial retention of the afterbirth is indicated by the absence of separate sections of the choroid. In such cases , manual examination of the uterine cavity is performed in compliance with all the requirements of asepsis and antiseptics. Treatment of cows with afterbirth retention begins no earlier than 6-8 hours after the birth of the calf. There are conservative, operative and combined methods of treatment for afterbirth retention. Treatment begins with conservative methods.

Conservative methods. Oxytocin is administered subcutaneously 2-3 times with a 3-hour interval in increasing doses of 30-40-50 units, uterotone in a dose of 10 ml, 0.5% prozerin solution or 0.1% carbacholine solution карбахолина(cow and mare-1.5-3 ml, pig- 0.8-1 ml, sheep and goat-0.3 ml), estrophan once (magestrofan) in a dose of 2 ml, auto-colosive 20-25 ml. The use of these drugs increases the tone of the uterus and provokes the separation of the afterbirth delayed against the background of hypoo-and atony of the uterus.

Of the non-drug methods of afterbirth separation, you can also use the electronic separator "Elegant", akuelektro-laseropuncture by influencing the biologically active points of BAT № 17, 33, 28; № 7, 10, 11, 15, 31, 35.

If there is no effect when using the above methods , 200-300 ml of a 10% solution of ichthyol is injected into the uterine cavity (amniotic membranes) a day after removal of the fetusго раствора ихтиола, а в аорту или в брюшную полость соответственно , and 100 ml of a 1% or 10 ml of a 10% solution of novocaine is injected into the aorta or abdominal cavity, respectivelyго. You can also use the suprapleural novocaine blockade according to V. V. Mosin. Injections of anesthetics should be combined with oxytocin for 40-50 units.

Operational method. This method is used if неотделениятhe placenta is not separated within 36-48 hours from the birth of the fetus or if неуспешностиconservative methods are unsuccessful. The most acceptable "dry" method of surgical separation of the placenta. At the same time, pay special attention to compliance with asepsis. The introduction of disinfectant solutions into the uterine cavity before and after separation of the placenta is excluded. After manual separation, in order to prevent the development субинволюцииof uterine

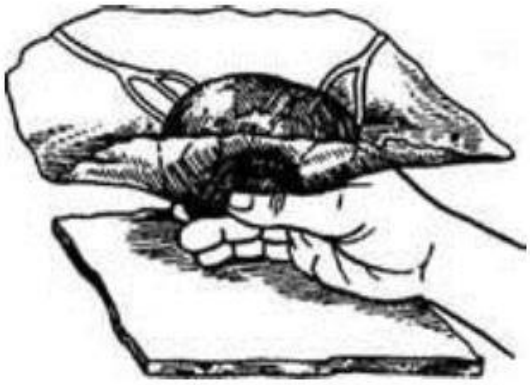
subinvolution and endometritis, the cow is subcutaneously injected with 40-50 units of oxytocin ЕДor any other myotropic agent (uterotone, pituitrin), 150-200 ml of a 40%го glucose solution and 100-120 ml of a 10%го solution of calcium chloride (calcium gluconate) are administered intravenously, intrauterine is administered broad-spectrum antimicrobials (extended-acting antibiotics, deoxyfur, neofur, diometer, tetrameter, hysterofur, furapen, iodopen, hysterotone, difur, enrocid, enrofur, iodine glycol, iodoxide, endopharm, thixotropin, zhiroform BM, metromax, iodovismutsulfamide emulsionйодовисмутсульфамида, IVST-F, levotetrasulfine, levoerythrocycline, spumosan, mastisan A, B, difural, complex preparation FLAX, nitazol foam aerosol, metricur, utrakur, 10% трициллина на fat-based tricillin suspension). With delayed separation and putrefactive decomposition of the afterbirth, a full course of complex therapy is carried out, as with endometritis.

Technique of surgical separation of the placenta. The sick animal is fixed in the machine. The labia of the animal, the root of the tail, the perineum, the back surface of the udder and the hanging parts of the afterbirth are thoroughly washed with warm water and soap, and then treated with a disinfectant solution (0.1% potassium permanganate solution or 3% hydrogen peroxide solution). So that the tail does not interfere with work, it is taken to the side and tied to the animal's neck with a bandage or rope.

The veterinarian should be prepared. Put an oilcloth apron on top of the robe, an oilcloth armband on one of the hands, and also put on rubber boots. On the hand that will separate the afterbirth, put on an obstetric glove smeared with sterile vaseline.

Surgical intervention for severe attempts is performed with low sacral anesthesia (administration of 10 ml of 1-1.5%го novocaine solution into the epidural space) or novocaine blockade of the pelvic nerve plexus according Ноздрачевуто A.D. Nozdrachev.

After that, the fetal membranes hanging from the cow's genitals are grabbed by hand, twisted and slowly pulled. The other hand is inserted into the uterus and along the course of the tourniquet from the afterbirth , it is advanced to the first caruncle, which is captured in the area of its neck between the index and middle fingers, and the cotiledon is separated from the caruncle with the thumb (Fig. 37). Then the next caruncle is found and the operation is repeated, so the afterbirth is separated up to the tips of the uterine horns. After its separation, the surface of the boils will be rough (smooth before separation).



37. Position of the fingers of the hand in the area of the junction of the maternal and fetal placentas during the separation of the delayed afterbirth

It is most difficult to separate the afterbirth at the top of the uterine horn, since the hand does not always reach the boils. To facilitate the operation, the placenta is tightened and twisted as it separates.

After separating the afterbirth, it is spread out on a clean floor or plywood and carefully examined. If the edges of the rupture of the choroid coincide, then the afterbirth is completely separated, if not, then part of the afterbirth remains in the uterus. In this case, a hand is inserted into the uterus and the remaining part of the placenta is separated. Animals that have had an afterbirth apprehended are monitored.

Periodically, 5, 10, 15 and 20 days after delivery and later, they are subjected to obstetric and gynecological medical examinations, and if uterine diseases are detected, they are treated.

Task 2: work out the method of separating the afterbirth from cows.

In laboratory classes, work on mastering the technique of afterbirth separation is carried out on an isolated pregnant cow uterus. To do this, each student takes turns preparing the hand, according to the methods accepted in obstetrics, and separates several fetal placentas. After all students in the group have had sufficient practice in placental separation techniques and the placenta is separated, it is necessary to check whether the placenta is completely separated.

In a clinic setting, on an agricultural farm, or on farms, each group is assigned to take in a sick animal, conduct a clinical examination, make a diagnosis, and perform treatment.

Control questions

1. What are the factors that predispose females to uterine prolapse?
2. What clinical signs of uterine prolapse do you know?
3. List the methods of fixing the uterus after their reduction and give a comparative assessment.
4. List the clinical signs of puerperal paresis.
5. What methods are available to treat postpartum paresis in cows?
6. How to make a diagnosis for complete, incomplete and partial retention of the placenta?
7. When should I start conservative and operative placenta separation after fetal removal?

3. What medications can be used for conservative placental separation?

4. How do I make sure that the afterbirth is completely separated?

5. How to prevent the development of endometritis after surgical separation of the placenta?

6. How is the operative department of the placenta performed?

Classes 13. ЛTreatmentof animals in pathologyand breast cancer

The purpose of the lesson: to master the methodology of clinical breast examination for the detection of clinical and subclinical mastitis. To study the method of providing medical care to cows with mastitis.

Material and equipment: milk catheters, rubber tube 50-60 cm long; solutions: solesodovyj 2-3% 100-150 ml, furatsilina 1: 5000; 10-20-gram syringes; 50 UNITS of oxytocin;

5 pcs. injection needles; scissors; cotton wool; 5% iodine solution; cotton swabs; mastisan (A, B or E); dressing gowns; aprons; soap; towel; 5-10% camphor or ichthyol ointment; nadvymennik; ozokerite; paraffin;Zhane syringe; needles for blockades 8-12 cm long; 200-400 ml 0.5% solution of novocaine; antibiotics (1 bottle of penicillin, streptomycin, bicillin-3 or -5).

Task 1: get acquainted with the methods of introducing various drugs into the udder of cows with mastitis.

High efficiency of treatment of cows with breast inflammation is achieved with early detection of sick animals, timely and comprehensive treatment aimed at suppressing the vital activity of microflora, increasing resistance, eliminating soreness and swelling of udder tissues, and restoring secretory function of the affected lobes. To do this, use the means of etiotropic, pathogenetic and symptomatic therapy.

Etiotropic therapy is based on the use of antimicrobial agents: antibiotics, sulfonamides, nitrafurans and other chemotherapeutic agents, as well as drugs based on microbial cell enzymes, probiotics, phytoncides, etc. The choice of the most effective remedy is carried out on the basis of taking into account the spectrum of its antimicrobial action and determining the sensitivity of microflora isolated from breast secretions to certain drugs.

Therapeutic preparations in the form of emulsions, suspensions, solutions or aerosols are introduced into the affected quarters of the udder through the nipple canal in a heated state to 38-40°C.In this form, in a volume of 10-20 ml, after careful manual milking of the pathological secretion and treatment of the nipples with a 1% solution of asepur, 70% ethyl alcohol or other disinfectants.

Removal of secretions from the lesions of the quarter is carried out by milking manually or using a separate milking machine in a milking bucket, with acute mastitis every 2-3 hours, with subacute and chronic – at the usual time of milking. To dilute the casein clots and remove the secretion more completely , 50-60 ml of 1-2% sodium bicarbonate solution, salt268 soda solution (0.5% sodium chloride and 1% soda) or 0.5% ammonia solution is introduced into the udder. After 30-60

minutes, the secret from the affected quarter of the udder is put into a special container and destroyed by boiling. Milk from unaffected quarters is given out by a milking machine, which after milking is thoroughly washed and disinfected in accordance with veterinary and sanitary regulations.

From ready-made dosage forms for the treatment of mastitis patients in lactating cows, mastisans A, B, E, masticide, sinulox, dienomast, colimast, erimast, eroximast, mastaerosol, mastivalen, lindomast, iodismutsulfamide, septogel, mastiet-forte, 1% dioxydin solution, 1% streptocide solution,5% norsulfazole solution are administered intravenously. solutions of rivanol 1: 1000, furatsilin 1:5000, ozonated sunflower oil and other domestic and foreign preparations, in accordance with the instructions for their use.

Biological preparations have high therapeutic effectiveness : propolis liniment, immozim, lysomast, endobacterin, biosan, streptoecolact, as well as vegetable preparations: chlorophyllipt, phytomast, plantain juice solution, bearberry decoction.

For subclinical mastitis, antimicrobial drugs are prescribed 2-3 times, and for clinically expressed mastitis-until recovery with a 12-24-hour interval.

Technique интрацистернальногоof intracisternal drug administration. Drugs are administered immediately after removal of the pathological secretion from the affected quarter. To do this, you will need: a milk catheter, a 20 ml glass syringe, or a polyethylene syringe catheter with a special cannula designed for insertion into the nipple canal. The sick animal is fixed in the machine, the tips of the nipples are treated with tampons soaked in 70% ethyl alcohol or other antiseptic solution. If drugs are used in vials, then they must be collected in a syringe before the procedure. The milk catheter or cannula of the catheter syringe is carefully inserted into the lumen of the nipple sphincter to a depth of 4-6 cm, holding the tip of the nipple, the drug is slowly inserted into the milk tank, then the instrument is removed. Holding the tip of the nipple with the thumb and index finger, the fingers of the other hand squeeze the nipple closer to the tip and slide the fingers to the base of the nipple, which contributes to the transition 269 of the drug 269 from the tank to the milk passages of the udder. After that, you should perform a light massaging circular motion with your hand at the base of the nipple, which is necessary for uniform distribution of the drug along the milk passages and advancement into the milk alveoli.

For the treatment of cows with acute serous, catarrhal, fibrinous and purulent mastitis, it is recommended to additionally парэнтеральноprescribe parenteral antibiotics in doses of 3-5 thousand mg. UNITS per 1 kg of animal weight: penicillin, bicillin-3, bicillin-5, monomycin, neomycin, erythromycin, gentamicin, cobactan, nitox, anzacyclin both separately and in combination with each other or with sulfonamide preparations.

For fibrinous, purulent, hemorrhagic mastitis, along with antimicrobial agents, a 20% glucose solution at a dose of 400 ml, a 10% solution of calcium chloride or calcium gluconate at a dose of 100-150 ml with the addition of 5-10 g of hexamethy-leptetramine (urotropin), and a 0.25% solution of novocaine in saline

solution at a dose of 0.5-1 ml per 1 kg are administered intravenously mass of the animal.

With the development of gangrenous mastitis , 0.5-1% potassium permanganate solution or 3% hydrogen peroxide solution in a volume of 50-80 ml is injected into the affected udder lobe. Milk obtained from the affected quarters is disposed of, and from the rest (not affected) - fed to animals after boiling.

Terms of milk rejection in the treatment of cows with mastitis with medicines are established according to the instructions for their use.

For external application in mastitis , you can use valeter, anixid, ubersan, DMSO90, veterinary softening cream (KVS), veterinary antiseptic cream (KVA), ichthyol, camphor ointments. These remedies should be used for chronic mastitis, acute serous, catarrhal and purulent. In hemorrhagic and fibrinous mastitis, their use is contraindicated.

When treating animals during the start and the first two to three weeks of dead wood, one of the following long-acting antimicrobials is once administered to the affected quarter of the udder: difural B, masticide-2, apramast, heliomast, ristomast, difumast, doximast, furadin, aerodit, orbenin DS, nafpenzal DS or other drugs in accordance with the instructions by their application. The therapeutic effect of the drug is determined by clinical methods and the study of udder secretions with one of the diagnostic reagents after calving the cow.

Pathogenetic therapy. From the means of pathogenetic therapy, novocaine or trimecaine solutions are used, which are used in the acute phase of inflammation by intravenous or intra-aortic administration, as well as in the form of various blockages of conducting nerve trunks and fibers associated with the mammary gland.

A short novocaine blockade according to Logvinov D. D. is performed by injecting 150-200 ml of a 0.5% sterile solution of novocaine (trimecaine) into the supramental space. The drug is injected from behind the udder at the intersection of lines running at the height of the udder base and passing at a distance of 1-2 cm from the midline towards the inflamed half or quarter (independently posterior or anterior), through a needle that is inserted to a depth of 11-12 cm in the direction of the carpal joint of the same side. With bilateral mastitis, the blockade is made on both sides. Repeated administration of the anesthetic is carried out after 48 hours.

In a solution of novocaine (trimecaine), antibiotics are administered that have been tested for the sensitivity of microflora.

Blockade of the external seminal nerve according to B. A. Bashkirov is performed by injecting 80-100 ml of 0.5% novocaine solution into the connective tissue space between the large and small lumbar muscles. The needle is inserted between the 3rd and 4th transverse costal processes of the lumbar vertebrae from the side of the affected quarter. The needle is pricked along the outer edge of the longest muscle of the back (retreating 6-7 cm from the median line of the back) to a depth of 6-9 cm with an inclination of 550-600 to the median plane of the trunk until it stops in the vertebral body. After pulling the needle back 2-5 cm, a solution of novocaine is introduced.

For intravenous administration of novocaine (trimecaine), a solution of 0.25% concentration (0.5-1.0 ml per kg of animal weight) or 0.5-1.0% concentration (0.5-0.25 ml/kg) is used. ИнфузияThe solution is infused slowly into the jugular vein daily for 3-4 days.

Physical therapy involves the use of cold, heat, and quantum energy.

Cold is used in the phase of active (arterial) hyperemia, in the first 5-6 hours of the development of the inflammatory process. The affected quarter of the udder is doused with cold water from a hose or covered with liquid clay with vinegar (2-3 tablespoons per 1 liter of water) for 2-3 hours. The clay is kept moist by regularly wetting it with cold water.

Heat is prescribed in the phase of passive (venous) hyperemia for 3-5 days, with a weakening of the inflammatory reaction in the stage of resolution of the inflammatory process. For this purpose, warming compresses, paraffin-ozokeritotherapy, as well as infrared radiation are used.

Paraffin therapy is performed by applying a wide brush to the previously shaved skin of the affected quarter of the udder of molten paraffin with a temperature of 45°C, and then a second layer with a temperature of 80-90°C. The total thickness of the paraffin application should be about 10 mm. To preserve heat, the paraffin is covered with a plastic wrap and a cotton-gauze heat exchanger. Duration of the procedure is 3-4 hours.

When using ozokeritotherapy, ozokerite is heated to 100-110°C and are poured into cuvettes, at the bottom of which oilcloth is pre-spread. From the first cuvette (size 46×46×6 cm) ozokerite with a temperature of 40-45°C together with oilcloth is applied to the lower back and sacrum, and from the second (size 66×56×6 cm) ozokerite with a temperature of 45-60°C is also applied together with oilcloth to the affected pre – shaved quarter of the udder. For highly productive cows with soft udder skin , lower temperature ozokerite is used. To preserve heat , a cotton swab is also applied to the ozokerite.

Quantum therapy involves the use of ultraviolet rays, ultrasound, UHF electromagnetic field, and low-intensity laser radiation. Ultraviolet irradiation is carried out by a stationary mercury-quartz lamp with DOT-200 or DOT-400 burners (PRK-2, PRK-4). For the treatment of cows with ultrasound, an ultrasound therapeutic device (VUT-1) is used.

UHF mastitis therapy is performed using a medical mobile UHF milking machine (LPDA-1 UHF) in the process of machine milking on milking platforms and hospitals or in stalls. Laser therapy is performed using приборо the devices "MILTA-MV", "VEGA-MV", "STP", "Mustang", SL-202 and AL-010 ("Petrolaser") according to the instructions for their use.

Udder massage. It is performed for serous and catarrhal mastitis 3-4 days after the onset of the disease. With serous inflammation, the mammary gland is massaged from the bottom up, and with catarrhal inflammation from the top down. Usually massage is applied 1-2 times a day, combining it with rubbing ointments and liniments. To do this, use camphor oil, camphor, salicylic, ichthyol or propolis ointments, KVS, as well as various liniments.

With fibrinous, purulent, hemorrhagic and gangrenous mastitis, udder massage is prohibited.

Task 2: establish the correct diagnosis of narrowing of the nipple canal; establish the diagnosis and prescribe treatment for wounds, cracks, warts of the nipples on the mammary gland.

Usually, narrowing of the nipple canal (tightness) occurs due to thickening of the folds of the mucous membrane of the nipple canal, hypertrophy ofипертрофии its sphincter, overgrowth of scar tissue in the area of the tip of the nipple and degeneration of the sphincter muscles after bruises and wounds. In such animals, when milking, milk is released in a thin stream. If in normally milking cows the diameter of the nipple canal is from 2.5 to 4 mm, then in slow – milking cows-no more than 2 mm. Palpation reveals a thickening in the area of the sphincter of the nipple canal. Machine milking of such cows is almost impossible, and manual milking requires a lot of labor and time. To weaken the tone of the nipple sphincter or to stretch the scar tissue, bougie is inserted into the nipple canal. They can be made of metal, glass, or plastic. To do this, the animal is fixed, the nipples are disinfected, the tip of the nipple is captured with two fingers of the left hand and the smallest bougie is inserted – with a diameter of 1.3 mm, and then for 2-3 minutes – bougie with a diameter of 2 mm, then 2.5, etc., so that during one procedure the channel is expanded by no more than 2 mm; the last bougie leave in the canal for 20-30 minutes. In case of preservation of tightness, bougie is repeated after 3-5 days. Sometimes, to eliminate тугодойности tightness, the walls of the nipple canal are incised.

Before the operation, milk is first given out, the cow is fixed, the tip of the nipple is smeared with tincture of iodine. 10 ml of 10% novocaine solution is injected into the milk tank and after 10-15 minutes, fixing the nipple with two fingers, a special button-shaped lanceolate double-edged (or hidden) scalpel is inserted into its channel and a cross-shaped incision is made, dissecting the hard walls of the nipple channel. After the operation, the cow is milked frequently for 3-7 days to prevent spikes.

After each milking, the tip of the nipple is lubricated with an antiseptic ointment or emulsion.

Cracks in the skin of the nipples usually occur due to the loss of elasticity of the surface layers of the skin with unsanitary maintenance and frequent weathering of wet skin of the nipples. Most often , the disease is observed in summer in cows and goats. With cracks , the affected nipples are usually swollen, painful and hot, and the skin has transverse and longitudinal shallow cracks 1-10 mm long, covered with a crust. Milking the animal is accompanied by soreness. For treatment, use tampons soaked in disinfectant solutions or antiseptic preparations.

To do this, first the nipples are thoroughly washed with warm water and wiped with a clean towel and smeared with boric vaseline, penicillin, zinc, propolis and other ointments.

Apply at this time manual milking. In case of severe soreness, the nipples are lubricated with 3-5% novocaine ointment 15-20 minutes before milking . To prevent this disease of the nipples, the udders of animals are kept clean. Teats after

each milking are wiped dry with a clean towel and smeared with vaseline or emollient ointments, do not allow frequent moistening of the udder, especially in windy weather. Wounds on the teats usually occur more often in the pasture period as a result of damage to the teats by branches of shrubs, stumps, wire, etc., and in the case of stable maintenance – by hooves of other animals, nails, floor fragments.

Usually, they are more often patchwork or torn and bruised.

When penetrating wounds through the wound canal , milk is usually released. Such wounds heal poorly and slowly due to poor growth of granulation tissue and often lead to the formation of fistulas. Nipple wounds are difficult to treat due to frequent irritation during milking.

During treatment, the animal is fixed in the machine. The nipple is washed with a warm 2% solution of chloramine or furatsilin 1: 5000. Around the base of the nipple, a 1-2% solution of novocaine is administered or a blockade is performed according to B. A. Bashkirov or D. D. Logvinov. Then a milk catheter is inserted into the tank, and a tourniquet made of a thin rubber tube is placed above the wound at the base of the nipple to prevent bleeding. Cut out uneven and dead tissues so as to give the wound as much vertical direction as possible and get smooth, well-closing edges. Then the tourniquet is removedлигируют, the bleeding vessels are ligated with a thin catgut, blood clots are removed, the wound is irrigated with an antibiotic solution and knotted sutures are applied to the skin with subcutaneous tissue, without capturing the mucous membrane of the nipple cistern. After that , an adhesive or adhesive plaster bandage is applied to the wound.

To ensure the spontaneous outflow of milk, a shortened milk catheter is inserted into the nipple tank. The catheter is left until the wound is completely healed. Through it , antimastitic emulsions or antibiotic solutions are introduced into the udder. Sutures are removed on day 7-10 and a catheter is removed from the nipple.

Milk incontinence (lactorrhea) occurs due to weakness, paralysis, atrophy of the sphincter due to inflammatory processes.

Sometimes lactorrhea is observed as a temporary phenomenon and is associated with estrus, as well as with hot, or vice versa with cold weather, or is a consequence of the premature manifestation of the milk release reflex under stressful conditions (fright). During treatment in these cases, to prevent milk loss, the tip of the nipple after milking is sealed with gauze moistened with colloidium. If the sphincter is weak, a good effect is achieved by massaging the tip of the nipple after each milking for 5-10 minutes. To narrow the lumen of the milk canal, sew the skin around the nipple canal with a thin silk thread with a pouch seam or separate stitches.

Warts of the nipples. You can tie the leg of the wart, if it is well expressed. Warts with a wide base are lubricated 2-3 times a day with 10% salicylic acid ointment or cauterized 3-5 times with lapis, carbolic acid, liquid nitrogen. Single large warts are removed surgically.

Control questions 1. What means of etiotropic therapy are used in the treatment of cows with mastitis?

2. How do I administer antimicrobial agents internally?

3. What should be done if the nipple canal is clogged with casein clots and this interferes with emptying the affected quarter?

4. What pathogenetic agents are used for м mastitis?

5. How to perform a short novocaine blockade according to D. D. Logvinov?

6. How to conduct a novocaine blockade according to B. A. Bashkirov?

7. What means of physiotherapy should be used for mastitis?

8. How should cold and heat be applied to mastitis?

9. When should breast massage be used?

10. What is the help for an animal with lactorrhea?

11. How to treat an animal with slowness?

12. What is the best treatment for cracked nipples?

Lesson 14. Diagnosis of inflammatory and functional uterine diseases.

The purpose of the lesson: to study the clinical picture of inflammatory and functional diseases of the uterus and to master the techniques of their diagnosis.

Material and equipment: animals with uterine pathology; antiseptic solutions: potassium permanganate (1: 5000), furatsilin (1:5000), 2-3% bicarbonate of soda, 3% ichthyol, douche bag, vaginal mirrors, scissors, tweezers, 70% ethyl alcohol, disposable gynecological gloves, B. G. Pankov obstetric spoon, soap, towels, aprons, shoulder pads, dressing gowns, cotton swabs.

Task 1: to study the symptoms of inflammatory diseases of the uterus.

Metritis is a non-specific inflammatory disease of the uterus. According to the localization of the inflammatory process, they are divided into endometritis – inflammation of the mucous membrane, myometritis-inflammation of the muscular membrane and perimetritis-inflammation of the serous membrane. This division of inflammation in the uterus is relatively localized, since the pathological process affects other layers of the uterine wall to varying degrees. In practice, there are two main forms of uterine inflammation:

endometritis and metritis proper. Endometritis is characterized by a predominant lesion of the mucous membrane and a relatively benign course, metritis affects all layers of the uterus and a severe picture of the disease with general septic phenomena.

An inflammatory reaction in the uterus is characterized by typical signs of alteration and exudation. With high virulence of microbes and reduced resistance of uterine and animal tissues to infections, microbes can penetrate deeper layers of the endometrium and myometrium, causing the development of severe purulent, fibrinous endometritis or septic forms of necrotic and gangrenous metritis.

Acute postpartum purulent-catarrhal endometritis.

Clinical signs of the disease appear on 8-10 days after delivery, less often on 6-7 days. In the latter case, endometritis develops, as a rule, against the background of afterbirth retention or acute subinvolution of the uterus. From the genitals of the animal, when lying down, straining or massaging the uterus through the rectum, a

large amount of purulent-mucous or purulent exudate of liquid consistency, gray-brown or yellow-brown color, sometimes with an unpleasant putrid smell, is released. In the form of crusts, it is also detected on the vulva and the root of the tail.

During rectal examination, an enlarged uterus (the size corresponding to 3.0-3.5 months of pregnancy) is detected in the abdominal cavity, its walls are flabby, testy, contractions are weakly expressed or absent, sometimes fluctuation and mild soreness are noted. During vaginal examination, the vaginal mucosa and the vaginal part of the cervix are edematous, hyperemic, with pinpoint and striped hemorrhages, purulent-catarrhal exudate is released from the cervical canal into the vaginal cavity. The general condition of the animal is often without pronounced changes and deviations from the norm, in some animals purulent endometritis is accompanied by an increase in body temperature by 1.0-1.5°C, general depression, decreased appetite and milk production.

Postpartum fibrinous endometritis is characterized by the accumulation in the uterus of not only serous-purulent exudate, but also effusion and deposition of fibrin on the surface of the mucous membrane. Rectal palpation reveals soreness, atonicity and thickening of the uterine wall. The uterus reaches the size of a 3-month pregnancy. An exudate of gray-yellow or yellow-brown color with fibrin flakes is released from it. With the intensive development of the inflammatory process, an increase in body temperature and general depression are noted. Ovaries in cows with postpartum endometritis have a smooth surface or small follicles are detected in them.

Postpartum necrotic metritis is characterized by significant exudation and deposition of fibrin, both on the surface and in the thickness of the uterine mucosa, which leads to malnutrition, necrosis and disintegration of its tissues with the development of septicemia or pyemia. A characteristic clinical sign for it is the general severe depressed state of the animal with loss of appetite, decreased milk productivity, hypotension and atony of the atria, profuse diarrhea. Body temperature rises by 2.0-2.5°C. The cow stands hunched over, urinating and straining accompanied by moans. A fetid red-brown exudate with an admixture of fibrin clots and necrotic crumb-like masses is released from the uterus. When palpated through the rectum, the uterus is revealed to be dense, very painful, with signs of crepitation. The vaginal mucosa is dry, painful, and hot.

Postpartum gangrenous septic metritis develops in the first 5-6 days of the postpartum period due to deep injuries and necrosis of uterine tissues and penetration of anaerobic microbes into it. The disease occurs in an acute, very severe form with the development of general toxemia and septicemia and is manifested by signs of severe depression (the animal is lying down more), complete loss of appetite and almost complete loss of milk secretion, high body temperature, increased pulse and respiration, scar atony, profuse diarrhea. From the external genitalia, brown-red (almost black) exudate is released with a putrid smell and an admixture of mushy or pityriasis masses from decaying tissues. The process involves the cervix, vagina, and vulva. Their puffiness is noted. When palpated through the rectum, the uterus is dense or testovataya, atonic, painful, crepitus. The

mucous membrane of the vagina and the vaginal part of the cervix during vaginal examination is painful and strongly swollen.

Chronic endometritis is a long-term purulent-catarrhal гнойнокатаральноеor catarrhal inflammation of the uterine mucosa, most often a continuation of acute (subacute) postpartum or postabortal endometritis. The occurrence of chronic endometritis is also possible after the introduction of microorganisms into the genitals during artificial insemination, as well as as a result of activation of the latent infectious process in the uterus. The disease is usually manifested by periodic, less often constant discharge from the genitals of a mucosal cloudy (catarrhal inflammation) or purulent-mucous (purulent-catarrhal inflammation) exudate in the form of cloudy thick mucus of creamy consistency with an admixture of purulent flakes and streaks. The release of exudate increases during lying down, with an exacerbation of the inflammatory process, during estrus, after massaging the uterus through the rectum. Mucopurulentexudate is often found on the vulva and root of the tail. The mucous membrane of the vagina and the vaginal part of the cervix is hyperemic, with a bluish tinge, the cervical canal is slightly open, mucopurulent exudate is detected in its folds and at the bottom of the vaginaслизисто.

During rectal examination, the uterine horns are usually lowered into the abdominal cavity, enlarged 1.5-2 times in volume, their contractile function is poorly expressed or absent, the walls are thickened or, conversely, thinned, flabby. If the patency of the cervical canal is disturbed, purulent (pyometer) or serous-mucous (hydrometer) exudate accumulates in its cavity.

The uterus increases in volume to the size of a 2-3-month pregnancy, fluctuates, its walls are thinned, and contractile function is completely lost.

The ovaries are firm to the touch, have a smooth surface and a dense consistency, or they palpate growing follicles and cyclic yellow bodies. In some cows with chronic endometritis, cystic changes are observed in the ovaries. With a prolonged course of the disease, cows have a decrease in fatness and milk productivity.

To make a diagnosis for clinically expressed endometritis, anamnestic information, characteristic clinical signs, and data from rectal and vaginal examinations are sufficient.

Latent chronic endometritis occurs as a type of catarrhal or catarrhal-purulent inflammation in the absence of pronounced clinical signs of genital damage.

In this form of endometritis, the general condition of the animal is unchanged, and the sexual cycle is usually not disturbed. However, multiple inseminations remain inconclusive. Rectal examination reveals a decrease in uterine tone.

Uneven thickening or compaction of its walls is also possible. During estrus, opalescent mucus with cloudy streaks is released from the genitals as a result of desquamation of the integumentary epithelium and epithelium of the end sections of the uterine glands with flakes of pus.

To clarify the diagnosis and nature of the inflammatory process, it is advisable to use rapid laboratory methods 219

studies of cervical mucus, urine, as well as histological examination of the endometrium obtained by biopsy, and others.

Cervicitis (more often endomyocervicitis– - inflammation of the mucous membrane and muscles of the cervix develops, as a rule, after birth injuries or as a result of the spread of the inflammatory process from the uterus. Therefore, very often cervicitis occurs in combination with endometritis. During vaginoscopy, the cervical canal is slightly open, filled with purulent-catarrhal exudate, sometimes with an admixture of blood. The folds of its mucosa are smoothed, very hyperemic and edematous, with the presence of hemorrhages, erosions or wounds. During transrectal examination, the cervix is found to be very enlarged and painful.

In the chronic course of the inflammatory process, hypertrophy of the mucous membrane and complete filling of the cervical canal with polypous folds protruding into the vagina are observed, and the vaginal part of the cervix resembles the shape of cauliflower.

Inи conclusion and completing the task, students should examine gynecologically ill animals in order to determine the symptoms of inflammatory diseases of the uterus and their differential diagnosis based on the knowledge gained.

Task 2: master diagnostic criteria for detecting субинволюцииuterine subinvolution.

Subinvolution of the uterus is a disease characterized by slowing down the processes of reverse development of the uterus after childbirth to the state inherent in this organ in non-pregnant animals. Its particular danger for reproductive function lies in the fact that against its background, inflammatory diseases of the genital organs and functional disorders of the ovaries often develop, leading to long-term or permanent infertility.

At the same time, favorable conditions are created for the reproduction of pathogenic microorganisms, which can lead to the development of the inflammatory process.

Subinvolution of the uterus in the course of the disease is divided into acute, developing in the first 2 weeks after delivery, subacute-in 15-30 days and chronic-over 30 days after delivery; according to etiology-into primary and secondary (after the retention of the placenta and various forms of manifestation of postpartum infection: postpartum septicemia, metritis, endometritis, etc.); degrees of severity - for light and heavy.

Acute subinvolution of the uterus develops in the first days after delivery and often occurs in severe form. Its early clinical signs are the absence of formation of a mucosal plug in the cervical canal and abundant discharge of liquid bloody, and later (5-7 days) brown-red or dirty-gray lochia with an admixture of a tiny mass of disintegrating boils from the first day after delivery. Lochia often acquire an unpleasant putrid smell, and their abundant discharge is recorded while the animal is lying down or when massaging the uterus through the rectum.

Cows have delayed compaction of sacro-sciatic ligaments for up to 4-5 days. There is a raised root of the tail, taking a pose of urination with periodic manifestation of attempts. In the severe form of the course, general depression is

noted, body temperature rises, appetite and milk productivity decrease, indicating the development of postpartum uremia.

During rectal examination, the uterus is revealed deep in the abdominal cavity, not covered by the hand, atonic, fluctuates, its walls are flabby, without pronounced folding, the cervix is enlarged 2-3 times, the middle uterine arteries vibrate up to 4-5 days. Contractile function and retraction of uterine muscle fibers are impaired.

Subacute subinvolution of the uterus. This form of the course is diagnosed, as a rule, from 15 to 30 days of the postpartum period, characterized by a prolonged release of chocolate-brown or dark brown lochia of a thick or мазеподобнойointment-like consistency, usually after a night's rest or massage of the uterus through the rectum. The uterus is usually enlarged in size, its walls are flabby. The tone of the uterus and its response to massage are weakened.

Vaginal and rectal examination reveals hyperemia and swelling of the vaginal mucosa and the vaginal part of the cervix with the presence of pinpoint and striped hemorrhages on its folds on the 15th-16th day after delivery. Its channel is open and лохииdark brown lochia trees stand out from it. The uterus is atonic, located in the abdominal cavity, the horns are asymmetrical, their size corresponds to a 2.5-3.0-month pregnancy.

An obstetric examination on day 21-22 reveals hyperemia of the vaginal mucosa, the opening of the cervical canal and the release of a small amount of dark brown (мазеподобнойointment-like consistency) lochia from it. The uterus is atonic, the horns are asymmetrical, hanging over the pubic edge of the pelvic bones into the abdominal cavity, their size corresponds to 1.5-2.0-month pregnancy.

To confirm the diagnosis of acute and subacute subinvolution of the uterus, you can use the laboratory method of Katerinov or Dyudenko (see classes 31-34).

Subacute subinvolution can be complicated by catarrhal-purulent endometritis against the background of reduced body resistance and penetration of pathogenic microorganisms into the uterine cavitysубинволюция. With untimely treatment, the pathological process takes a chronic course.

Chronic subinvolution of the uterus. It is diagnosed 1 month or more after delivery and is characterized by an increase in the size of the uterus and the cavity of its horns, uneven thickening of the walls, the presence of longitudinal or transverse folding, a decrease in tone and response to massage, the absence of lochia discharge, anaphrodisia or defective sexual cycles.

An important method for diagnosing chronic subinvolution of the uterus is to identify"flatness" of the horns lowered into the abdominal cavity when they are slightly squeezed from the sides through the rectal wall, indicating the presence of an enlarged cavity in them (V. D. Misailov). When opening the uterus after slaughtering an animal, boils in the form of papillae with a height of 4 to 6 mm are detected on the surface of the endometrium, with a norm of 1-2 mm.

This pathology is often accompanied by functional disorders of the ovaries in the form of their hypofunction and less often in the form of cystic changes. If the sexual cycle persists, growing follicles and functioning yellow bodies can be detected in the ovaries.

Chronic subinvolution of the uterus should be differentiated from latent chronic endometritis and hypotension (atony) of the uterus. With latent endometritis, the uterus is usually located in the pelvic cavity, it is slightly enlarged, the sexual cycle is not disturbed, and opalescent mucus with the presence of pus flakes, contaminated with various conditionally pathogenic microflora, is released from the genitals at the stage of arousal. With subinvolution of the uterus, the cervical mucus is transparent and free of microflora. To clarify the diagnosis, you can use rapid methods of laboratory diagnosis of endometritis (see classes 31-34).

Hypotension (atony) of the uterus is characterized only by a decrease in its tone and the absence or decrease in the response to massage.

At the end of the task, students should examine gynecologically ill animals in order to determine the symptoms of subinvolution of the uterus and differential diagnosis of its forms based on the knowledge gained during the lesson.

Security questions 1. What is metrite, and what types of metrite do you know?

2. What are the clinical signs of postpartum purulent-catarrhal endometritis?

3. What are the clinical signs of postpartum fibrinous endometritis?

4. What are the clinical signs of necrotic metritis?

5. What are the clinical signs of gangrenous septic metritis?

6. What are the clinical signs of chronic э endometritis?

7. What are the clinical signs of latent endometritis?

8. What are the clinical signs of cervicitis?

9. What is subinvolution of the uterus and what is its danger to the animal?

10. What forms субинволюцииof uterine subinvolution are known to you and how are they treated зделяются?

11. What are the characteristics of acute, subacute, and chronic субинволюцииuterine subinvolution?

Lesson 15. Diagnosis and treatment of ovarian hypofunction in cows and heifers.

The purpose of the lesson: to master the diagnosis of functional ovarian disorders with the help of gynecological research, to study the main methods of performing therapeutic measures for functional disorders in the ovarian activity.

Material and equipment: cows and heifers with various ovarian pathologies, gynecological gloves, dressing gowns, armbands, rubber boots, aprons, towel, scissors, soap, bucket, mugs,vodka, vaseline, alcohol swabs, alcohol swabs, 18 cm long injection needle, silicone tube, 20 ml injection syringe, injection needles, hormone preparations: estrophan, folligon, chorionic gonadotropin, chorulon.

Task 1: to study the clinical signs of hypofunction of cysts and persistent ovarian yellow bodies.

Ovarian dysfunction is a disorder of the generative and hormonal functions of the sex glands, manifested mainly in the form of their hypofunction, cystic changes and persistence of yellow bodies.

Ovarian hypofunction is characterized by impaired development and maturation of follicles, their ovulation and formation of the corpus luteum. This

pathology can manifest itself in the form of follicle persistence and ovulation delay, anovulation, hypoplasia and insufficient function of the corpus luteum formed at the site of the ovulated follicle, or complete depression of the function of the sex glands and prolonged anaphrodisia.

The initial form of ovarian hypofunction, manifested by follicle persistence, is characterized by a delay in ovulation up to 24-72 hours after the end of hunting (normally ovulation occurs in 10-12 hours), postlibid uterine metrorrhagia (bleeding on the second or third day after insemination) and low оплодотворяемостьюfertilization of animals.

Ovarian hypofunction, manifested by anovulation, is characterized by impaired development and maturation of follicles in the ovaries. Such animals are characterized by lack of fertilization and multiple inseminations. Rectal examination during the manifestation of the anovulatory sexual cycle reveals small or medium-sized growing follicles in the ovaries that do not reach the pre-ovulatory state. Repeated examination after 6-7 days indicates the absence of a functionally active yellow body in the ovaries.

With ovarian hypofunction, accompanied by developmental disorders (hypoplasia) and insufficient function of the corpus luteum, multiple unsuccessful inseminations are noted, sometimes with a violation of the rhythm of sexual cycles (manifestation of the arousal stage after 15-17 days). During rectal examination, a small dense yellow body is detected in the ovaries on 6-8 days after the manifestation of the arousal stage of the sexual cycle. There are no changes on the part of the uterus.

With complete depression of the function of the gonads, clinically accompanied byanaphrodisia, the ovaries are reduced in size, dense to the touch, with a smooth surface, without growing follicles and yellow bodies. The uterine horns are located in the pelvic cavity or hang over the pubic edge, slightly rigid, atonic.

Ovarian cysts are formed from neovulated follicles and are divided into follicular and luteal cysts according to their functional state.

Follicular cysts have one or more spherical cavities, the walls of which at the beginning of their formation and functioning are represented by hyperplastically altered hormone-active granulosa in a state of hypersecretion and hypoplastically altered outer connective tissue membrane. When the cysts reach a size of 3-4 cm, the connective tissue membranes undergo a fibrous change, and the granulosa undergoes reduction. Rectally, they are defined as one or several thin-walled blisters with a gentle fluctuation with a diameter of 2 to 4-6 cm or more. The ovaries at the same time acquire an oval-rounded or spherical shape, increase in size to chicken, and in some animals to goose eggs.

The uterine horns are slightly enlarged and hang over the pubic edge.

At the beginning, the signs of the disease are not clear enough, since the formation of cysts during this period, as a rule, is not accompanied by a disorder of the sexual cycle, and cows often recover without treatment. In cases of deep disorders in animals, multiple cysts are observed, which is accompanied by irregular sexual cycles or anaphrodisia, in which the development of cysts occurs

without the phenomenon of sexual hunting. In some animals, relaxation of the sacro-sciatic ligaments is noted. Prolonged development of cysts can lead to nymphomania or virilism.

Nymphomania is a neuroendocrine disorder in which sexual hunting occurs after a short period of time (2-5 days) and lasts for several days in the presence of severe signs of estrus and sexual arousal. A characteristic feature of nymphomania is a strong relaxation of the sacro-sciatic ligaments (unilateral or bilateral), which is manifested by the appearance of deep depressions between the root of the tail and the sciatic bumps (Fig. 1). In nymphomania, cysts develop at shorter intervals: one cyst disappears, and the other appears and replaces its function.

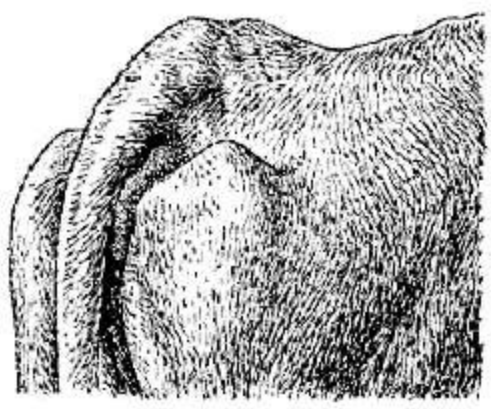


Figure 1. Occlusion of the sacro-sciatic ligaments in nymphomania

Cows with virile syndrome (virilis – male) have secondary male sexual characteristics: bull-like appearance, masculinization, clitoral hypertrophy, etc. With virilism, the rhythm of sexual cycles is disturbed, increased and even continuous sexual arousal is manifested, but unlike nymphomania, there is no sexual hunt. Cysts develop at irregular intervals (10-28 days). Cows are very restless, digging with their limbs and butting the ground with their horns, and often moo and roar "like cattle". In the herd, they jump on other cows, but they do not allow jumping on themselves. Their milk productivity is falling. Milk often becomes unpleasant to the taste and curdles when boiled. The cows ' eyes are wild. The hair loses its shine. Over time, some cows develop strong neck muscles, which gives them a bull-like appearance. Sometimes virilism is registered in cows in the first 60 days after delivery. In such cases, unlike virilism, which occurs at a later date, cows show sexual hunting, but in the future it disappears and only sexual arousal is recorded. With virilism, as with nymphomania, relaxation of the sacro-sciatic ligaments is noted.

Luteal cysts have, as a rule, one spherical cavity, the wall of which is formed by a thick layer of hyperplastically and hypertrophically altered cells of the inner connective tissue membrane of the follicle (inner theca), similar to luteal cells of the corpus luteum. The granulose layer undergoes reduction. In this pathology, the ovaries are rectally defined as spherical formations up to 5-8 cm in diameter with a dense wall and weakly expressed fluctuation. The presence of such cysts in animals is accompanied by anaphrodisia. The uterine horns and cystic ovaries hang down into the abdominal cavity, and the uterus is usually atonic.

Along with functioning luteal cysts, there are cystic formations, the luteal tissue of the walls of which undergoes involution with the formation of a powerful fibrous layer.

Ovarian cysts are diagnosed on the basis of anamnesis and double rectal examinations of the ovaries with 4-8-day breaks. The cystic ovary is enlarged, irregular in shape, especially in cases where it contains two or more cysts. The

uterus is usually of normal size, less often enlarged or reduced. Rigidity is usually well defined. Only in cases with long-term development of ovarian cysts, the rigidity of the uterus is sharply weakened and even absent. The cervix is enlarged, the ce canal is very open.

With follicular cysts, a hydrometer is sometimes found as a result of the accumulation of secretions in the uterine cavity, which can lead to atrophy of its wall. The amount of fluid in the uterine cavity varies from a small, barely perceptible content to 2 liters or more.

Persistent yellow body is considered to be the yellow body in the ovary of a non-pregnant cow, delayed and functioning for more than 25-30 days. Most often, it is formed from a cyclic corpus luteum during chronic inflammatory processes in the genitals, as well as after repeated skips (without insemination of the animal) of sexual cycles. The corpus luteum of pregnancy, regardless of the nature of the course of labor and the postpartum period, undergoes involution during labor and in the first two days after delivery, and its transition to persistent is not observed.

Diagnosis of persistent corpus luteum is carried out by double rectal examination with an interval of 2-3 weeks and daily observation of animals.

The yellow body during this period does not undergo changes in location, size, and the animal does not show the stage of arousal of the sexual cycle. The horns of the uterus, as a rule, hang down into the abdominal cavity, are slightly enlarged, their walls are relaxed, rigidity is reduced. The study of the state of the uterus is carried out very carefully to identify its disease or exclude pregnancy. When diagnosing persistent corpus luteum, it is necessary to keep accurate records of the condition of the ovaries and uterus at each study in order to compare them.

Task 2: conduct a gynecological examination of animals for the purpose of differential diagnosis of ovarian pathology.

Each student must find the ovaries in the selected animals and determine their shape, size, consistency, sensitivity, determine the nature of the formations (cyst, yellow body) and the state of the ovaries (hypofunction or atrophy). If the student finds it difficult to find the ovaries and determine their condition, the teacher provides the necessary assistance.

Task 3: master the methodology of treatment of animals with ovarian hypofunction.

For the treatment of animals with ovarian dysfunction, preparations of gonadotropic hormones (FFA, purified gonadotropins FFA (folligon, follimag, sergon), CG, FSH, LH, etc.), prostaglandins F-2 alpha (estuphalan, estrophan, remofan, magestrophan, etc.) and gonadoliberins (surfagon, dirigestran, fertagil) are used. In certain cases, neurotropic drugs (proserin, carbacholine, metrostim, heterotone) and preparations of ovarian hormones (progesterone, synestrol), as well as UHF or laser therapy are also used, which normalize the endocrine and generative functions of the ovaries, increase the contractile function of the uterus, activate proliferative-secretory processes in it and ensure the restoration of female fertility.

With ovarian hypofunction, manifested by delayed ovulation or anovulation, cows on the day of manifestation of the phenomena of the arousal stage of the

sexual cycle (before artificial insemination) are intramuscularly injected with surfagon once in a dose of 10-15 mcg or fertagil 2 ml.

When anovulationis accompanied by luteinization of the non-ovulated follicle, which is determined in the ovary during rectal examination on day 6-8 in the form of a cavity formation with tight fluctuation, one of the prostaglandin F-2alfa preparations is administered once intramuscularly to the cow, on day 2 – follimag (or folligon) at a dose of 2 IU/kg of body weight (on average, 1000 IU per day). animal) and at the manifestation of the arousal stage – during insemination) - surfagon in a dose of 2-3 ml or fertagil in a dose of 1 ml.

To prevent this ovarian pathology, cows that repeatedly exhibit sexual cyclicity are injected intramuscularly 2-3 days before the expected onset of the next stage of arousal (18-19 days after the previous sexual cycle and insemination) with one of the HFA preparations (follimag, folligon, sergon) at a dose of 1000 IU, and when the arousal stage is manifested and insemination – surfagon at a dose of 10-15 mcg.

Treatment of cows with ovarian hypofunction accompanied by anaphrodisia iscarried out in a comprehensive manner. Against the background of general improvement in feeding, providing active exercise, animals are intramuscularly injected with 10 ml of trivitamin or 10 ml of trivitamin with the addition of 1.5 ml of the second fraction of ASD and rectal massage of the genitals is performed daily or every other day for 2-3 minutes. Animals that have shown the arousal stage of the sexual cycle are inseminated, and those that have not shown the arousal stage are injected with HFA (follimag, folligon) for 7 daysat a dose of 2-3 IU/kg (an average of 1500 IU per animal). In all cases, when inseminating cows, surfagon is administered at a dose of 20-25 mcg or fertagil at a dose of 2 ml.

To obtain an optimal response of the sex glands to the administered gonadotropins, it is desirable to take into account the spontaneous cyclical functional activity of the adenohypophysis and gonads that persists in animals with this pathology in order to achieve synergy in the biological action of exogenous and endogenous gonadotropins. In this regard, the optimal time for the introduction of gonadotropic drugs in cows should be considered the following days after delivery: 45-47, 51-53, 59-61, 66-68, 7274, 80-82, 87-89, 93-95, 101-103, 108-110, 114-116, 122-124, 129-131, 135-137, 143-145, 150-152, 156-158, 164-166, 171-173, 177-179, 185-187.

If ovarian hypofunction is accompanied by atony or hypotension of the uterus, then during insemination cows are additionally intramuscularly injected with uterotone in a dose of 5 ml.

In case of ovarian hypofunction, accompanied by prolonged depression of the gonads and anaphrodisia (which is very often observed in highly productive cows, especially calfcows), gonadotropic drugs are prescribed against the background of preliminary triple injections with an interval of 48 hours of progesterone oil solution at a dose of 100 mg.

As an additional therapeutic tool, you can use UHF therapy, laser therapy, acupuncture, vibromassage.

In case of ovarian hypofunction, manifested by hypoplasia and insufficient function of the corpus luteum, cows on the day of manifestation of the stage of excitation of the sexual cycle and insemination are injected once intramuscularly with HFA (follimag, folligon) at a dose of 2 IU/kg of body weight (1000 IU per animal).

Task 4: to study the tactics of therapeutic measures for cysts and persistence of ovarian yellow bodies.

For the treatment of cows with follicular ovarian cysts, three schemes are used. According to one of them, treatment is carried out by a single intravenous injection of chorionic gonadotropin (HCG, chorulon) in a dose of 3-4 thousand IU. Animals that do not show the stage of sexual cycle arousal on days 10-11 are injected with one of the prostaglandin F-2 alpha preparations (magestrofan, estrofan) in a dose of 2 ml. When hunting occurs, animals are inseminated.

According to the second scheme, gonadotropin releasinghormone (surfagon) is used for treatment, which is injected 10-15 micrograms three times with an interval of 24 hours.10-11 days after the last нъекцииinjection of сурфагонasurfagon, 2 ml of magestrophan or estrophan is administered. When the stage of arousal of the sexual cycle is manifested, the animal is inseminated.

In the third treatment regimen, cows are parenterally administered 50-75 mg daily for 7-8 days or 100 mg of progesterone every other day with simultaneous oral administration of 50-75 mg of potassium iodide, and after two orthree days gonadotropin FFA (follimag, folligon) is once injected at a dose of 3 IU/kg of body weight.

Ovarian puncture is performed mainly in cows, rarely in mares. After the usual preparation, the right hand inserted into the rectum grabs the ovary and pulls it up to the vagina, so that the wall of the ovary to be punctured is directed towards the vagina. The left hand is inserted into the vagina along with a bloodletting needle or a thin trocar. When the ovary can be well probed from the side of the vagina and rectum, a needle is pierced through the vaginal wall and the ovarian section pulled up to it. If the puncture is performed for diagnostic purposes or for the introduction of medicinal products, a long rubber tube connected to a syringe is put on the needle.

With transpelvial access, a puncture of the pelvic cavity wall is made at the intersection of two lines: one goes from the sacrum to the sciatic protuberance, and the other – from the root of the tail to the mucklock. With a hand inserted into the rectum, the ovary is brought by the convex wall of the cyst to the tip of the needle and a puncture is performed. After removing the contents of the cyst, an equal amount of medicinal solution is injected into its cavity.

Treatment of cows with luteal ovarian cysts is carried out by a single intramuscular injection of magestrophan or estrophan in a dose of 2-3 ml. The best effect is achieved with additional administration of follimag (folligon) in a dose of 1000 IU after 24 hours.

Infertile cows with persistent yellow bodies or with functioning yellow bodies of the sexual cycle are once administered one of the prostaglandin F-2 alpha preparations (magestrofan, estrofan) in a dose of 2 ml. To increase the

synchronicity of the manifestation of sexual cyclicity and оплодотворяемостиfertilization of animals after inseminationand 24 hours after the appointment of prostaglandin preparations, gonadotropin FFA (follimag, folligon) is injected once at a dose of 1000 IU.

When using hormonal and hormone-like biologically active drugs to normalize the sexual function of animals, the following requirements must be observed.

First, the drugs are prescribed to animals not lower than average fatness and preferably against the background of general normalization of metabolism by improving feeding and prescribing vitamin-mineral premixes. Secondly, the use of drugs should be preceded by a clinical and gynecological examination of animals with an accurate diagnosis of the functional state of the genitals. Third, the recommended treatment regimens should be fully met.

Control questions

1. How to diagnose ovarian hypofunction in cows?
2. What is the clinical picture observed with follicular ovarian cysts?
3. What is the clinical picture of luteal cysts?
4. At what interval are cows examined for suspected ovarian cysts?
5. What is yellow body persistence and how can I make a diagnosis for this disease?
6. What medications should be used for ovarian dysfunction?
7. What should be the tactics of treatment measures for ovarian hypofunction with delayed ovulation?
8. What should be the tactics of treatment measures for ovarian hypofunction with anaphrodisia?
9. What should be the tactics of treatment measures for hypofunction with ovarian hypoplasia?
10. How should an animal be treated for follicular ovarian cysts?
11. How is ovarian cysts punctured?
12. What should I do to treat an animal with a luteal cyst?
13. What should I do when treating an animal with persistent ovarian corpus luteum?

VETERINARY OBSTETRICS

LABORATORY ACTIVITY

Lab. 1-2. Preparation and disinfection of dishes and tools. Preparation of solutions, filters, swabs and gauze napkins.

The purpose of the lesson: to study the methods of processing dishes and tools; the rules for preparing various solutions, filters, swabs and gauze napkins used in artificial insemination.

Material and equipment: glass sticks, syringecatheters, sperm collectors, brushes, hand brushes, towel,soap, filter paper, 1 and 2-3% solutions of bicarbonate of soda, distilled water, vaseline, vaginal mirrors, cornzang, tweezers, scissors, instrument stands, sterilizer, drying cabinet, electric stove, alcohol burner, electric iron, autoclave, table salt, three-substituted five-water sodium citric трехзамещенный acid, 96% rectified ethyl alcohol, furatsilin, furazolidone, 30% perhydrol solution, potassiumtwo-chromium acid, concentrated sulfuric acid, measuring cylinders with a volume of 100, 500, and 1000 ml, alcohol meter, electric weights, glass flasks, tampons with a lapped lid, cotton wool.

Task 1:1) study the procedure for processing glassware, slides, coverslips, and metal tools;

2) process dishes and tools using existing equipment;

3) familiarize yourself with the rules for working with the autoclave, sterilizer, and drying cabinet.

The following methods of disinfection (sterilization) are used:

Thermal method:

a) steam under pressure (in an autoclave);

b) hot air or dry heat (drying cabinets, Pasteur oven);

c) the method of boiling (in a sterilizer);

g) flanking (flaming);

d) the method of serial sterilization (tindalization, pasteurization);

e) the method of ironing.

2. Chemical methods:

a) using 96% alcohol;

b) using 70% alcohol;

c) using furacillin 1: 5000, furazolidone 1:10000, 3% hydrogen peroxide solution and other neutralizing solutions;

g) with the use of antibiotics and sulfonamides.

3. Cold method:

a) using ultraviolet rays.

Autoclave sterilization – steam sterilization under pressure. Clean artificial vaginas are sterilized in an autoclave for 20 minutes under a pressure of 0.3-0.5 atm. , at a temperature of 105°C. Metal tools, utensils and materials are autoclaved for 30-45 minutes at a pressure of 1.5 atm.

Sterilization by boiling. During sterilization, a layer of cotton wool or gauze is placed on the bottom of the sterilizer, syringes, scalpels, flasks, cans, sperm collectors wrapped in a layer of cotton wool or gauze are placed on it. The syringe-catheter is disassembled before sterilization, the cylinder is wrapped with gauze and a plunger is attached to it.

The volume of water in the sterilizer should be 2/3 of the volume of the sterilizer, boil for 15-20 minutes. Remove the instruments from the sterilizer after cooling, and remove the remaining water with gauze napkins. After sterilization, syringes are wrapped in paper or napkin (sterile), bottles, dishes are closed with sterile caps, lids.

Metal tools should be placed in boiling water, otherwise they will quickly become covered with rust.

Dry heat sterilization. It is made in a drying cabinet at a temperature of 160-180°With or in the oven of a gas stove. Glass dishes are sterilized with dry heat, syringes are catheters in disassembled form, wrapped in paper, sperm collectors, glass dishes are closed with paper caps, lapped lids are removed from cans. The duration of sterilization is 45 minutes. Then the cabinet is turned off, allowed to cool down, if this is not done, cracks may appear on the glass dishes from a sharp temperature drop.

Sterilization by flambing (roasting). ФламбированиеFlambing is performed over a non-smoking flame immediately before using clean and dry vaginal mirrors, glass spermcollectors, glass sticks, scissors, tweezers, and instrument stands. Roasting is started at a distance of 15-20 cm, and then gradually brought closer to it and evenly processed from all sides. Alcohol decontamination is applicable for syringes, catheters, and sperm collectors. To do this, use 70% ethyl alcohol-rectified, which is then removed by 5-6-fold washing with 1% sodium bicarbonate solution, 2.9% sodium citrate solution or 0.9% sodium chloride solution. Tweezers, glass sticks, thermometers are disinfected with swabs soaked in 96% ethyl alcohol.

Ultraviolet radiation is used for disinfection of polyethylene gloves, pipettes and other instruments made of poly-ethylene. This type of sterilization is performed in special boxes equipped with bactericidal lamps. The duration of disinfection is 30-45 minutes.

Vaseline sterilization – for this purpose, a jar with a volume of 100-150 ml is filled with vaseline, loosely closed with a lid, put in a sterilizer on a layer of cotton wool or gauze. The water level should reach the level of vaseline in the jar.

Vaseline is sterilized by boiling for 30 minutes. After sterilization, vaseline is covered with a sterile lid. Vaseline is sterilized daily before receiving sperm.

Task 2:

1) study the procedure for preparing solutions, filters, swabs and gauze napkins;

2) prepare solutions, swabs, filters, gauze wipes using the available equipment.

Preparation of a 1% sodium bicarbonate solution. The required amount of chemically pure sodium bicarbonate (baking soda) is weighed at the rate of 1 g per 100 ml of water, the sample is poured into a sterile glass flask. Distilled water with a temperature of 40°C is poured into a flask to dissolve sodium bicarbonate. The solution should not be heated above 60°C, as it decomposes and becomes unusable.

Preparation of 0.9% sodium chloride solution is made at the rate of 0.9 g of table salt per 100 ml of water (distilled). Shelf life is not more than a day. It is used for washing dishes and instruments after their sterilization in boiling water, for removing alcohol residues, for moistening vaginal mirrors before insertion into the vagina. In the absence of distilled water, you can use drinking water, rain or snow, twice boiled and filtered water.

If there is sodium chloride in tablets of 0.9 g, then one tablet is taken per 100 ml.

Preparation of 2.9% sodium citric acid solution. For 100 ml of distilled water, take 2.9 g of three-substituted five-water sodium citric трехзамещенного acid. The solution is sterilized in a boiling water bath for 10 minutes, mainly used to assess the activity of sperm in stored sperm.

Preparation of 70% ethyl alcohol. To do this, add 27 ml of boiled distilled water to 73 ml of 96% rectified alcohol. Calculation of preparation is made according to the formula stored in a jar with a lapped lid and used for disinfection of syringes-catheters and spermcollectors, since 70% ethyl alcohol has better disinfecting qualities, due to deeper penetration. Preparation of furacilin and furazalidone solutions.

Furatsilin solution is prepared in 0.9% sodium chloride solution. To do this, 9 g of sodium chloride and 0.2 g of furacilin are dissolved in 1 liter of boiling water. Then the solution is cooled, filtered and stored in a darkened place in a dark glass dish. The term of use is within 2 days. It is used for washing prepuce from producers, decontamination of artificial vaginas after receiving sperm, as well as hands before and after insemination, and treatment of external genitalia in cows and sows before insemination.

Раствор Furazolidone solution is prepared at the rate of 0.1 g of furazolidone per 1 liter of 0.9% sodium chloride фуразолидонаsolution.

Preparation of a 3% solution of hydrogen peroxide. This solution is prepared from a 30% aqueous solution of perhydrol. For 90 ml of boiled water, take 10 ml of perhydrol or dissolve 6 tablets (1.5 g each) of hydroperite in 100 ml of water; a 3% solution is used to treat the prepuce cavity from manufacturers once every ten days.

Preparation of the chrome mixture. In 1 liter of distilled water, dissolve 6 g of potassium dichromate, and then carefully 100 ml of strong sulfuric acid. In the chrome mixture, dishes heavily contaminated with semen or yolk are kept for 24 hours, then the dishes are rinsed and dried.

Preparing filters. Filters are prepared from clean, sterile filter paper. When filtering, do not allow the liquid to overflow above the filter edges.

Preparation of cotton swabs. Tampons are prepared from thin layers of hygroscopic cotton wool, their edges are turned up to make circles. Sterilize them in a drying cabinet at a temperature of 130° C for 1.5 hours. Dry swabs are used to remove the remnants of solution, petroleum jelly, alcohol from devices and tools. Tampons can be soaked with 96% ethyl alcohol, then they are squeezed out and put in tampon jarстампонницы, then closed with lapped lids. Alcohol swabs are used for disinfection of hands, artificial vaginas, spermcollectors, syringes, catheters, vaginal mirrors, tweezers, thermometers, instrument stands.

Preparation of gauze napkins. Napkins are prepared in the following size 20×30, 30×30, 40×40 see Disinfect them by ironing with a hot iron. It is used for removing water droplets from instruments and instruments, for wiping slides and coverslips and optics.

Control questions

1. How to properly process new glassware?
2. What is the procedure for washing used glassware?
3. What kind of solution is used when processing metal tools?
4. How can I sterilize dressing gowns, towels, and gauze wipes?
5. Why is the cylinder of a syringe-catheter wrapped with gauze or cotton wool before boiling?
6. Is it possible to change the pistons of the catheter syringes among themselves?
7. What flame source can фламбированиебе used for flambing?
8. What is sterile vaseline used for?
9. Why do you need to dissolve sodium bicarbonate in boiled water?
distilled water with a temperature of 40 ° C?
10. Can a 0.9% sodium chloride solution be heated for more than 60 ° C?
11. What is the shelf life of 2.9% sodium citric acid solution?
12. For preparation, what kind of solution can I use drinking water?
and rainwater?
13. What is the calculation formula for making 70% alcohol?
14. What solution is used to prepare a solution of furacilin and furazolidone?
15. How many grams do you need to take furazolidoneto cook
1 liter of solution?
16. What dishes should be kept in the chrome mixture for 24 hours?
17. How to make a filter correctly?
18. For what purposes is a 3% solution of hydrogen peroxide used?

Lab-3. Macroscopic evaluation of sperm.

Freshly obtained semen is always evaluated first by external signs, and then its quality is determined by other special research methods. Evaluation of semen by external signs, sometimes called sanitary (macroscopic or ocular), allows us to judge the quality of this ejaculate and the feasibility of its further study.

Working procedure

Freshly obtained semen is evaluated by the following external characteristics: a) volume of ejaculate, b) color, c) smell, d) consistency.

The volume of ejaculate is determined by the divisions on the sperm receiver. If the sperm receiver is not graduated, then to determine the volume, the ejaculate is poured into a graduated cylinder or beaker, preheated to 25-50°, freshly obtained sperm is very sensitive to temperature fluctuations, and therefore sharp cooling is not allowed.

The volume of bull and ram ejaculate can be determined using a warm, sterile pipette or syringe.

To determine the volume of the stallion's ejaculate, the resulting sperm is filtered through a sterile gauze cloth folded twice or four times from the sperm collector into a warm beaker and covered with a glass lid or Petri dish. The gauze usually contains a thick, viscous secret of the vesicular glands, the volume of which is taken into account separately. Since this secret reduces the viability of sperm during storage, makes it difficult to work with sperm and is not needed at all during artificial insemination, it is discarded. Napkins can be washed in a soda solution and ironed, then reused.

Similarly, the volume of boar ejaculate is determined. If sperm from a boar is received in a sperm receiver with divisions, then the volume is set according to the counts on the scale. Especially convenient in this regard are sperm collectors made of transparent plastic. If the sperm receiver was not filtered, the sperm is filtered through gauze into a beaker with divisions; if with a filter, the sperm is not filtered, but left in the sperm receiver, covering only the cap tube with a gauze cloth. The mucus remaining on the filter protects the sperm in the glass of the sperm receiver from the penetration of microbes into it (A.V. Kvasnitsky). Sperm for research or insemination of sows is poured through a thin tube-the nozzle of a glass.

In male farm animals, the volume of ejaculate varies significantly in size. In animals with the vaginal type of natural insemination (sheep, bull, goat), the volume of ejaculate is small and measured in milliliters. In animals with the uterine type of natural insemination (stallion, boar), the volume of ejaculate is large and measured in tens and hundreds of milliliters. The volume of ejaculate depends on the degree of dilution of the thick mass of sperm with the secretions of the adnexal sex glands.

In breeders of the same animal species and even in the same male, the volume of ejaculate is subject to fluctuations (Table) related to the conditions of feeding, care,maintenance and sexual use.

In practice, there are disorders of the ejaculation reflex with a sharp decrease in the volume of ejaculate. They can be regarded as a symptom of violation of

sexual activity of producers. There are two types of violation of the dynamics of ejaculate release: oligospermatism and aspermatism.

Oligospermatism (Ozm)— the release of too little sperm, significantly less than the minimum volume of ejaculate. This phenomenon often indicates not only violations of the dynamics of the ejaculation reflex, but also serious errors in the feeding, maintenance or operation of the manufacturer.

Ejaculate volume of male farm animals

Manufacturer	Ejaculate volume (in ml)		
	minimum	average	maximum
Sheep	0,6	1-1. 5	3-4
Bull	2	4-6	10-15
Stallion	40-50	60-80	200-300
Boar	150	250-400	600-1000
Rabbit	-	0,5-4	-
Male	-	10-40	-
The cat	-	0,2-0,5	-
The rooster	-	0,2-0,5	-

Aspermatism (Asm)- lack of sperm (with damage to the genitals, overgrowth of the vas deferens, etc.) or due to reflex delay in ejaculation (with pain in the extremities, pelvis, lower back).

In some producers with increased nervous excitability, with a good appearance of other sexual reflexes, ejaculation sometimes does not occur due to spasmodic contraction of the excretory ducts of the genitals (A. P. Studentsov).

The color of sperm is characteristic of the producers of each type of farm animals. It depends mainly on the saturation of sperm with sperm.

Normally, the sperm of a ram is white with a yellowish tinge; the sperm of a bull is white, sometimes yellowish; the sperm of a stallion is grayish-white (similar to the color of milk diluted with water); the sperm of a boar is similar in color to the sperm of a stallion.

A change in the normal color of semen indicates the presence of impurities in it that reduce its quality. If the sperm has a pink or reddish color (an admixture of blood), then this indicates the presence of a fresh injury to the male's genitals (with an injury of long-standing origin, the color of the sperm will be brown-red).

Sometimes in men during an erection, small capillaries of the urethral canal may rupture, and in these cases the sperm is colored dark red by fresh blood.

The greenish color of semen indicates the presence of pus in it. Flakes in semen occur when the vesicoid glands are inflamed. Intense yellow color of semen occurs when urine enters it.

The smell of cum**.** Normally, normal semen does not have a special, specific smell, only in a bull it sometimes has the smell of fresh milk, and in a ram it has

the smell of fat. The presence of an uncharacteristic sperm smell (putrid) indicates some pathological process in the male genitalia.

The consistency of semen. Normally, the semen of a sheep has a creamy consistency; ox — creamy; stallion—watery, often with an admixture of mucus; boar — watery, with gelatinous-sticky grains (the secret of Cooper's glands).

If the external signs of ejaculate are characterized by significant deviations from normal indicators, then such sperm is not used. A producer who releases abnormal sperm should be thoroughly clinically investigated and given appropriate treatment or a special regime for its maintenance and use.

Lab-4. Microscopic assessment of sperm quality

Microscopic examination primarily determines the density and motility (activity) of sperm. According to the density of sperm, its saturation with sperm is approximately determined, referring to thick (G), medium (C) or rare (P). In bulls, the G score is set if the entire field of view of the microscope is filled with sperm and the length of one sperm does not fit in the space between them. Average sperm is considered when there are well-defined gaps between the sperms, approximately equal to the length of the sperms. In rare sperm, the distance between the sperms exceeds their length.

It is more difficult to determine the sperm density of producers with the uterine type of insemination, since their secrets of the adnexal glands dilute the sperm very much. In all animal species, the density assessment does not allow us to accurately determine the sperm saturation, so with the transition to the use of diluted sperm, the sperm concentration is determined when evaluating the ejaculate.

Semen from bulls, boars and stallions with a rating of G and C is allowed for use, while in rams — only G.

Sperm motility is evaluated using a 10 -point system. Each score is equal to 10 % of sperm that have translational motion. If the sperm have a ring movement (in a circle) or only fluctuate, the quality of sperm is evaluated by the letter K (oscillatory movement). Sperm with immobile sperms is designated by the letter H (necrospermia).

The motility of undiluted bull semen is determined at a temperature of 40 °C. A drop of semen and 2-4 drops of a 3% sodium citrate solution are applied to a warm slide, mixed, covered with a cover glass, and at least three fields of view are viewed. Since the evaluation of sperm motility is quite subjective, the number of live and dead sperm can be determined for control if necessary.

When evaluating sperm for sperm density and motility, a complex designation is used that allows you to conveniently reflect its quality. For example, R10 points means that the test sperm is thick and 100 % миевof the sperms have a straight head movement;9 R9 points means 90%, 8 — 80, G7-70% of mobile sperms, etc.

The concentration of semen e b (the amount in 1 ml of ejaculate) is most accurately determined in the counting chamber of Goryaev or another author (see

the Workshop on Obstetrics). This is one of the main indicators of sperm quality, нawhich is used when diluting ejaculate.

To determine the sperm concentration, G. V. Parshutin and E. V. Rumyantseva designed special standards. They are sealed test tubes containing a liquid that has a color corresponding to a certain known concentration of sperm. To determine the concentration, the test sperm is poured into a test tube with the diameter of standard test tubes, standard test tubes are installed next to it and the most suitable standard is selected, which indicates the number of sperm in 1 ml of sperm.

Currently, artificial insemination stations use the photo-electrocolorimetric method, which is based not on direct sperm counting, but on taking into account the degree of optical density of sperm, i.e. turbidity. This method allows you to quickly (2-3 minutes) determine the concentration of sperm in the sperm, but since the photoelectrocolorimeter is designed to analyze true solutions, and the sperm is a suspension and it contains a larger or smaller number of epithelial and other cells, the result can often be inaccurate.

To obtain more accurate results, M. P. Ryazansky developed a direct method for calculating the number of sperm in semen on a high — speed (in 37-40 seconds) automatic cell counter-cellos kop. For this purpose, you can also use the Hungarian device "Picoskel".

Determination of the number of dead sperms. V. A. Morozov suggested using dyes that color only dead sperms and with oscillatory movements. The easiest way to color bull semen is as follows. The test sperm should have a sperm concentration of 0.2-0.4 billion/ml, with a higher concentration, the ejaculate is diluted with a 3% solution of sodium citrate to the specified indicator. Prepare a 1-5% solution of water-soluble eosin in a 3% solution of sodium citric acid. A drop of semen is applied to a clean, low-fat, warm (35 ± 2 °C) slide, 2-3 drops of paint heated to 30 °C are added, 2-4 c are mixed, and three thin smears are made, which are dried. In each preparation, 100-150 sperm are counted, taking into account the number of colored and unpainted heads separately.

Determination of the content of pathological forms of sperm and sperm inclusions in bulls is carried out in smears stained with azureosin or other dyes, where 100-200 sperm and various inclusions are counted. Among normal sperms, there is always a more or less significant number of pathological forms. More often, abnormalities are detected in the tail of the sperm, the base of the head and neck. With age, by the time of physiological maturity of the producer, the number of abnormal sperm decreases. There can be a variety of pathological forms of sperm: giant or dwarf, sperm with two-headed heads, but a common tail, with two tails, with a shortened tail, its deformity or absence, with a cytoplasmic droplet, too large or small head, and other forms. Sometimes there are sperms that are devoid of a head, but are able to move

A large number of abnormal sperms indicates a violation of spermiogenesis, a harmful effect of pathologically altered secretions of the adnexal sex glands and urinary tract, or, finally, indicates a violation of the rules for obtaining sperm and storing it in the external environment from isolation to research.

Specific causes of the formation of deformed sperm forms include: poorly developed testicles; lesions of the testis and appendage (giant and dwarf sperm); long intervals between coitus, which cause aging and disintegration of sperm in the appendage (separate heads, isolated tails); sexual exhaustion of the producer due to a large sexual load or insufficient feeding (sperm with cytoplasmic droplets in the area of the neck, body and tail-immature sperm). The closer the droplet is to the head, the younger the sperm.

Great importance in the formation of pathological forms of sperm is attached to the violation of the thermoregulatory function of the scrotum.

Twisting of sperm tails to the side occurs when mixing sperm with a hypotonic solution (improper preparation of diluents, water ingress).

Microscopic examination of semen reveals the following inclusions: squamous, transitional epithelial cells, seminal tubule cells (granular); shaped blood elements — red blood cells and white blood cells; hyaline balls, round or oval, sometimes layered and resembling starch grains; amyloid bodies, strongly shiny-лецитинolecithin grains, spermin crystals, etc. If there are few impurities in the sperm, this is considered normal. If there are a lot of impurities, it is necessary to identify their source and cause.

A significant number of abnormal sperms should definitely be regarded as a sign of impotence.

The dehydrogenase activity of bull semen is determined by the rate of methylene blue discoloration in capillaries or in test tubes (N. P. Shergin's methodгина). The first option has become more widespread in practice. A drop of semen is applied to a slide heated to 30-37 °Cand a dropof 0.01% methylene blue solution heated to 30 °C is added with a warm pipette. Drops are thoroughly mixed and the mixture is collected in a warm (30-37 °C) glass tube 5-6 cm long with an internal diameter of 0.8-1 mm, so that the height of the column is 2-3 cm.

place horizontally on a sheet of white paper in a thermostat with a temperature of 37 ± 0.5 °C. Record the time of the beginning of the study and the end of the discoloration of methylene blue. Дегидрогеназ нуюSperm dehydrogenase activity (Da) in conventional units is calculated by the formula

Yes = Ps/S/ 10,

where Ps — sperm motility, points; /- interms of methylene blue discoloration in the experiment, min; C — sperm concentration, billion/ml; 10 — constant coefficient.

All semen tests are performed in strict compliance with the current standards and instructions for artificial insemination of farm animals.

As a result of the study, the following shortcomings can be identified:

Aspermatism (Asm) — lack of sperm.

oligospermatism (Ozm) — a small volume of ejaculate.

aspermia (A) — the absence of sperm in the semen.

oligospermia (O) — insufficient number of sperm in the ejaculate;

Necrospermia (H) — dead sperm cells.

teratospermia (T) — pathological sperms, etc.

Biological semen sample. Determining the fertilization capacity of sperm cells is crucial for sperm evaluation. It is established that it can be detected only in relation to a certain group of females that are under specific conditions of existence and time of insemination. Fertilization depends on the degree of kinship between the female and the producer, their state of health, fatness, quality of feeding, etc. Therefore, to determine the fertilizing ability of sperm, it is best to use healthy repair heifers. A properly conducted biological semen sample from healthy animals is the most reliable criterion for its evaluation. All other methods are only indirect, i.e. they allow only a conditional assessment of the fertilizing ability of sperm. Sperm is considered normal if оплодотворяемостьthe fertilization rate from the first insemination is at least 70-75 %. Bulls with reduced fertilizing capacity of sperm give short-lived offspring, and they can not be used either for artificial or natural insemination. On the basis of accounting for the results of these inseminations, an individual load is established.

Lab-5. Microscopic assessment of sperm quality. (Determination of sperm concentration using a concentration photoelectrocolorimeter (CFC) and optical standards).

The purpose of the lesson: to study the method of working with a concentration photoelectrocolorimeter (CFC). Master the method of constructing a calibration curve and determining the sperm concentration.

Material and equipment: CPK device, three cuvettes with a distance between the working faces of 5 mm, clean dry penicillin vials, пипеткиgraduated pipettes for 0.1 ml or 0.2 ml, pipette for 5 ml, 3.5% sodium citrate solution, 0.5 l vessel with distilled water, Goryaev counting chamber, red blood cell mixers (melangers) эритроцитарныеand white blood cells, coverslips, 96% ethyl alcohol, ether, 3% sodium chloride solution, rubber pear, gauze wipes, alcohol swabs, freshly obtained semen.

Task 1: 1) get acquainted with the work of CKF and the methodology for determining the concentration of sperm;

2) construct a calibration line.

A photoelectrocolorimeter is a device based on photocells that convert the light flux passing through a cell with a sample of diluted sperm into electrical energy (caesium and selenium photocells).

The device must be switched on 20 minutes before the start of the study to highlight the full light spectrum. You should also open the cuvette compartment, install the filter handle on the red filter.

A concentration photoelectrocolorimeter – CFC) is a device that measures the color intensity or, more precisely, the degree of optical density of solutions.

The essence of the method for determining the concentration of sperm using this device is that a beam of light of a certain wave passed through a cell with diluted sperm, falling on selenium photocells, is converted into electrical energy that deflects the arrow of the galvanometer, which reflects the divisions of the

optical density scale and the light transmission coefficient. The deviation of the arrow directly depends on the magnitude of the electric current passing through the galvanometer, which is inversely proportional to the turbidity of the sperm.

Using this device, the sperm concentration in the semen can be calculated fairly accurately and quickly (1-2 minutes), whereas using the Goryaev counting chamber, it takes 10-25 minutes to count. Preliminary setup of the device consists in setting the arrow of the device to zero when a beam of light passes through the diluent cuvette, which makes this solution optically transparent for the device and the slightest presence of sperm in the sample will change the optical density.

To determine the sperm concentration using CPK, it is necessary, first of all, to construct a calibration (calibration) curve depicting the dependence of the optical density on the sperm concentration. To build a calibration curve from freshly taken ejaculates, select several such ones in which the sperm concentration is high.

From selected ejaculates by diluting them with a 3.0% solution of sodium citric acid 1:10, 1:20, 1:30, 1:40, 1:60, 1:80, 1:100, 1:120, 1: 140, 1:160, 1:180, 1:200, 1:220, 1:240, 1:260 (total 15-20 dilutions) prepare a number of sperm samples and specify the sperm concentration in each of them according to the Goryaev counting chamber method.

Then, the optical density of each sample is determined using CPK. Knowing the actual sperm concentration set in the counting chamber, we construct a calibration curve. To do this, put the following items on millimeter paper:

on the horizontal axis – known concentrations, on the vertical-corresponding values of optical density.

Put a dot at the intersection of values. The calibration curve is drawn so that it passes through most of the specified points, and the number of points lying above and below the drawn curve is approximately the same.

Having a calibration curve (Figure 8), it is easy to determine the unknown sperm concentration of any ejaculate. To do this, it is necessary to determine its optical density on the device, and determine what concentration value it corresponds to according to the calibration curve. At the same time, it is necessary to strictly observe all the research conditions under which the calibration curve is derived.

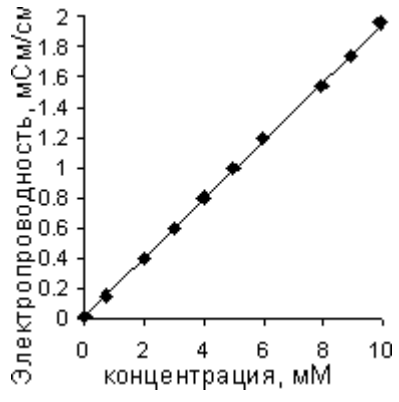


Figure 8. Calibration curve for determining sperm concentration with a photoelectrocolorimeter.

It is necessary to use cuvettes of the same working face, a red light filter. The calibration curve should be calibrated monthly (updated), as the accuracy of the device changes (photocells lose sensitivity). For the convenience of determining the sperm concentration, you can use tables and multiplier coefficients that can be easily derived from the calibration curve.

To getthe coefficient multiplier, you need to divide the arithmetic mean concentration of 15-20 semen samples by the corresponding arithmetic mean value of the optical density.

Having a multiplier factor and knowing the value of the optical density of the ejaculate, you can very easily determine the concentration of sperm, multiply the first value by the second.

Usually, the multiplier factor is close to two if the conditions for CPK for bull semen are met, although it varies for each device.

In terms of accuracy, this method is not inferior to the method of counting in the Goryaev chamber, the error value is ±6%. The method of photoelectrocolometry is quite simple in the method of execution. The high sensitivity of the device requires exceptional accuracy.

The course of work is as follows:

1) connect the device to the network 20 minutes before the start of operation, open the cuvette compartment, adjust the "rough" and "accurate"knobs

set it to the far left position.

2) install a red light filter;

3) in the cuvette compartment, install cuvettes with citrate and a cuvette with seed diluted with 3.5% sodium citrate solution in dilution: for bull-1: 200, ram-1: 400, boar

and the stallion – 1: 30.

4) close the cuvette compartment;

5) switch the handle of the cuvette compartment to the cuvette with sodium citrate;

6) set the galvanometer reading on the optical density scale to "0" with the "rough" and "accurate" adjustment knobs;

7) switch the handle of the cuvette compartment to the cuvette with the seed;

8) the result is read from the optical density scale;

9) determine the sperm concentration from the calibration curve.

Errors in research can be caused by: dirty cuvettes and objects that have contact with semen, inaccuracy in diluting sperm before the study, all kinds of mechanical impurities in 3.5% sodium citric acid solution (unfiltered), contamination of the instrument optics, untimely examination of sperm samples. Therefore, the sperm cells should be rinsed with distilled water at least 3 times after each test. Remove any remaining water with filter paper. To study the next sample, take another cuvette with the same working face. Take the cuvettes only by the side faces, so as not to pollute the working surfaces. Indelible dirt is removed with a mixture of ether and alcohol. To do this, use gauze swabs on a wooden stick.

Task 2: familiarize yourself with the procedure for determining sperm concentration using optical standards.

Determination of sperm concentration in bull and stallion.

For the semen of a bull or stallion, optical standards will be required, which are a set of glass ampoules with a liquid that simulates sperm of varying degrees of turbidity. Each ampoule has a label indicating the concentration.

Method of determination. Take an empty test tube of the same diameter and wall thickness, pour 1 ml of saline solution and add 0.2 ml of freshly extracted bull semen (1: 5), shake and select in passing light an ampoule with a liquid suitable for turbidity, on which the concentration is indicated.

When determining the concentration of stallion sperm, the sperm is poured into a test tube without dilution, since it has a low concentration, and then it is also used as in bulls.

Determination of sperm concentration in boar. In 1974, an optical standard was issued for determining the concentration of boar sperm (author Serdyuk S. I.), which includes: 2 ampoules with a sperm concentration of 5 million in 1 ml, empty test tubes with the same wall thickness and the same diameter-8 pcs., a micropipette for 0.1 ml – 1 pc., instructions.

Method of determination. In an empty test tube, pour 1 ml of 1% sodium chloride solution, add 0.1 ml of the test sperm, shake and look at the font in comparison with the standard.

If the font is not visible, add another 1 ml of the solution, then another 0.5 ml, and so on, until the font is viewed equally.

Determine the concentration by the formula K = 50 (N + 0.1), where K is the concentration, million/ml;

N – the amount of added 1% sodium chloride solution in milliliters (ml);

50 – coefficient.

Example: to equalize the optical density to the standard, only 4.5 ml of a 1% solution was added to the test sperm

table salt (taking into account the solution previously poured into an empty container).

test tube)

To = 50 × (4,5 + 0,1) = 50 × 4,6 = 230 million/ml.

Consequently, 1 ml of the whole sperm under study contains 230 million sperm cells.

Control questions

1. Why is it necessary to turn on the photoelectric colorimeter 20 minutes before starting work?
2. The degree of sperm dilution when working with CKD.
3. What indicator will we get based on the results of our work at the CFC?
4. With what working face is the cuvette used when working with CFC?
5. The concept of standards.
6. Requirements for light filters and cuvettes.
7. In which cuvette holder should the seed cuvette be placed?
8. How many times is it necessary to dilute the stallion's sperm when determining the concentration using standards?
9. Method for determining the concentration using bull and stallion semen standards.
10. Determination of the sperm concentration of boars by the method of S. I. Serdyuk.

11. How to determine the optical density of sperm?
12. How do I build a calibration curve?
13. What should be the configuration calibration curve?
14. Why is it necessary to strictly follow the method of determining optical density?
15. How to determine the multiplier factor?
16. What is the accuracy of CKD concentration determination?
17. What errors are possible when working with the CFC?
18. How to work with cuvettes correctly?
19. How should cuvettes be washed?

Lab - 6. Sperm resistance, respiration rate, methods of sperm storage and transportation.

The purpose of the lesson: to study the resistance and reducing ability of sperm, and ways to store it.

Materials and equipment: animal semen of various types, flasks, measuring cylinders, microscopes with heating tables, slide and cover glasses, tweezers, glass sticks, filter paper, heating devices or water baths, distilled water, sperm storage equipment, liquid nitrogen for freezing sperm.

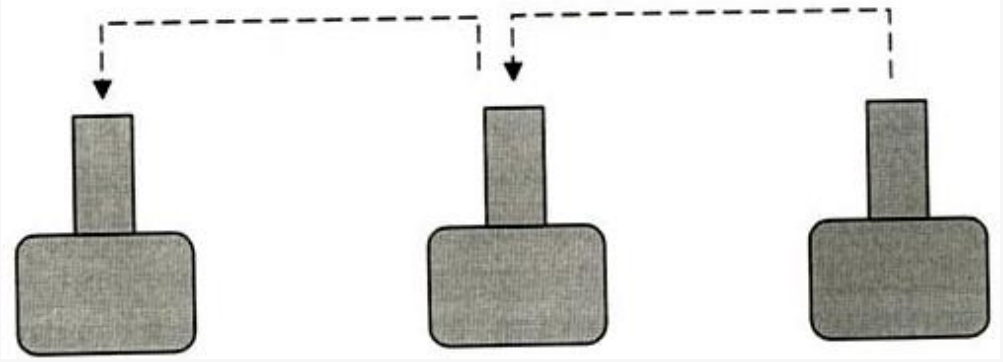
Task 1: determine the resistance and reducing ability of sperm.

Resistance – the resistance of sperm to the action of 1% sodium chloride solution with increasing degrees of dilution of sperm. In the plasma of sperm, there are substances that prevent the penetration of chlorine ions into the protoplasm. The more of them, the better and longer the sperm will be stored in a 1% sodium chloride solution, as well as in the external environment.

The Korotkov method for determining sperm resistance is based on identifying the degree of dilution of sperm, which stops their rectilinear translational movement. To determine the resistance by this method, the sperm of a bull and a ram is immediately diluted 500 times, that is, 0.01 ml of fresh seed is added to 5 ml of 1% sodium chloride solution. All this is done in the third bottle, the contents of the bottle are shaken, the preparation is prepared (without a cover glass), microscopy is performed.

If the spermatozoa have a rectilinear translational motion, dilution is continued (Fig. 9). 0.5 ml of the mixture is taken from bottle III and transferred to the second bottle, which contains 0.5 ml of 1% sodium chloride solution, the dilution degree will be 1000 times. If the movement has not stopped, take 0.25 ml of the mixture from bottle II and transfer it to the first bottle, which contains 0.25 ml of 1% sodium chloride solution, the degree of dilution will be 2000 times.

0.25 ml mix 0.5 ml mix 0.01 ml fresh seed



0.25 ml 1% NaCl 0.5 ml 1% NaCl 5 ml 1% NaCl
(2000 times) I (1000 times) II (500 times) III

Sperm dilution scheme

If the movement has not stopped, add 0.5 ml of 1% sodium chloride solution to the first bottle, the dilution rate will be 4000 times. If the movement does not stop, add another 0.5 ml of 1% sodium chloride solution, the degree of dilution increases by 6000 times. And so on until the sperm stop rectilinear translational movement. Good semen should have the following dilution threshold depending on the animal species: bull-10000; ram-20000; boar-5000. It should be remembered that when determining resistance, the time factor also applies, all studies must be carried out within three minutes.

Task 2: determine the reducing capacity of sperm.

This method determines the intensity of the most important life process of bull and ram sperm – respiration.

Table

Evaluation of sperm quality by the time of methylene blue discoloration

Semen quality	Discoloration time Methylene blue discoloration time, min	
	bull	ram
Good	5-10	3-7
Average	11-30	7-12
Poor (unsuitable for artificial insemination)	More than 30	More than 30

The duration of discoloration of the methylene blue solution depends on the concentration of sperm and the intensity of their respiration.

The more intensively oxygen is absorbed, the sooner discoloration occurs, and the better the fertilizing ability of sperm. 1 drop of semen + 1 drop of blue is applied to the slide - mixed and collected in a glass tube with a column 2 cm long. The tube is placed on a sheet of white paper and the time of discoloration is observed (usually the middle discolors, and rings remain at the end). The study is carried out at a temperature of 20-22 ° C.The results are interpreted according to the table.

For determination°, a drop of sperm and a drop of methylene blue (30 C)are applied to a warm (30-37°C) slide. The drops are quickly mixed, and the mixture is collected in two warm glass capillaries with a length of at least 5-6 cm and a diameter of 0.8-1.0 mm. The length of the column in the tube should be approximately 2-3 cm. There should be no air bubbles in the mixture column. The capillaries are placed horizontally and placed in a thermostat (+ 37 ^{0}C) on white paper. Record the time (Table 3) during which the methylene blue solution is discolored.

The result is more objective if the dehydrogenase activity is also calculated, since this indicator takes into account both the motility of sperm and their concentration.

Активность Dehydrogenase activity in conventional units is obtained by the formula:

Yes = (Ps×t×S)/10, where:

Yes – dehydrogenaseactivity.

Ps – sperm motility in points.

t is the bleaching time of the methylene blue solution in minutes.

C is концентрацияthe sperm concentration (billion/ml).

Допустимая активность The permissible dehydrogenase activity should be in the semen of a bull within 16.8 cu, for a ram 9.6 cu, within 16.8 cu, for a ram 9.6 cu.

Task 3: Learn different ways to store sperm.

There are several methods of storing semen from bulls, rams, boars, and stallions: short-term storage at freezing temperatures and long-term storage in liquid nitrogen for semen from bulls and stallions.

Storage of bull and ram semen at plus 2-4°C. Diluted sperm is poured into vials (ampoules, test tubes, etc.) and kept at room temperature (18-25°C) for 20-30 minutes from the moment of dilution, and ram sperm-10-15 minutes. Then the sperm containers are placed in a household electric cooler or thermos with ice. To prevent the temperature shock of sperm, use thermal insulation devices (cotton wool, foam rubber, etc.) so that the sperm cools to 2-4°C for 3-4 hours. The thermos should contain at least 1/3 of the melting ice capacity. Vials of semen are sealed in plastic or rubber packages. The sperm package can be placed on the surface of the ice, or covered with ice on all sides. As the ice melts, melt water from the thermos is drained and ice is added. When preserving sperm in electric coolers, it is better to put vials not directly on the shelf, but place them in a container with water cooled to 2-4°C.

With any method of transportation, do not allow strong shaking and shaking of sperm, complete use of ice and damage to thermos flasks. Vessels with semen should be marked and attached with invoices (orders) with relevant information. Diluted bull semen stored at 2-4°Cis used for artificial insemination of cows and heifers for 3 days, with sperm activity not lower than 7 points, ram sperm is used for 2 days, sometimes 36 hours, with sperm activity not lower than 8 points.

Storage of stallion semen at a temperature of 2-4°C. Diluted sperm is packed in sterile glass jars with a volume of 50-100 ml, closed with lapped stoppers, placed

in a plastic bag and put in a thermos with ice. For storage and transportation of sperm, a thermos designed by the All-Russian Research Institute of Horse Breeding is used. Use semen to inseminate mares for 48 hours.

Storage of boar sperm at a temperature of 16-20°C. Semen is poured into glass flasks or polyethylene vials, they are not hermetically sealed with cellophane or parchment paper and stored in a dark place at a temperature of 16-20°C.

During transportation, the dishes are tightly closed. Sperm is used for insemination of sows for 3 days with sperm activity of at least 6 points.

Freezing and long-term storage of bull semen.

Artificial insemination plants and plants widely use the method of freezing and long-term storage of bull semen in liquid nitrogen at a temperature of -196°C. In this condition, sperm can be stored for many months or several years without losing its fertilizing ability. Use for freezing sperm with a sperm activity of less than 8 points.

Freezing of sperm in the form of pellets on fluoroplastic plates. Before dilution, the medium is heated to 30-35°C. This medium is used to dilute the sperm 2.10 times or more, depending on the volume of granules. If concentrated semen granules with a volume of 0.1-0.2 ml are used, then they require less dilution. At the point of artificial insemination, sperm granules of 0.1-0.2 ml are additionally diluted.

To do this, they are thawed before insemination of cows in a bottle with 1 ml of a 2.9% solution of sodium citric acid, heated to a temperature of 38-40°C. To freeze sperm in granules with a volume of 0.5-1.0 ml, the sperm is diluted 10 times or more. Such pellets do not require additional dilution before insemination of cows.

If the pellets are 0.5 ml in volume, then before insemination of cows, take two pellets, place them in a sterile bottle and immerse them in warm water (38-40°C).C) for defrosting.

For freezing, after dilution, the sperm is cooled to a temperature of 2-4°C for 4-5 hours, and then poured into wells (0.1-0.2 or 0.5 ml) of a fluoroplastic plate cooled in liquid nitrogen. The sperm plate is held above the surface

liquid nitrogen at a distance of 5-10 cm for 1.5-2 minutes, and then immerse it in liquid nitrogen for 1-2 minutes. After freezing the sperm, the plate is removed from the liquid nitrogen, and the sperm granules are collected in a net or container.

At artificial insemination sites, sperm pellets are stored in Dewar vessels. The nitrogen level in them should be significantly higher than containers with frozen sperm in pellets.

Before insemination, pellets are taken out chilled to -196°C with tweezers, thawed, sperm activity is evaluated and used for insemination of cows with sperm activity not lower than 4 points.

Freezing of sperm in lined pellets. According to this method of freezing, freshly obtained sperm is used, diluted with media No. 1 and 2. The prepared media are poured into sterile polyethylene containers of 200-400 ml, which are connected to a special device for diluting sperm.

After receiving the sperm, it is diluted with medium No. 1 in a ratio of 1:1 and kept at room temperature for 5-10 minutes.

Then dilute the sperm with medium No. 2 to the required concentration (15 million in dose). Dilution is carried out using a special device that allows dosed media to be introduced into the remote part of a disposable polyethylene sperm receiver with sperm. The sperm collector is connected to a thin polymer tube with a diameter of 3.8-4.0 mm, with a wall thickness of 120 microns, and diluted sperm is squeezed into it using a PRG machine for separate doses of 0.25-0.33 ml and sealed by thermal welding. Lined pellets are placed in aluminum containers, which are closed with stoppers. Containers are fixed in the clips of a special device for balancing and freezing sperm. This device is placed in a refrigerator to cool to 2-5°C. After 5-6 hours of exposure at this temperature, the holder of the device with containers is immersed in a container with liquid nitrogen for 8-10 minutes. Sperm activity after sperm freezing is checked after 24 hours. One granule is taken from each container and lowered into water at a temperature of 40°C for thawing. The granule is wiped with a gauze cloth, it is opened with scissors and the sperm activity is determined. For further storage, sperm with an activity of at least 4 points is allowed.

Freezing of sperm in straws (payettes). When freezing, use polypropylene tubes with a capacity of 0.25 ml. The sperm is diluted with lactose-fructose-raffinose-magnesium-glycerol-yolk medium (LFRMHJ) so that the straw (payette) contains at least 15 million motile sperm after thawing. Each straw is marked with the name of the company, the name and number of the bull, and the date of sperm collection. After dilution, the sperm is packaged in 0.25 ml.

For this purpose, a machine is used that automatically fills the straws with sperm and plugs them at both ends with sterile balls. One ball is used as acorkporshen, and the other seals the straw. Tripods with straws are placed in plastic boxes, which are placed for cooling in the refrigerator at a temperature of 4°C for 3-4 hours. After cooling, sperm motility is evaluated and sperm with a score of at least 8 points is allowed for freezing. Store it in liquid nitrogen at a temperature of -196°C. For insemination, sperm is used no earlier than 14-20 days after freezing. Thawed sperm can not be frozen again.

Checking the activity of frozen sperm. To check the activity of semen stored at a temperature of 2-4°C, open the thermos, remove the bottle from it, carefully mix the sperm in it (by rotating the bottle), take a drop of sperm for research, and quickly place the bottle with sperm in a thermos with ice. A drop of semen is applied to a slide and next to it a drop of 2.9% sodium citric acid solution, mixed, covered with a cover glass and examined under a microscope at a temperature of 38-40°C.

A drop of boar semen stored at a temperature of 16-20°Cis applied to a slide for evaluation, a drop of 2.9% sodium citric acid solution is added to it, covered with a cover glass and examined under a microscope at a temperature of 40-42°C 3-5 minutes after heating.

Frozen bull semen is evaluated after thawing. Frozen semen in granules (0.1-0.2 ml each) is placed in a warm (38-40°C) 2.9% sodium citric acid solution with a

volume of 1 ml, after which a drop is taken for evaluation. Semen is examined at a temperature of 38-40°C.

Granules of frozen semen with a volume of 0.5 ml are thawed in a bottle immersed in water at a temperature of 38-40°C and examined under a microscope, as indicated above.

To thaw sperm in lined pellets, they are extracted from liquid nitrogen with tweezers and placed in water at a temperature of 38-40°C.C for 5-10 seconds until a thin ice core appears. Sperm activity is evaluated under a microscope at a temperature of 38-40°C. To do this, open the granule, apply a drop of semen to the slide, add a solution of sodium citric acid to it and examine. Before insemination of animals, straws (payettes) with frozen sperm are thawed in a sterile plastic bag placed in warm water (38-40°C).C) within 12-14 seconds. To evaluate thawed sperm in payettes, it is mixed from one straw with an equal amount of 2.9% sodium citric acid. To do this, one end of the straw is cut off with scissors and lowered into the solution, and then the second end is cut off with the same scissors. The resulting mixture of semen and solution is mixed with a straw and a drop is taken for evaluation. For artificial insemination of cows and heifers, frozen sperm after thawing is allowed with an assessment of sperm activity of at least 4 points.

Freezing the stallion's sperm. Before freezing, the stallion's sperm is diluted 4 times with lacto-chelate-citrate-alkaline (LCCG) or lactose-yolk-sulfate (LVS) medium.

Composition of the HCG medium: lactose-11 g; egg yolk-0.8 g; 4.2% solution of bicarbonate of soda-0.2 ml; 35.7% solution of sodium citrate-0.25 mg; chelaton-100 mg; glycerin-3.5 ml; distilled water-100 ml Composition of the LVS medium: lactose-10 g; ammonia sulfate-150 egg yolk-1.6 g; glycerin-3.5 ml; distilled water 100 ml. After dilution, the sperm is cooled to 0°C and kept at this temperature for 2 hours. The cooled sperm is poured into aluminum bags of 13 ml, tightly closed. Bags of semen are frozen in a cooled gas over liquid nitrogen in a special device, after which they are transferred to a storage facility with liquid nitrogen. Thawing is performed by immersing an aluminum bag for 1-2 minutes in a water bath at a temperature of 38-40-°C. After that, they are wiped with sterile gauze, disinfected with 96% alcohol, cut off the edge of the bag with sterile scissors and take a drop of sperm with a glass stick, add a drop of 2.9% sodium citric acid solution to it and evaluate the sperm activity. The motility of sperm in thawed sperm should be at least 2 points.

Safety precautions when working with Dewar vessels. When working with liquid nitrogen, it is necessary to cover unprotected areas of the body, as it causes frostbite. You should wear safety glasses and wear tarpaulin or leather gloves on your hands.

An unprotected area of the body that has been exposed to liquid nitrogen is quickly doused with water. When filling an uncooled vessel with liquid nitrogen, do not look into the neck of the vessel, as this may cause liquid nitrogen to be released due to the formation of a large amount of gas.

Increased nitrogen concentrations in the air cause headaches, dizziness, and loss of consciousness. Therefore, the rooms where liquid nitrogen is stored are

equipped with supply and exhaust ventilation. In case of fainting, the victim is immediately taken out into the fresh air. Do not close the Dewar vessels tightly.

When transporting vessels with nitrogen, they should be well fixed. When transporting by road, the vessels are filled with half of the hydraulic tank. To avoid an explosion, the vessels are heated in an isolated room. To prevent the accumulation of an explosive mixture in the tank, the oxygen content should be monitored using a portable gas analyzer GCP-3 at points – 1 once every 6 months. After the accumulation of oxygen in the amount of 15%, the vessel must be emptied in a place cleared of organic objects: wood, paper, rags (especially oiled ones), manure, etc.

Thawing frozen seed The seed of the desired boar is removed from the Dewar vessel and placed in a foam cell filled with liquid nitrogen, and then thawed in small portions using special devices that allow you to quickly supply a large amount of heat without exceeding the temperature of the coolant beyond the physiologically permissible limits (+42°C). In addition, the devices allow you to separate the resulting liquid phase of melting from the solid, which accelerates heat transfer and prevents repeated cooling and heating of the liquid phase.

The devices are powered by standard ultrathermostatsequipped with sufficiently powerful pumps, for example: UTU-4, UT-2, ITZH-0-03, etc.

Before thawing the seed, set the temperature in the thermostat to +42°C and turn it on for heating. Before defrosting the seed pellets, turn on the ultrathermostat pump ультратермостатаand warm up the defroster for 1-2 minutes. Then, in small portions of 10-20 pellets, a special spoon is used to transfer the pellets from the cuvette with liquid nitrogen to the device. Thawed seeds are collected in a graduated vessel with a funnel. Collect thawed seed to a volume of 25-5 ml (1 dose). After thawing, the seed is evaluated according to the generally accepted method for mobility. Seeds containing at least 30% of rectilinearly moving viviparous seeds are suitable for use.

Thawed and suitable for insemination, the seed is diluted with an isotonic (2.9%) solution of sodium citric acid and used for insemination (if the survival rate is less than 4 hours, the seed is discarded).

Control questions

1. What methods are used to determine sperm resistance?
2. How is the reducing capacity of sperm determined?
3. How to freeze the sperm of a bull, ram, stallion, boar?
4. How is sperm frozen in pellets and fluoroplast plates?
5. Tell us the method of freezing sperm in lined pellets.
6. How to freeze sperm in straws (payettes)?
7. What methods determine the activity of frozen sperm
a bull, a stallion?
8. What are the safety rules for working with со? судами
Dewar?
9. Tell us the technique of thawing frozen sperm.

Lab-7. Laboratory methods for the diagnosis of pregnancy and infertility in animals

The purpose of the lesson: to study laboratory methods for diagnosing pregnancy in cows, mares, sheep, and pigs.

Materials and equipment: female farm animals at various stages of pregnancy; diagrams and models of the genitals of pregnant and infertile females; dressing gowns; aprons; armbands; rubber boots; disposable gloves; random iodine tincture; curved scissors; dezrasvor; soap; bucket; warm water; alcohol lamp; stethophonendoscopes; vaginal mirrors; insemination log the device "TUR-TD-20S"; a solution of copper sulfate with a density of 1.08; 10% sodium hydroxide solution, 1% barium chloride solution, slides and cover glasses.

Task 1: to study the classification of methods for diagnosing pregnancy and methods for determining pregnancy by laboratory methods.

Pregnancy diagnosis is an integral part of the overall reproduction process. Based on the data of pregnancy diagnostics, all documentation is maintained: the insemination and calving plan, the launch schedule for cows, a set of measures for infertility prevention is developed, stands for the effectiveness of artificial insemination and calendars of the inseminator technician at artificial insemination points are maintained.

All the methods used to diagnose pregnancy can be divided into 2 groups.

Group I-clinical (the study is conducted on the animal itself):

Group II-laboratory (biomaterials are studied in the laboratory):

1 subgroup – study of cervical secretions: a) by specific weight;

b) by boiling method;

c) by smear microscopy;

d) to change the physical and chemical properties of cervical-vaginal mucus;

2 subgroup – urinalysis.

3 subgroup – blood test (bioassay);

4 subgroup – biopsy.

5 subgroup-milk research.

Methods of laboratory diagnostics of pregnancy.

1) Examination of cervical secretions:

a) in terms of specific gravity, a piece of mucus taken from the initial part of the cervical canal should be immersed in a test tube with a solution of copper sulfate with a density of 1.08. If the piece sinks – the animal is pregnant;

b) boiling mucus in a 10% solution of sodium hydroxide, during pregnancy causes hydrolysis of mucus, which gives a yellow-brown coloring of the mixture;

c) by microscopy in a smear – нестельныха characteristic fern-like pattern will be visible from the cervical mucus of non-breeding cows;

d) changes in the physico-chemical properties ofvaginal and cervical mucus. A piece of mucus is lowered into a test tube with 3-5 ml of distilled water and heated for 1-2 minutes, the cervical-vaginal mucus of pregnant sows forms flakes and makes the water cloudy. The method is used from the 7th week of pregnancy, the accuracy is 9395%.

Methods of laboratory diagnosis of pregnancy by cervical mucus attract attention, since pregnancy can be diagnosed as early as 2 weeks after insemination of the animal. However, due to many factors, these methods are inaccurate.

2) The urine test is based on the fact that in pregnant animals, sulfur is released in the urine, in a bound form, with pregnancy hormones and does not interact with barium chloride, added to the urine in the form of a 1% solution (1-2 drops). In summer, the use of this method is impossible due to the fact that the hormone-like compounds present in green feeds get into the urine and confuse the whole picture of the study.

3) Blood test. There are several methods of blood tests to diagnose pregnancy:

a) Method F. Friedman. In isolation, 10 ml of the blood serum of the test female is injected into the ear vein of the rabbit.

36-48 hours after the injection, laparotomy is performed, if there are gonadotropins in the serum, then hemorrhages are recorded in the ovaries at the site of ruptured follicles, as well as follicles filled with blood. In mares in the period of 1.5-4 months of pregnancy, the accuracy of the method is 98%;

b) bioassay on mice. 10-15 ml of blood is taken from the animal from the jugular vein-and serum is obtained. Then 1 ml of serum is diluted in 15 ml of saline solution and injected into mice subcutaneously at 0.2 ml. After 76 hours, they are euthanized and opened. For comparison, five control mice are euthanized and dissected, and the state of the uterus is evaluated. In case of a negative reaction, the uterus in experimental mice is of normal size, the same asin control animals. In the case of a positive reaction, the uterus in mice increases by 2-7 or more times. Mares are considered pregnant when they get a positive reaction in 3 out of five mice.

c) by the content of the hormone sulfate-estrone in the blood. The concentration ofsulfate-estrone in the blood reaches a peak on the 20-30th day of gestation of sows, then a sharp decrease occurs.

In pregnant sows, the concentration of this hormone in the blood is 0.5 kg / ml. The accuracy of the diagnosis is more than 97% in the study on 25-30 days.

4) A biopsy. Perform a biopsy of the vaginal mucosa. In pregnant pigs, the epithelium forms 2-3 layers, and in infertile pigs, 5-25 layers. The study is carried out 30 days after insemination, the accuracy is 95.5%.

5) Milk research. This technique involves laboratory testing of cow's milk samples in order to determine progesterone concentrations by ELISA (enzyme immunoassay). In pregnant animals, there is an increase in the concentration of progesterone in the blood and milk. If the progesterone concentration in milk exceeds 7 ng/ ml, the animal is considered pregnant, from 4 to 7 ng/ml – doubtful, and below 4 ng/ml – non-pregnant.

Control questions

1. Explain the classification of ways to diagnose pregnancy.
2. Describe the methods of studying cervical secretions.

Lab-8. Laboratory methods for the diagnosis of pregnancy and infertility in animals

The purpose of the lesson: to study laboratory methods for diagnosing pregnancy in cows, mares, sheep, and pigs.

Materials and equipment: female farm animals at various stages of pregnancy; diagrams and models of the genitals of pregnant and infertile females; dressing gowns; aprons; armbands; rubber boots; disposable gloves; random iodine tincture; curved scissors; dezrasvor; soap; bucket; warm water; alcohol lamp; stethophonendoscopes; vaginal mirrors; insemination log the device "TUR-TD-20S"; a solution of copper sulfate with a density of 1.08; 10% sodium hydroxide solution, 1% barium chloride solution, slides and cover glasses.

Task 1: to study the classification of methods for diagnosing pregnancy and methods for determining pregnancy by laboratory methods.

Pregnancy diagnosis is an integral part of the overall reproduction process. Based on the data of pregnancy diagnostics, all documentation is maintained: the insemination and calving plan, the launch schedule for cows, a set of measures for infertility prevention is developed, stands for the effectiveness of artificial insemination and calendars of the inseminator technician at artificial insemination points are maintained.

All the methods used to diagnose pregnancy can be divided into 2 groups.

Group I-clinical (the study is conducted on the animal itself):

Group II-laboratory (biomaterials are studied in the laboratory):

1 subgroup – study of cervical secretions: a) by specific weight;

b) by boiling method;

c) by smear microscopy;

d) to change the physical and chemical properties of cervical-vaginal mucus;

2 subgroup – urinalysis.

3 subgroup – blood test (bioassay);

4 subgroup – biopsy.

5 subgroup-milk research.

Methods of laboratory diagnostics of pregnancy.

1) Examination of cervical secretions:

a) in terms of specific gravity, a piece of mucus taken from the initial part of the cervical canal should be immersed in a test tube with a solution of copper sulfate with a density of 1.08. If the piece sinks – the animal is pregnant;

b) boiling mucus in a 10% solution of sodium hydroxide, during pregnancy causes hydrolysis of mucus, which gives a yellow-brown coloring of the mixture;

c) by microscopy in a smear – нестельныха characteristic fern-like pattern will be visible from the cervical mucus of non-breeding cows;

d) changes in the physico-chemical properties ofvaginal and cervical mucus. A piece of mucus is lowered into a test tube with 3-5 ml of distilled water and heated for 1-2 minutes, the cervical-vaginal mucus of pregnant sows forms flakes and

makes the water cloudy. The method is used from the 7th week of pregnancy, the accuracy is 9395%.

Methods of laboratory diagnosis of pregnancy by cervical mucus attract attention, since pregnancy can be diagnosed as early as 2 weeks after insemination of the animal. However, due to many factors, these methods are inaccurate.

2) The urine test is based on the fact that in pregnant animals, sulfur is released in the urine, in a bound form, with pregnancy hormones and does not interact with barium chloride, added to the urine in the form of a 1% solution (1-2 drops). In summer, the use of this method is impossible due to the fact that the hormone-like compounds present in green feeds get into the urine and confuse the whole picture of the study.

3) Blood test. There are several methods of blood tests to diagnose pregnancy:

a) Method F. Friedman. In isolation, 10 ml of the blood serum of the test female is injected into the ear vein of the rabbit.

36-48 hours after the injection, laparotomy is performed, if there are gonadotropins in the serum, then hemorrhages are recorded in the ovaries at the site of ruptured follicles, as well as follicles filled with blood. In mares in the period of 1.5-4 months of pregnancy, the accuracy of the method is 98%;

b) bioassay on mice. 10-15 ml of blood is taken from the animal from the jugular vein-and serum is obtained. Then 1 ml of serum is diluted in 15 ml of saline solution and injected into mice subcutaneously at 0.2 ml. After 76 hours, they are euthanized and opened. For comparison, five control mice are euthanized and dissected, and the state of the uterus is evaluated. In case of a negative reaction, the uterus in experimental mice is of normal size, the same as in control animals. In the case of a positive reaction, the uterus in mice increases by 2-7 or more times. Mares are considered pregnant when they get a positive reaction in 3 out of five mice.

c) by the content of the hormone sulfate-estrone in the blood. The concentration ofsulfate-estrone in the blood reaches a peak on the 20-30th day of gestation of sows, then a sharp decrease occurs.

In pregnant sows, the concentration of this hormone in the blood is 0.5 kg / ml. The accuracy of the diagnosis is more than 97% in the study on 25-30 days.

4) A biopsy. Perform a biopsy of the vaginal mucosa. In pregnant pigs, the epithelium forms 2-3 layers, and in infertile pigs, 5-25 layers. The study is carried out 30 days after insemination, the accuracy is 95.5%.

5) Milk research. This technique involves laboratory testing of cow's milk samples in order to determine progesterone concentrations by ELISA (enzyme immunoassay). In pregnant animals, there is an increase in the concentration of progesterone in the blood and milk. If the progesterone concentration in milk exceeds 7 ng/ ml, the animal is considered pregnant, from 4 to 7 ng/ml – doubtful, and below 4 ng/ml – non-pregnant.

Control questions

1. Explain the classification of ways to diagnose pregnancy.

2. Describe the methods of studying cervical secretions.

Lab-9-10. Determination of the morphofunctional state of the breast. Methods of mastitis diagnosis

Objective: to master the methodology of clinical breast examination for the detection of clinical and subclinical mastitis. To study the method of providing medical care to cows with mastitis.

Materials and equipment: animals (cows), a cup with a strainer for trial delivery, thermometers, milk catheters, milk control plates for the diagnosis of subclinical mastitis and MCP with wells with a dark bottom for detecting inclusions, cotton swabs, theagents for testing for subclinical mastitis (kenotest, mastest, mastitdin, University of California test, etc.), bucket of water, EDM devices, 10 ml test tubes, tripod, refrigerator.

Task 1: master the methods of studying an animal with clinically expressed breast pathology.

First of all, students together with the teacher should draw up a plan of diagnostic measures for the purpose of step-by-step implementation of the clinical study of the animal.

The research plan should include a number of points.

1) Anamnestic data about the animal – breed, age, time and course of the last delivery, duration of the dry period, sexual cyclicity after delivery, time of insemination, milk productivity in previous years, time of udder disease, changes in milk yield, milk quality, epizootic state of the farm and district in relation to infectious, non-infectious and invasive diseases. They also establish the frequency of cases of afterbirth retention, uterine subinvolution and endometritis, determine the type and level of feeding, conditions of maintenance, the availability of exercise and its organization, the general condition of the body before and after childbirth, the time of manifestation of the disease, its signs, the mode and technology of machine milking, the state of milking equipment.

2) A general clinical study includes determining the physiological state: body temperature is measured, pulse, respiration, and scar contractions are counted. Next, a study of individual body systems is performed in order to identify pathologies that accompany mastitis or are their root cause.

3) Clinical study of the breast.

Examination of the udder is performed from the side and from the back, determine the shape and size of the breast, its individual quarters, the condition of the skin, its color, the presence of damage and the nature of the hairline, pay attention to the proportionality of the development of the quarters, the condition of the subcutaneous blood vessels of the udder.

Sometimes it is additionally necessary to determine the suitability of the breast for machine milking: the shape of the udder, the nipples, the distance between the nipples, their length, the structure of the nipple sphincter.

Palpation after milking the animal determines the consistency, structure of the udder, skin elasticity. The normal mammary gland has elastic skin that easily gathers into folds, the parenchyma is elastic, and its lobular structure is clearly felt.

By lightly squeezing the tissues of the quarters, the pain response, the presence and nature of seals, their consistency, and other morphological changes in the mammary gland are established.

With the back of the hand, the skin temperature of individual quarters is determined by comparing the heat sensations of symmetrically located points or using a contact thermometer.

Determine the size, shape, and mobility of supramental lymph nodes. They are located near the upper border of the hind quarters, sometimes 2-3 cm above the glandular tissue, in folds of skin running from top to bottom from the vulva. With a normal mammary gland, the lymph nodes are up to the size of a pigeon's egg, elastic consistency, mobile and painless.

At the next stage, the condition of the nipple (tank) is determined.

By rolling the nipple between the thumb and index finger, pulling it down and shifting the fingers to the top of the nipple, a change in the tank is detected. When milking, attention is paid to the separation of secretions. When palpating the nipples and milking the secret in cows, you can establish lactorrhea, narrowing of the excretory system, the presence of connective tissue growths, milk stones. After milking, the breast parenchyma is again palpated to establish its lobular structure and the ability to subside after milking the secret.

In mares, goats, sheep and sows, a clinical breast examination is performed in the same order.

Test assignment of the secret. Trial milking is carried out from each quarter of the breast before and after milking in a special device in the form of a mug with a dark strainer or in the wells of a milk control plate with a dark bottom. These devices allow you to determine the color, consistency of the secret and the presence of flakes in it. Changes in the color, consistency, smell of secretions and the presence of flakes give reason to state clinically pronounced mastitis. By trial milking, the tone of the nipple sphincter can be determined based on the force applied to milk delivery, which helps to identify abnormalities of the nipple canal that cause stiffness or involuntary milk flow (lactorrhea).

Semiotics of forms of clinically expressed mastitis According to clinical signs reflecting the nature of the inflammatory process, mastitis is differentiated into serous, catarrhal, fibrinous, purulent, hemorrhagic, gangrenous, mixed, and in infectious diseases – specific.

Serous mastitis is a pathological process that mainly covers the interstitial tissue of one, two or more quarters of the udder. The affected lobe is increased in volume by 1.5-2 times dense consistency, painful, hot to the touch, the skin is tense and hyperemic, the nipple is enlarged and swollen. Milk productivity is reduced, the appearance of milk at the beginning of the disease does not change. After 2-3 days, the pathological process invades the alveoli, milk ducts and turns into serous catarrhal inflammation (mixed form of mastitis). The milk becomes liquid and flakes appear in it. The general condition of the animal is characterized by general

depression, decreased appetite, increased body temperature to 40°C, increased pulse and respiration, and the appearance of lameness. Superficial inguinal lymph nodes are enlarged.

Catarrhal mastitis is a pathological process that usually affects one quarter of the udder and occurs in two forms: catarrhal inflammation of the milk passages and cisterns, and catarrhal inflammation of the alveoli. In the first case, the main sign of inflammation is the appearance of casein flakes in the first portions of milk. Soreness and an increase in the volume of the affected lobe are not detected. General condition of the animal without visible changes. In the second case, the affected quarter is increased in volume by 1.5 times, in the thickness of the parenchyma and in the milk tank, dense or fluctuating nodes are felt, which are milk ducts clogged with casein.

The secret of the affected quarter is hardly squeezed out through the nipple canal, contains flakes, casein clots, mucus. In some cases, a small amount of yellowish whey with flakes or a thick creamy mass is released. The skin of the affected quarter is unchanged, soreness is absent or weakly expressed, the nipple is unchanged, less often edematous. The general condition of the animal is without visible changes, sometimes there may be mild depression, decreased appetite, increased body temperature.

Fibrinous mastitis occurs most often as a complication of serous or serous-catarrhal mastitis. The affected quarter is increased in volume by 2-2. 5 times, has a stony consistency, hot, painful. The skin is tense, the nipple is swollen.

When palpating the base of the milk cistern, crepitation of fibrinous deposits is noted. From the affected lobe, a few drops of serum or a cloudy straw-yellow liquid with an admixture of crumbs and fibrin films are hardly squeezed out.

In the presence of necrotic foci, exudate acquires an ichorous smell. The superficial inguinal lymph nodes are enlarged, swollen, and painful. From the side of the general condition of the animal, signs of general intoxication are noted: depression, refusal of food, difficulty getting up, high body temperature, hypotension of the pancreas.

Purulent mastitis manifests itself in the form of purulent-catarrhal inflammation, abscess and phlegmon of the udder.

Purulent-catarrhal inflammation is characterized by a lesion of one quarter of the udder, a decrease or cessation of its secretory activity. A mucopurulent exudate of a thick or semi-liquid consistency, gray-white or yellow color with an admixture of casein clots is extracted from the nipple. The affected quarter is enlarged, painful, hot, swollen, the skin is tense, hyperemic, the nipple is swollen. Superficial inguinal lymph nodes are enlarged. The animal is depressed, there is a refusal to feed, lameness, body temperature is elevated.

With abscessing inflammation-focal purulent melting of tissues with the formation of a cavity and connective tissue capsule. The affected quarter is unevenly enlarged, swollen, painful, and fluctuating tense foci of various sizes are felt in its tissues. When the abscesses are deeply located, the fluctuation is weakly expressed. Superficial inguinal lymph nodes are enlarged. At the beginning of the disease, milk is not externally changed, it is released in a small amount. Then it

becomes a watery consistency, gets a gray-white or yellow color, contains impurities of pus, casein and blood. The general condition of the animal is characterized by depression, refusal of food, a significant increase in body temperature, lameness.

Phlegmonous mastitis is characterized by extensive (diffuse) purulent lesions of the subcutaneous tissue and interstitial breast tissue. The affected quarter or half of the udder is very swollen and enlarged in volume, the tissues are tense, painful, on the unpigmented skin, which becomes purple-cyanotic, the lymphatic vessels protrude in the form of red strands. After a few days, fluctuating ulcers appear on certain areas of the udder. From the affected quarters, several tens of milliliters of grayish watery secretions with an admixture of flakes are hardly extracted. If the purulent process is joined by a necrotic process and mastitis takes a phlegmonous-necrotic form, then the secret acquires a bloody color and an ichorous smell. Superficial inguinal lymph nodes are enlarged and painful. The condition of the animal is very depressed, the body temperature is significantly elevated, and there is no appetite.

Hemorrhagic mastitis is characterized by a violation of the integrity of the walls of blood vessels and the release of blood into the thickness of the breast tissue. The affected lobes are uniformly enlarged, compacted, hyperemic, and painful. Areas of unpigmented udder skin are covered with red or purple spots. The nipples are swollen. A watery secret of dark red color is given out with an admixture of flakes, fibrin crumbs and blood clots. The general condition of the animal is very depressed, 261

there is no appetite, the body temperature is sharply increased (41°C),

the lymph nodes are enlarged.

Gangrenous mastitis is characterized by rapid and deep necrotic damage to the udder tissue and the development of sepsis.

The process is extremely difficult. Initially, dense, painful blue-red or purple foci appear on the skin of the affected udder lobes in the form of oval elevations.

In the future, the tissues of these areas are subject to decay with the formation of gangrenous ulcers covered with ichorous exudate.

With rapidly developing gangrene, the entire quarter becomes bright red, covered with blue spots, the nipple becomes blue-purple or black. Milk production stops, the secreted secret acquires a red-brown color and an ichorous smell. External inguinal lymph nodes are enlarged and painful.

Based on the results of a clinical study of an animal, by comparing the data obtained with the symptoms of various forms of mastitis, it is possible to establish the correct diagnosis with high confidence, which will further contribute to the appointment of adequate treatment.

Task 2: master the methods of diagnosis of subclinical mastitis in the conditions of the farm and laboratory.

Subclinical mastitis is characterized by a weak (latent, latent) inflammatory process in the udder, which occurs without external clinical signs and visually detectable changes in milk. This form of inflammation can turn into clinical

(serous, catarrhal, fibrinous, purulent, hemorrhagic or specific mastitis) when certain conditions occur.

The danger of subclinical mastitis for people is that milk can contain pathogenic and conditionally pathogenic microorganisms that cause various diseases, such as angina, dysbacteriosis, gastroenteritis. Especially often, such facts are found in children and young animals that consumed milk from cows with subclinical mastitis in raw form. Milk in this case is considered unsuitable for the production of dairy products, since it has an increased content of microorganisms, somatic cells, and manufacturers of these products reduce the grade of milk for non-compliance with the standard, which ultimately causes economic damage to the agricultural producer. For these reasons, timely diagnosis and treatment of this form of mastitis is an important event in the work of veterinary specialists.

Diagnosis of subclinical mastitis in the lactation period is based on determining the number of somatic cells in milk, evaluating its reaction with diagnostic reagents – mastidine, dimastin, masttest or mastoprim, and, if necessary, conducting bacteriological studies and setting up a settling test.

The main criterion for the presence of subclinical mastitis is an increase in the secret number of somatic cells of more than 1 million/ml (can reach 5-8 million/ml). In the absence of an inflammatory process, their number does not exceed 500 thousand/ml.The proportion of the breast with the content of somatic cells in milk from 500 thousand to 1 million/ml is considered conditionally healthy.

Determination of the number of somatic cells in the secret of each quarter of the udder is carried out by direct counting on special devices such as "Fossomatic", in the Goryaev chamber, or by indirect method using a viscometric milk analyzer "Somatos". The latter method is based on determining the conditional viscosity, measured by the time of leakage of the controlled mixture of milk with the diagnostic reagent mastoprim through the capillary of the analyzer flask.

An indirect and easily feasible method for determining the number of somatic cells in milk and rapid diagnosis of subclinical mastitis is the production of a milk sample (secret) with 2% mastidine solution, 5% dimastin solution, 2.5% sulfanol solution or 2% masttest solution containing surfactants that interact with DNA the nuclei of somatic milk cells form a clot of different densities. 1) A sample with a diagnostic reagent (using the example of a masttest). Mastest is a reagent for rapid diagnosis of subclinical mastitis.

Research methodology. 1 ml of alveolar milk is added to the wells of the milk control plate separately from each quarter, then 1 ml of reagent is added and mixed by rotating the plate in a horizontal plane for 10-15 seconds. The reaction is taken into account by the degree of formation of a jelly-like clot and by color change. The reaction is negative (-) if the mixture remains as a homogeneous liquid, and its color is from yellow to yellow-orange. The reaction is questionable (- / +) if the mixture forms an unformed jelly and the color is light green to green.

The reaction is positive (+) if the mixture forms a jelly-like clot that is difficult to remove from the plate (++), and the color of the mixture is from dark green to blue.

A change in the color of the milk mixture with a diagnostic reagent associated with a change in pH is an auxiliary indicator. An increase in the alkalinity of milk and the presence of an inflammatory process is indicated by a change in color when using mastidine to dark lilac or purple, dimastin-red-scarlet or crimson, masttest-green or blue.

In the absence of the above reagents, it is allowed to set up a sample with a 4% solution of sodium hydroxide (Whiteside's test).

2) The Whiteside test.

Research methodology. 2.5 ml of milk is taken into the MKP-1 wells, 1 ml of sodium hydroxide solution is added and the mixture is quickly mixed (no more than 8-10 seconds) with a stick. Evaluation of the reaction is carried out by the degree of jelly formation on the example of a masttest. The color is not taken into account.

Rapid diagnosis of subclinical mastitis in cows is performed twice with a 48-hour interval to exclude udder irritation, which is a short-term reaction of the breast that occurs in response to adverse environmental factors and violations of milking technology, accompanied by an increase in somatic cells in milk and disappears within 48 hours after the elimination of immediate causes.

Patients with subclinical mastitis are considered animals that have twice given a positive reaction with diagnosticum. 3) The sedimentation test is an additional method of research, the positive result of which indicates the preclinical stage of the development of the inflammatory process. To set up a settling sample from the udder quarters of cows that have given positive reactions with rapid mastitis tests, after milking, milk samples (10-15 ml) are taken into test tubes and placed in a refrigerator or other cold place at a temperature of 4-10OC for 16-18 hours. The results are taken into account when viewing test tubes of milk in daylight. Milk of healthy cows has a white or slightly bluish color, and does not form sediment.

In the milk of cows with mastitis, sediment forms at the bottom of the test tube, the layer of cream decreases, which becomes viscous, slimy, flaky.

Rapid diagnosis of subclinical mastitis in all lactating cows in herds with low morbidity is carried out on a planned basis on a monthly basis and in each case if the combined milk contains an increased content of somatic cells (more than 500 thousand/ml according to GOST of the Russian Federation and 400 thousand/ml according to the requirements of the Unified Energy System).

4) Identification of cows with mastitis by milk yield. In order to reduce labor and time spent on examining cows for mastitis, its primary diagnosis can be carried out by examining milk from the total milk yield of each cow using 10% solutions of mastidine, mastotest or sulfanol. The study is carried out during control milks. Setting up and recording the reaction is similar to the methods described above.

If it is impossible to set up the reaction immediately after taking the sample, the milk can be preserved with a 2% solution of potassium dichromate (at the rate of 0.5 ml of preservative per 10 ml of milk).

5) Examination with a rapid mastitis diagnostic device (EDM). The principle of operation of the device is based on recording an increase in the electrical conductivity of milk samples.

Execution method. The holes of the device are filled with milk (without foam) from the corresponding quarters of the udder, press the button to turn on the device, if mastitis-a red light comes on (milk from this quarter has increased electrical conductivity, therefore, mastitis). Then you should wash the sensors with warm water, wipe them, and proceed to diagnose mastitis in the next animal.

Features of mastitis diagnosis during the start-up and dry period are based on a clinical examination of the breast, organoleptic assessment of the secret, determination of the number of somatic cells in it, assessment of the reaction with one of the diagnostic reagents, setting up a sedimentation test.

On the last day of the launch, all cows are examined clinically.

In the absence of clinical signs of mastitis, the secret is examined by a rapid mastitis test and, if there are doubtful or positive reactions, a settling test is performed.

During the dry period, the examination is carried out twice: 10-15 days after the beginning of dead wood and 10-15 days before the expected calving (when transferring them to the maternity ward). To identify clinical signs of the disease, a trial test is performed.

The presence or absence of clinical mastitis is judged by the volume of secreted secretions and their appearance.

In healthy cows, 10-15 days after starting, the volume of secretions is 50-100 ml, it has a uniform viscous consistency and a grayish-white or grayish-yellow color. In subsequent periods, the amount of secreted secretions decreases to 2-3 ml, it acquires a thick viscous sticky consistency, yellow translucent or amber appearance. 10-15 days before calving, the amount of secretions increases to 30 ml or more, its stickiness and viscosity decrease.

With the development of clinically pronounced catarrhal inflammation, the volume of secretions increases to 100 ml, it becomes gray, watery consistency, loses stickiness and becomes opaque. With catarrhal-purulent inflammation, the amount of secretions can increase to 150 ml, its color is gray, and the consistency is watery or creamy.

Mastitis in heifers is detected at 8-9 months of pregnancy by examination and palpation of the breast, trial delivery of the secret and its visual assessment, as well as by its reaction to the mastitis test.

Bacteriological studies are carried out to determine the causative agents of mastitis and their sensitivity to drugs. To do this, milk (secret) in a volume of 10 ml is taken from the affected quarters of the udder in sterile test tubes.

Previously, the udder teats are wiped with a cotton swab moistened with 70° ethyl alcohol (5 cm3 per quarter). When taking samples, make sure that the nipple does not touch the edge of the tube.

Milk samples are delivered to the veterinary laboratory within 3-4 hours from the moment of taking in special containers that provide a temperature not higher than 8-10°C, or in thermos flasks with ice. In the laboratory, cultures are made on nutrient elective media to isolate and identify the main pathogens of mastitis and determine their sensitivity to antimicrobial drugs.

Determination of antibiotic sensitivity to drugs is carried out at least twice a year.

Control questions 1. What anamnestic data about the animal should be collected before the study?

2. What are the main points of the animal research plan for the diagnosis of breast diseases?

3. How should a breast exam be performed?

4. How should breast palpation be performed?

5. How should the test be completed?

6. What characteristic signs of mastitis should I pay attention to when examining the breast?

7. What are the signs of serous and catarrhal mastitis?

8. What signs are noted for fibrinous and purulent mastitis?

9. What are the signs of hemorrhagic and gangrenous mastitis?

10. Why is the diagnosis of subclinical mastitis so important for animal husbandry?

11. How can you quickly detect subclinical mastitis in a cow?

12. How to place the settling sample and when is it applied?

13. Describe the methods of the Whiteside test and mastitis diagnosis
EDM?

14. In what case is the animal recognized as having a subclinical disease?
mastitis?

15. What are the features of the diagnosis of subclinical mastitis in the dry period?

Lab - 11. Obstetric and gynecological medical examination in females, analysis of the results obtained.

The purpose of the lesson: to study methods of stimulating the sexual function of animals. Review the documentation provided by the veterinary specialist. Master the methods of medical examination of farm animals. Master the methodology for determining the economic damage caused by animal infertility.

Materials and equipment: instruments for vaginal and rectal examination of females, syringes with needles, soap, protective clothing, fixing machines, cotton wool, gauze, preparations for stimulating sexual hunting, vaginal mirrors.

Task 1: study obstetric and gynecological accounting and reporting.

The veterinary specialist keeps a strict record of all medical-and preventive measures carried out in the maternity ward and other gynaecological activities in a special gynaecological journal, which is kept as an outpatientone.

Veterinary specialists of the Prigorodnoye association of the Moscow region have improved the gynecological journal. Only non – breeding cows are put under veterinary control in the association нестельные(in the order of the sequence of monthly calving or abortions) and are removed from it when marked in the main

column - "stelnaya". In this case, each cow is monitored for 3-5 months after calving and only infertile longer.

The gynecological journal is used for recording artificial insemination. In addition to the columns "nickname", "inventory number", "date of last calving", "primary and repeated insemination"," rectal examination", there are columns "diagnosis", "treatment" and "stimulation" with subgraphs from 1 to 12 months. Subgraphs help you determine when the cow was treated and stimulated.

Detailed methods of treatment and stimulation are recorded in the journal for registration of sick animals. After each complete analysis of the cow's condition, it is advisable to immediately conduct rectal examinations, stimulation and treatment. Usually, the veterinarian selects a specific day of the week for this purpose.

Rapid analysis of the journal's indicators makes it possible to determine which animals are subject to treatment, stimulation, culling, rectal examination, and which do not require veterinary intervention (for example, immediately after insemination).

Samara NIVS offered its own form of accounting, very compact and operational, and developed treatment schemes for gynecological diseases for the journal. But each farm can have its own treatment regimens and its own numbering of drugs for operational accounting of the work carried out. Information on reporting is not provided, as it is very diverse in different farms, districts, regions and regions.

Task 2: to study the organization and conduct of obstetric and gynecological medical examinations. Medical examination is a system of measures aimed at timely detection of subclinical and clinical forms of diseases, their prevention and treatment. The basics of medical examinations for dairy cows were developed by Soviet scientists in the 30s, and the methodology is constantly being improved. On conventional dairy farms , medical examinations are carried out in the fall (October-November) and at the end of the stable period (March-April). At industrial complexes and large specialized farms, medical examinations are carried out as the main part of the technological process with its division into main and current ones, and the main medical examination is carried out once a year (January-February), current (intermediate) – once a quarter.

General medical examination cannot replace systematic veterinary work aimed at preserving the high reproductive potential of the herd. Many of our leading experts point out the need for medical examinations that would ensure proper ветеринарами control over the reproductive function of animals by veterinarians. According to the majority of scientists and practitioners, obstetric and gynecological medical examinations should be considered as a system of veterinary measures aimed at timely detection, prevention and treatment of diseases of the reproductive organs and breast, preservation of the reproductive capacity and productivity of animals, their fertilization in the time provided for by technology, and obtaining a healthy, viable offspring. In modern conditions, obstetric and gynecological medical examinations should be mainly aimed at improving the effective use of breeding stock.

There is a distinction between obstetric medical examination, which involves veterinary work with females from their fertilization to the completion of postpartum involution of the genital organs, and gynecological medical examination, which includes a complex of diagnostic, therapeutic and preventive measures carried out on infertile animals.

Obstetric and gynecological medical examination consists of a number of activities divided by Professor N. I. Polyantsev according to the frequency of implementation into three groups.

1) Wind, events held continuously throughout the year:

control over the quality of feed for breeding stock;

prevention of mineral and vitamin deficiencies in the dry and postpartum periods;

clinical and gynecological studies of cows in the postpartum period;

mastitis testing of dry and lactating cows;

organization of maternity care and monitoring of compliance with veterinary regulations in the maternity ward;

pharmacoprophylaxis of postpartum complications;

monitoring of artificial insemination;

treatment of cows with postpartum pathology;

rehabilitation of the uterine cavity in infertile cows (after 2-3 unsuccessful inseminations);

treatment of cows with clinical forms of mastitis.

2) Monthly events:

rectal pregnancy check;

clinical and gynecological examination of infertile cows and heifers;

examination of lactating cows for latent mastitis;

analysis of the physiological and clinical state of the herd;

treatment of cows with latent mastitis;

differentiated treatment of infertile cows;

stimulation of reproductive functions yin infertile cows.

3) Activities performed on a quarterly basis:

commission-based clinical and gynecological examination of long-term infertile cows and heifers;

culling of cows and heifers unsuitable for reproduction;

laboratory diagnostics of sexual infections and infestations (if necessary);

chemical analysis and determination of feed quality;

biochemical analysis of blood, milk and urine (selective);

analysis of the state of herd reproduction, forecasting the receipt of offspring.

Timely and qualified implementation of all measures for obstetric and gynecological medical examinations allows raising the level and effectiveness of veterinary services for breeding stock and intensifying herd reproduction and animal productivity. Obstetric medical examination is carried out twice – during the dry period and after childbirth.

The first obstetric medical examination provides for:

- timely and correct launch of cows (50-60 days before b,

increase the amount of hay, during this period, monitor the condition of the udder;

- during the dry period, conduct clinical studies ,

once a month, the udder is examined with the analysis of secretions for latent mastitis, and the usefulness of the diet is determined every decade (based on 252

вefood research and blood chemistry analysis), daily exercise, monitoring of the microclimate;

- cows are transferred to the maternity ward in advance.

The second obstetric medical examination is carried out in the maternity ward. Given the course of labor, cows are divided into three groups. The first group includes cows with a normal course of labor. Follow the separation of lochia, the timing of the disappearance of edema, the condition of the external genitalia and breast.

To accelerate the involution of the genitals, cows of this group are given exercise 3-4 days after delivery.

The second group consists of cows with such complications of childbirth as difficult removal of the fetus and retention of the afterbirth up to 6-8 hours with its independent separation. Prescribe uterine remedies and exercise.

The third group includes cows with complications of childbirth and the postpartum period that needed obstetric care – incorrect positions, positions and location of the fetus, its deformities, uterine prolapse, retention of the afterbirth, etc.

Provide appropriate assistance. From 3-4 days-exercise and massage of the uterus through the rectum for 5-10 minutes daily. Before removing animals from the maternity ward, their genitals and mammary gland are examined. Gynecological medical examination is carried out monthly. The following animals are examined:

inseminated more than 2 months ago - for pregnancy; not showing the stage of arousal 1 month after delivery;

cows after two unsuccessful inseminations;

heifers that are not fertilized within a month after reaching physiological maturity.

Such a study is one of the most important links in obstetric and gynecological medical examinations, since it allows you to identify infertile animals, detect gynecological diseases at an early stage, and organize treatment.

Timely treatment work not only increases its effectiveness, but also prevents the development of persistent changes in the reproductive organs that cause long-term or permanent infertility.

Lab-12-13. Methodsы of sexual organ research in males. Andrological medical examination, analysis of the results obtained.

The purpose of the lesson: to study the methodology of studying the reproductive system of male producers to assess their reproductive ability.

Materials and equipment: male producers: bulls, sheep, goats, males, cats; ropes; machines for fixing; sedatives: 2% solution of rometar, vetranquil or xyl; 1% solution of novocaine.

Task 1: to study the methods of sedation and anesthesia of an animal for andrological research.

In a general study, the constitution, fatness, temperament, and severity of secondary sexual characteristics are determined.

The state of the digestive, respiratory, circulatory, and nervous systems is determined by generally accepted methods. Special attention is paid to the joints, hooves, and muscles.

When examining the genitals, the condition of the testes, appendages, sperm ducts, scrotum, preputial sac and penis is determined. If necessary, rectally examine the adnexal sex glands – the prostate and vesicoid, as well as ampoules of sperm ducts.

Care should be taken when examining breeders, especially bulls and stallions. The study of genital organs in manufacturers is technically difficult, so you should use antipsychotics (aminazine, rometar, xyl, vetranquil, etc.).

Sedation and analgesia during the examination of bulls.

When working with bulls, special care should be taken, as bulls develop a conditioned protective reflex to the smell of workwear, antiseptics and other means.

Andrological examination and medical treatment of the genitals of bulls is considered particularly dangerous and technically difficult, 277 due to the inaccessibility of the location of the organs and the violent defensive reaction of bulls when trying to examine them without using special sedatives and anesthesia.

It is also advisable to use antipsychotics during therapeutic treatment, operations to facilitate the use of local or general anesthesia. For this purpose, aminazine (chlorpromazine hydrochloride) is often used.

With intravenous administration (a dose of 0.5-1 mg per 1 kg of weight) , a 2.5% solution of aminazine is mixed with an equal amount of 40%го glucose solution, and with intramuscular administration (a dose of 1-2 mg per 1 kg of weight) with a 0.5% solution of novocaine. The effect of the drug occurs in 10-30 minutes and lasts for 2-3 hours. Aminazine in the indicated dose causes general calming of the animal and relaxation of the retractor muscles of the penis, which ensures free extraction of the organ from the preputial sac.

The upcoming relaxation of the cremasters facilitates the examination of the scrotum and its contents, and the relaxation of the anal sphincters facilitates rectal examination.

Neuroleptanesthesia is a general analgesia achieved by the use of drugs that have neuroleptic, muscle relaxant and anesthetic effects. These drugs include the drug rometar, xyl (xylazine), available in the form of a 2%го solution.

With intramuscular administration of rometar at a dose of 0.5 ml per 100 kg of bull weight, the effect occurs in 5-10 minutes and lasts 1.5-2 hours. At the same

time, bulls experience a well-defined calm, characterized by a weak reaction to external stimuli, a decrease in pain and other types of sensitivity, and relaxation of skeletal muscles. Animals maintain a standing position. However, this dose does not cause noticeable relaxation ретракторныхof the penile retractor muscles.

ВнутритазоваяIntra-pelvic conduction anesthesia according to I. I. Voronin consists in simultaneous blockade of the sacral and rectal nerves, as well as branches of the vegetative pelvic plexus with a 2% solution of novocaine. The bull is fixed by the nose ring in the machine.

The point of injection is found in the sciatico-rectal fossa of the corresponding side at the level of the middle of the posterior edge of the sacro-sciatic ligament.

For anesthesia, two needles are used – a guide needle (Bobrov's needle) and an injection needle No. 1012. After preparing the injection site and leading the bull's tail to the right, take a guide needle and attach it to the point of the intended skin puncture on the left. The needle is given a cranioventral direction so that the mentally extended axis of the needle passes through the top of the ulnar protuberance of the left limb. After piercing the skin, the needle is pushed into the pelvic cavity, touching the inner surface of the sacro-sciatic ligament. The needle is inserted to its full length. Then, an injection needle is inserted into the channel of the guide needle to a depth equal to the length of the posterior edge of the sacro-sciatic ligament, and 30 ml of an anesthetic solution is injected. Then both needles are placed in a horizontal position from the same point of injection and 20 ml of the solution is injected.

During the injection, the needles are gradually removed from the pelvic cavity and slightly displaced in the frontal plane, which blocks the rectal nerves and branches of the pelvic plexus that innervate the penile retractor and anal sphincters.

After blocking the nerves of the left side , the nerves of the right side are similarly blocked.

After 5-10 minutes, the transverse folds of the scrotum straighten, the testicles descend, the anus and the posterior segment of the rectum relax. Pain sensitivity of the skin of the perineum, back of the thighs and scrotum is lost. The sigmoid curve of the penis is straightened, and the analgesic penis is independently removed from the preputial sac or removed by the operator's hand. Bulls maintain a standing position. The penis and leaves of the preputial sac lose sensitivity for 1.5-2 hours.

Task 2: to study clinical methods of andrological examination of an animal.

The study of the genitals is carried out in a certain sequence:

1) examination of the scrotum (revealed asymmetry, scars, swelling, rash

neoplasms) and the foreskin (assessment of the hair, configuration, detection of damage, edema, rash, etc.);

2) palpation of the scrotum (temperature, thickness and mobility of the layers are determined), testes, their appendages and spermatic cords (position, shape, mobility, consistency, size);

sigmoid bend and end part of the penis (configuration, mobility, soreness);

3) rectal examination of the pelvic part of the urethra, prostate and vesicoid glands, ampoules of the vas deferens and bladder;

4) study of sexual reflexes (sexual arousal, the nature of the manifestation of hugging, copulatory reflexes, erectile dysfunctionandejaculation).

Examination and palpation of the external genitalia. When examining the scrotum, you should make sure that both testicles are present in it, identify signs of recent or current diseases, dermatitis, or adhesion to the testes.

The bull's testicles are well palpable through the layers of the scrotum. Each testicle occupies a vertical position, has a longitudinally oval (egg-shaped) shape with a good outward bulge, a smooth surface and easily moves up to the groin canal. The consistency of the testicles iselastic.

The asymmetry of the testicles in young bulls does not exceed 5-10%.

The size of the testicles is determined by testimetry (by determining the volume of the scrotum with its contents or measuring the length, width and thickness of each testicle with a centimeter tape or a special testimeter). Multiplying the obtained measurements in centimeters, the index of each testicle is obtained. In this case, double the thickness of the scrotum is subtracted from each measurement, which is measured with a cutimeter.

The size of the testicles depends on the age, breed and presence of pathomorphological changes. In adult bulls, the size of each testicle is in the range, cm: length-11-20, width-6.5-10.5, thickness-7.0-10.5.

Reduction in size, compaction or softening, flabbiness of the testes indicate the presence of hypoplasia or degeneration. An increase in testicles or the presence of nodules indicates an inflammatory process or neoplasia.

The testis appendage is palpated in the dorsolateral part of the testicles. Edema and nodules are signs of inflammation, granulomatosis , or segmental aplasia, but the absence of these symptoms does not exclude pathologies of the epididymis, which often occur without visible changes.

The vas deferens can be probed only in the area of its passage near the head of the appendage and its entry into the spermatic cord.

Prepuce (foreskin) is a case of skin origin, in which the end part of the penis is located. During palpation, attention is paid to the presence of violations of anatomical integrity, soreness, changes in consistency, local temperature and exudate flow. With inflammation of the prepuce (postitis, balanoposthitis), its swelling, soreness, an increase in local temperature, an outflow of pathological exudate of various types from the preputial opening, a violation of the reflexes of erection and copulation are often observed. Wounds, abscesses, and phlegmons can be found in the area .

It is necessary to determine the possibility of the head of the penis leaving the preputial opening in order to exclude the disease- phimosis, and also make sure that the head can be set back in order to exclude paraphimosis.

Various tumors (papillomas, fibroids) can be detected in the area of the prepuce and penis.

Rectal examination of internal genitalia.

During rectal examination, ampoules of the vas deferens, vesicoid gland and prostate body are well felt.

The body of the prostate gland is palpated in the form of a transverse roller 1-1. 5 cm long and 3-4 cm wide, covering the initial part of the urethra.

For examination of the prostate gland in dogs, the index finger is inserted rectally until a symmetrical dicotyledonous spongy structure palpable in front of the pubic bones is detected. The second hand feels the prostate through the abdominal wall and moves it rectally, pressing your fingers on the abdominal wall.

Vesicoid glands are also palpated above the bladder in the form of a paired longitudinal lobular formation, of a tightly elastic consistency, the free end of which is mobile. In an adult bull, the length of each gland reaches 10-12 cm, width-5, thickness in the middle part – about 5 cm.

Ampoules of vas deferens are located above the bladder in the form of a longitudinal fusiform thickening 13-15 cm long and 4-8 mm thick. When they are massaged, you can cause ejaculation.

The bulbous gland is not palpable.

Radiography. The study is carried out if infertility is suspected due to prostate disease. A survey X-ray of the caudal part of the abdominal cavity can reveal an enlarged gland or its lesions.

Ultrasound is widely used in the examination of the prostate and testicles. The prostate and testicles should be examined longitudinally and transverselyusing a 5 MHz or better 7.5 MHz real-time scanner. Before examining the prostate gland, the intestines are emptied with an enema. Cysts or abscesses are clearly visible on the screen. The presence of compacted areas indicates the development of neoplasia or infection. Ultrasound examination of the testicles can reveal neoplasia, abscesses,or cavities.

Task 3: Master the manufacturer's assessment of sperm quality and reproductive capacity.

Receiving sperm and evaluating it. When receiving sperm for an artificial vagina, they monitor the degree of manifestation of sexual reflexes – erection, hugging, copulatory reflex and ejaculation. The resulting sperm is subjected to laboratory analysis. Macroscopic examination determines the volume, color, smell and consistency. According to these indicators, the sanitary quality of sperm can also be preliminarily assessed.

Microscopic examination determines the density and activity of sperm, the concentration, the number of live, dead, normal and pathological germ cells.

Biochemical analysis determines the content of fructose and enzymes in semen. Freshly obtained undiluted bovine semen intended for artificial insemination of cows and heifers must meet the requirements of GOST in terms of organoleptic, biological, physical and morphological parameters, as well as in terms of veterinary and sanitary condition.

A change in the color of the ejaculate indicates the presence of impurities.

A reddish or brown tint indicates the presence of an admixture of blood. Fresh blood that has entered the semen at the time of ejaculation gives it a pink or reddish hue. This happens when the integrity of the walls of the urethra (urinary stones) is violated or the end part of the penis and the walls of the preputial sac are damaged. Semen with a brown tint indicates an admixture of stale blood that has

entered the ejaculate in more proximal areas of the vas deferens (appendages of the testes, vas deferens, adnexal sex glands). At the same time, the smell of semen does not change.

The green or bluish color of the ejaculate indicates an admixture of pus, which is a sign of deep changes in the genitals. In this case, the ejaculate, as a rule, acquires an unpleasant putrid smell. Ejaculate of intense yellow color with a specific smell indicates an admixture of urine. The presence of white flakes in semen is a characteristic sign of inflammatory processes in the adnexal sex glands.

Pathological admixtures of semen change its viscosity. Instead of creamy, it can be slimy or watery.

The volume of ejaculate is affected by age and pathological processes in the genitals. The average ejaculate volume of adult bulls is 4-5 ml. Degenerative-atrophic processes in the testes, appendages and adnexal sex glands reduce the volume of ejaculate. With exudative inflammatory processes , the volume of ejaculate may increase. In these cases , other sperm counts change.

Microscopic examination of sperm determines the concentration of sperm, their motility, the ratio of live and dead sperm, as well as the content of sperm with abnormal morphology. A valuable indicator is the percentage of living and dead, as well as normal and pathological forms of sperm.

Pathological forms include sperminae with abnormalities in the structure of the head (microscopic, round, shortened, asymmetrical or pyramidal, pointed, double, without a cover or tail), neck (double or broken, tilted back on the body), body (curved, broken, doubled, coiled double, filamentous, rudimentary with cytoplasmic drop), tail (curved, double, rudimentary, with twisted bare end, twisted).

When assessing the pathological forms of sperm, special attention should be paid to changes in the head. Deformity of the head is a sign of impaired spermiogenesis. Changes in the intermediate part in the form of swelling or thickening can occur when the function of the adnexal sex glands is impaired. Sperm with cytoplasmic residues (droplets) are considered as immature forms. They appear when there is a violation of spermiogenesis, as well as excessive exploitation of producers. Changes in the tail of sperm can be of primary and secondary origin. Double tails are considered a primary malformation. Other tail defects may result from prolonged spermatic retention in the excretory tracts due to infrequent use of the manufacturer, in violation of the thermoregulatory function of the scrotum, and in the pathological state of the excretory tracts and adnexal sex glands. Such sperm are incapable of fertilization. In adult breeding bulls, the number of abnormal sperm forms should not exceed 18%. Microbiological examination of sperm determines the total number of bacteria and coli-titer In accordance with the current GOST, the total number of bacteria, coli-titer, the number of leukocytes per 100 sperm, pathogenic and conditionally pathogenic microorganisms, the concentration of hydrogen ions (pH) of the artificial insemination enterprise is checked periodically, at least once a quarter in the laboratories of the state veterinary service.

Currently, the methods of biochemical studies for determining the content of adenosine phosphates in sperm, trace elements and ketone bodies in sperm are also standardized.

When describing sperm products of manufacturers, special terms are used:

1) by the nature of the ejaculate:

a) aspermatism (Asm) – lack of ejaculate. It happens with hermaphroditism and complete obstruction of the vas deferens;

b) oligospermatism (Ozm) – a small volume of ejaculate. It is observed in young bulls and with reduced function of the adnexal sex glands;

2) according to the saturation of the ejaculate with sperm:

a) normospermia (Ns) – the sperm concentration is within the normal range;

b) oligospermia (Os) – reduced sperm concentration.

It can be a consequence of reduced testicular function caused by age -related changes, hormonal disorders, alimentary factors, and the presence of inflammatory and degenerative-atrophic processes in the testes.

c) azospermia (Azs) – when the ejaculate contains mainly young forms of spermiogenesis – spermids, spermiocytes, spermiogonia. It is observed in violation of spermiogenesis, caused by degenerative-atrophic processes. Sometimes it can be the result of excessive exploitation of manufacturers.

d) aspermia (AS) – the absence of sperm in the ejaculate. It is observed in the absence of spermiogenesis, which happens with cryptorchidism, hypoplasia, aplasia, atrophy and fibrosis of the testes;

3) by sperm motility (activity):

a) normokinepermia (Ncs) – when sperm have motility in the range of 8-10 points. In this case, the movement of sperm is rectilinear and translational;

b) oligokinepermia (Acs) – sperm motility is not higher than 7 points. At the same time, most sperms have oscillatory movements. It can be a consequence of reduced function of the adnexal sex glands and the presence of pathological impurities in the sperm;

c) akinespermia (Akc) – sperm motility is absent.

It is observed with deep lesions of the adnexal sex glands. It should be noted that oligokinepermia and akinepermia can also occur if the research methodology is violated;

d) necrospermia (Ncrs) – when the ejaculate contains mostly dead sperm. In necrospermia, sperm movement is not restored. It is a consequence of inflammatory processes in the testes, appendages, adnexal sex glands or in the vas deferens;

4) on sperm morphology:

a) normomorphospermia (Nmfs) – when at least 80% of sperms have a normal morphology;

b) teratospermia (Ters) – adult bull sperm containing more than 20% of sperm with abnormal morphology.

The predominance of pathological forms of sperm in semen, as well as inclusions (giant multinucleated and dwarf cells) is associated with hereditary disorders of spermiogenesis;

5) according to the viability of sperms (in addition to motility, the absolute survival and survival time of sperms, osmotic resistance, dehydrogenase activity and resistance of sperms to cold shock are determined):

a) asthenospermia (Asts) – when sperm have low viability;

6) by the presence of foreign impurities in the ejaculate:

a) hemospermia (Hems) – the presence of blood in the ejaculate;

b) urespermia (Uros) – the ejaculate contains a large amount of urine;

c) pyospermia (Pios) – when pus is present in the sperm;

d) bacteriospermia (Baks) – the presence of a large number of microbial bodies in semen.

In practice, pure forms (monoforms) of these sperm changes are rarely found. And the task of andrological research is to find out the causes and nature of pathological changes in the body that led to this or that change in sperm.

Bacteriological research. For bacteriological research, semen, flushes and mucus samples from the preputial sac are used, microbial contamination and coli-titer are determined. The presence of more than 10,000 bacteria per 1 ml of ejaculate indicates a disease of the male's urinary and reproductive system .

Based on the data of the clinical study, theanalysis of the sperm, as well as taking into account the effectiveness of insemination, cows and bulls are divided into four subgroups.

1) Bulls with high fertility – оплодотворяемостьthe fertilization rate of cows and heifers from the first insemination is over 75%, the manifestation of sexual reflexes is bright with rapid sperm release. The volume of ejaculate is not less than 5 ml with a concentration of more than 1 billion/ml of sperm, with sperm activity of more than 8 points, the presence in the sperm of 80-95% of live germ cells with a resistance of 20-60 thousand, survival within 70-110 hours, the number of pathological forms of sperm is not more than 3%. The sperm of such bulls is characterized by a high fructose content (460-680 mg%) and the presence of a clearly expressed positive relationship between the activity of the enzymes hyaluronidase, alkaline phosphatase and the fertilizing ability of germ cells.

2) Bulls with normal (good) fertility – оплодотворяемостьthe fertilization rate of cows and heifers from the first insemination is not lower than 70%, a bright manifestation of sexual reflexes and a fairly rapid release of sperm. The volume of ejaculate is 3-4 ml, the sperm concentration is 0.40.8 billion/ml, the activity of germ cells is 7-9 points, the content of live sperm is not less than 70%, the resistance of germ cells is 1020 thousand, the survival rate is from 50 to 80 hours; the number of pathological forms of sperm does not exceed 5%. In the sperm of bulls with normal fecundity, the fructose content is 300-500 mg%, and a positive relationship between the activity of the enzymes hyaluronidaseand alkaline phosphatase and the fertilizing ability of germ cells is quite pronounced.

3) Bulls with reduced fertility – characterized by a high percentage of repeated insemination of cows, they often refuse to secrete sperm into an artificial vagina or secrete poor-quality ejaculate. The volume of ejaculate is not less than 2 ml with a concentration of 0.2-0.5 billion/ml, sperm activity is below 6 points.

Sperm resistance usually does not exceed 4 thousand, and the survival rate is 30 hours.The number of pathological forms reaches 20%.

Fructose content, hyaluronidase and alkaline phosphatase activity are reduced in semen.

4) Bulls are infertile-they secrete little sperm, it has low indicators of concentration, activity, resistance and survivability. Low fructose content and low activity of hyaluronidase and alkaline phosphatase, a large number of abnormal sperms. In bulls of this group, infertility is caused by lack of sperm or deterioration of its qualities, which is manifested by aspermatism, oligospermatism, aspermia, oligospermia, asthenospermia, necrospermia and teratospermia.

The severity of these changes varies greatly among individual bulls.

Bulls with high and normal fertility are used for breeding purposes, and bulls of the third and fourth groups are treated.

Task 4: conduct an andrological study of male producers of various animal species.

Andrological examination of males is performed using clinical research methods.

Control questions 1. How to perform sedation and anesthesia of bulls for andrological research?

2. How to perform внутритазовую анестезию по Vor oninconducting intra-pelvic anesthesia?

3. In what order should the andrological examination of males be performed?

4. How is the external genitalia examined and palpated?

5. What parts of the male sexual apparatus can be examined rectally?

6. Why do they perform X-ray and ultrasonography of the genitals in males?

7. What pathological changes in semen can be detected by macroscopic оскопическимexamination?

8. What are the main parameters used for microscopic evaluation of semen?

9. What do the terms oligospermatism and aspermatism mean?

10. What do the terms oligospermia, azospermia and aspermia mean?

11. What do the terms oligokinepermia, akinepermia and necrospermia mean?

12. What is teratospermia and asthenospermia?

13. What indicators characterize sperm with the presence of pathological impurities?

14. Which groups of bulls are considered suitable for insemination, and how do you treat them?

GLOSSARY

Atamaning o‘zbek	Atamaning rus tilida	Atamaning ingliz tilida	Atamaning ma’nosi

tilida nomlanishi	**nomlanishi**	**nomlanishi**	
Bola tashlash	Аборт	Aborts	bo‘g‘ozlikni vaqtidan ilgari uzilishi, ya’ni homilaning nobud bo‘lishi, keyin uning organizmga so‘rilishi, o‘zgargan homilaning bachadonda ushlanib qolishi yoki etilmagan (to‘liq rivojlanmagan) tirik homilani tashqariga chiqarilishi
Agalaktiya, gipogalaktiya	Агалактия, гипогалактия	Galatia, gipogalaktiya	sut bermaslik va kam sutlilik bo‘lib, noto‘g‘ri parvarishlash, oziqlantirish va ishlatish, sut bezi va boshqa a’zolarning tug‘ma nuqson va etishmovchiliklari oqibatida kelib chiqishi mumkin
Agglyutinasiya	Агглютинация	Agglyutinatsiya	eritrositlar, spermiylar, mikroblar yoki boshqa xujayraviy elementlarni bir-biriga to‘pchalar holida yopishishi
Akusherlik aslahalari	Акушерские инструменты	Obstetrics and equipment	veterinariya akusherligi amaliyotida hayvonlarning patologik tug‘ishlari paytida yordam ko‘rsatish, ayrim tug‘ishdan keyingi kasalliklarni davolash uchun qo‘llaniladigan aslahalar. Yordamlashuvchi, homilani fiksasiya qiluvchi, tortib oluvchi va fetotomiya uchun mo‘ljallangan aslahalar farqlanadi
Akusherlik dispanserlash	Акушерское диспансеризация	obstetric clinics	hayvonlarning bo‘g‘ozligi, tug‘ish, tug‘ishdan keyingi davrning normal o‘tishi va tug‘ilgan buzoqlar hayotini saqlashga qaratilgan kompleks diagnostik, davolash va profilaktik tadbirlardan iboratdir
Alimentar abort	Алиментарная аборт	nutritional abortion	bo‘g‘oz hayvonni umuiy och qolishi yoki rasion sifatining pastligi va sifasiz oziqalarning berilishi oqibatida kelib chiqishi mumkin
Alimentar bepushtlik	Алиментарная бесплодия	nutritional infertility	xayvonni noto‘g‘ri oziqlantirish tufayli kelib chiqadi

Allantois	Аллантоис	Allantois	homilaning siydik bilan to‘lgan pardasi bo‘lib, amnion va xorion, oralig‘ida joylashadi. Otlar va go‘shtxo‘r hayvonlarda tulig‘icha, juft tuyoqlilarda qisman amnionni o‘raydi. Xorion bilan birlashib allantoxorin hosil qiladi
Amitoz	Амитоз	amoeboid	xujayra bo‘linishining kam uchraydigan turi bo‘lib, o‘zakning ichki struktur tuzilishi saqlanib qolishi bilan xarakterlanadi. Amitozda xromosomalar ko‘rinmaydi va bo‘linish duki hosil bo‘lmaydi
Amnion	Амнион	Amnion	(suv parda) - homilaning ichki pardasi, berk pufak holida embrionni bevosita o‘rab turadi va kindik arqonchasi orqali embrion tanasi bilan tutashgan bo‘ladi. Amnion ichida suyuqlik bo‘lib, u embrionni mexanik ta’sirlardan himoya qiladi
Anafrodiziya	Анафродизия	Anafrodiziya	urg‘ochi hayvonlarda jinsiy sikllarni susayishi, notuliq bo‘lishi yoki butunlay yo‘qolishi.
Anastomoz	Анастомоз	Anastomosis	Qon tomirlari (limfa), tolali hosilalar (nerv, muskullar) va a’zolar orasidagi birikmalar
Antinatal gipotrofiya	Антинатал гипотрофия	Antenatal gipotrofiya	yosh hayvonlarning fiziologik jihatdan to‘laqimmatli bo‘lmasdan tug‘ilishi hisoblanib, bunday hayvonlarning vazni juda kichik yoki haddan tashqari katta, a’zo va tizimlari morfofunksional jihatdan to‘liq rivojlanmagan bo‘ladi
Antiseptika	Антисептика	Antiseptic	jarohatlangan joy, to‘qimalar yoki hayvon organizmi bo‘shliqlariga tushgan patogen mikroblarga qarshi kurash usullari
Aseptika	Асептика	Aseptic	jaroxatlar, bo‘shliqlar va butun organizmga patogen mikroblar tushishini oldini olishga qaratilgan mexanik, fizikaviy va kimyoviy metod va usullar yig‘indisi

Asfiksiya	Асфиксия	Astenospermiya	organizmning qon va to‘qimalarda kislorod etishmovchiligi va karbonat angidrid miqdorining keskin ortishi bilan xarakterlanadigan holati
Aspermatizm	Асперматизм	Aspermatism	erkak hayvonda jinsiy aloqa paytida sperma ajralmasligi holati
Aspermiya	Аспермия	Asper Miya	hayvonlar eyakulyatida spermiylarning bo‘lmasligi
Asteniya	Астения	Asthenia	organizmning asab tizimi funksional holatining va muskullar tonusining pasayishi bilan namoyon bo‘ladigan umumiy holsizlanishi
Astenospermiya	Астеносперм ия	Astenospermiya	erkak hayvonlar eyakulyatida biologik jihatdan tulaqimmatli bo‘lmagan, otalantirish qobiliyati va faolligi past spermiylarning bo‘lishi
Atoniya	Атония	Atony	tana muskullari yoki ichki organlar muskullari tonusining pasayishi
Atreziya	Атрезия	Atresia	deb kichik va katta rivojlanayotgan follikulalarning qayta taraqqiyotga uchrashiga aytiladi, bu jarayon ovulyasiyadan keyin kuzatilib, neyrogumoral tizim tomonidan boshqariladi
Atrofiya	Атрофия	Atrophy	alohida a’zo va to‘qimalar hajmining kamayishi
Auskultasiya	Аускультаци я	Auskultasiya	tibbiyot va veterinariya amaliyotida yurak, o‘pka va ichaklar faoliyati oqibatida hosil bo‘ladigan tovushli fenomenlarni eshitish bilan organlarni tekshirish usuli
Autogemoterapiya	Аутогемотер апия	Autogemoterapiya	hayvonni o‘zining vena qon tomiridan olingan qonini teri ostiga yoki muskul orasiga yuborish bilan davolash usuli
Axtalash	Кастрация	Castration	hayvonda jinsiy bezlarni jarroxlik yoki boshqa usullar bilan olib tashlash orqali jinsiy faoliyatini butunlay to‘xtatish. Erkak hayvonlarni axtalash - orxidektomiya, urg‘ochi hayvonda

			ovarioektomiya deb ataladi
Bachadon bo‘yni indurasiyasi	Индурация шейки матки	Cervical indurasiyasi	curunkali servisitning asorati bo‘lib, bachadon bo‘yni kanalining muskul qavati o‘rniga biriktiruvchi to‘qimaning o‘sishi kuzatiladi
Bachadon bo‘ynining yallig‘lanishi	Воспаление шейки матки	Inflammation of the cervix	(Servisit).Yallig‘lanishning joylashishiga ko‘ra: 1) endoservisit - bachadon bo‘yni shilliq pardasining yallig‘lanishi; 2) mioservisit - muskul qavatining yallig‘lanishi; 3) periservisit - bachadon bo‘yni zardob qavatining yallig‘lanishi
Bachadon grijasi	Маточная грижа	Cervical Griot	qorin muskullarining yirtilishi oqibatida grija xaltasining hosil bo‘lishi va unga ichida bolasi bo‘lgan bachadonning tushishi bilan xarakerlanadi. Qorin muskullarining jarohatlanishi travmatik jarohatlanishlar oqibatida yoki o‘z-o‘zidan bo‘lishi mumkin
Bachadon subinvalyusiyasi	Субинвалюция матки	Uterine sub involution	bachadonni bepushtlik paytidagi holatiga qayta rivojlanishining sekinlashishi bo‘lib, bu paytda hali qisqarmagan bachadon bo‘shlig‘ida loxiy suyuqligi to‘planib qoladi, uning chirishi yoki mikroorganizmlar toksinlaridan organizmning zaharlanishi kuzatiladi
Bachadonni chiqib qolishi	Выпадение матки	Uterine prolapse	tug‘ishdan keyin hali homila yo‘ldoshi ajralmagan paytda uchraydi va ikki xil ko‘rinishda namoyon bo‘ladi. Bachadon shoxining qin bo‘shlig‘iga ag‘darilib chiqishi yoki kirib qolishi chala ag‘darish bo‘lsa, bachadonning jinsiy yo‘llardan butunlay tashqariga chiqib qolishi - to‘la ag‘darilib chiqish deyiladi. Kasallik ko‘pincha sigir va echkilarda, biya va cho‘chqalarda esa kamroq uchraydi

Balanopostit	Баланопостит	Balanopostit	prepusiya xaltasining ichki devori va jinsy a’zo tashqi pardasining yallig‘lanishi bo‘lib, ko‘pincha erkak cho‘chqa, buqa va qo‘chqorlarda qayd etiladi
Barvaqt to‘lg‘oq va kuchanish	Преждевременные схватки и протуги	Premature birth and prolapse	bo‘g‘oz hayvonning bachadon bo‘yinchasi kanali yopiq paytida bachadon muskullari va qorin pressi muskullarining qisqarishi tufayli sodir bo‘ladi. Kasallik ko‘pincha biyalarda, kam darajada boshqa turdagi hayvonlarida uchrashi mumkin
Bepushtlik	Бесплодие	Infertility	hayvonlarda ko‘payish a’zolari funksiyalarining vaqtinchalik yoki butunlay buzilishi bo‘lib, turli sabablarga ko‘ra, katta yoshdagi urg‘ochi hayvon tuqqandan so‘ng, yosh hayvonlar fiziologik jihatdan etilgandan keyin bir oy davomida urug‘lanmasa ular “bepusht” - deb hisoblanadi
Bikslar	Биксы	Slut	doka salfetkalar, bog‘lovchi materiallar va xirurgik materiallarini avtoklav yoki issiq bug‘da sterillash uchun muljallangan silindirik baraban yoki quti
Biopsiya	Биопсия	Biopsy	hayvonning tirikligida mikroskopik tekshirishlar uchun to‘qimalar, a’zolardan bo‘lakchalar olish
Biriktiruvchi to‘qima	Соединительная ткань	connective tissue	kollogen va elastik tolalar hamda amorf modda bilan o‘ralgan turli xil xujayralarning populyasiyasidan iborat to‘qima. Biriktiruvchi to‘qima tanadagi deyarli hamma organlarni tayanch va oziqlantiruvchi matriks bilan ta’minlaydi. Kollagen, elastik retikulyar, yog‘ va pigmentli biriktiruvchi to‘qimalar mavjud
Blastomer	Бластомер	Blastomeric	**z**igotaning maydalanishidan hosil bo‘lgan embrional xujayralar
Bo‘g‘oz hayvonni yotib qolishi	Залеживание беременных животных	Paraplegiagravid arum	bo‘g‘oz hayvonlarda harakat a’zolari funksiyalarining buzilishi bo‘lib, avvaliga hayvon tananing orqa

			tomonini qiynalib ko‘tarib turadi, keyinchalik o‘zi mustaqil o‘rnidan tura olmaydi
Bo‘g‘ozlik	Беременность	Pregnancy	urg‘ochi hayvon organizmining otalanishdan to‘liq rivojlangan homilaning to‘g‘ilishigacha yoki abort kuzatilishigacha bo‘lgan fiziologik holati tushuniladi
Bug‘oz biya qon zardobi	Свыворотка жеребого кобыла	Serum foals mare	(BBQZ) - gonadotropinlarining samaradorligi yuqori hisoblanib, ular homila pardalarida alohida xujayralar tomonidan ishlab chiqarilib, biyaning bachadoni shilliq pardasiga bo‘g‘ozlikning 36-40 kunlarida o‘tadi. Keyinchalik, gonadotropinlar ona hayvon qoniga o‘tib, taxminan bo‘g‘ozlikning 60-90 kunlarida uning biya qonidagi konsentrasiyasi eng yuqori darajaga etadi
Chala abort	Неполный аборт	Incomplete abortion	paytida bachadondagi bitta yoki bir nechta homilaning o‘lishi va bachadonda qolgan homilaning normal tug‘ilishi xarakterli bo‘ladi.
Degenerasiya	Дегенерация	Degeneracy	kichiklashish jarayoni, teskari taraqqiyot
Diagnoz	Диагностика	Diagnosis	kasallikning mohiyati va kasal hayvonning holati to‘g‘risida vrachning hozirgi zamon veterinariya terminlari bo‘yicha xulosasi
Dispanserlash	Диспансеризация	Dispensary	veterinariya diagnostik va davolash-profilaktik tadbirlar tizimi bo‘lib, kasalliklarning belgilarini ertachi aniqlash, ularni oldini olish va kasal hayvonlarni davolash iborat tadbirlar yig‘indisidir
Distrofiya	Дистрофия	dystrophy	moddalar almashinuvining buzilishi oqibatida to‘qimalar kimyoviy tarkibi, xususiyatlari, tuzilishi va funksiyalarining o‘zgarishi

Dietoterapiya	Диетотерапия	Dietoterapiya	davolovchi oziqlantirish, oziqalarni davolash maqsadida qo‘llash
Donor	Донор	Donor	- a) zardob tayyorlash uchun yoki kasal hayvonni davolash uchun qon olinadigan; b) ko‘chirib o‘tkazish uchun organ yoki murtak olinadigan hayvon
Embrion	Эмбрион	The embryo	zigota maydalanishidan boshlab organogenez tamom bo‘lguncha davom qiladigan davrdagi rivojlanayotgan organizm (homila)
Embrion diski	Эмбриональный диск	The embryonic disk	blastosist devorining ichki xujayra massasi yoki embrion tugunidan iborat va embrion tanasini hosil qiladigan uncha tiniq bo‘lmagan qismi ekto- va endodermadan, qisman mezodermadan iborat bo‘ladi
Embrion tugunchasi	Эмбриональный узел	Embryonic thrust	blastosist ichida joylashgan bir guruh xujayralar bo‘lib, ulardan embrion taraqqiy qiladi
Endometrit	Эндометрит	End metritis	bachadon shilliq pardasining yallig‘lanishi bo‘lib, endometriy qavatidagi bezlarning ko‘payishi va funksiyalarining kuchayishi bilan kechadi. Yallig‘lanish jarayonining harakteriga ko‘ra, kataral va kataral-yiringli endometritlar farqlanadi
Endometriy	Эндометрия	Endometrium	bachadonningichki, shilliqpardasi. Qoplovchiepiteliy vabiriktiruvchito‘qimadantashkil topgan xususiyqavatlardaniborat. Epiteliy xususiyqavatgabotibkiribkriptalarni - bachadonbezlarini hosilqiladi. Endometriyningepiteliy qavativaxususiyqavatiningyuzaqismidaasosiysikli ko‘zgarishlaryuzberadi. endometriyhomilaningxorionpardasibilanaloqaga kirishibhomila yo‘ldoshini hosilqiladi
Epitelioxorial homila yo‘ldoshi	Эпителиохориалный тип плаценты	Epitelioxorial fetus satellite	toq tuyoqlilar va cho‘chqalarda bo‘ladi. Bunday homila yo‘ldoshida xorion so‘rg‘ichlarining epiteliysi bachadon kriptasining epiteliysi bilan aloqada bo‘ladi. Ona qon tomirlari va homila to‘qimalari o‘rtasida bachadon shilliq pardasining epiteliy va xususiy qavatlari hamda bu erdagi qon kapilliyarlarining devorini hosil qiluvchi endoteliydan iborat to‘siq bo‘ladi
Erkaklik	Мужские	male gonads	oval yoki dumaloq shaklda, naysimon

jinsiy bezlari	половые железы		bez bo‘lib, boshqa bezlardan xujayraviy elementlardan (spermiylar) iborat sekret ishlab chiqarishi bilan farqlanadi
Erta abort	Ранний аборт	Early abortion	embrionning so‘rilib ketishi (embrionni o‘lishi) bilan tugashi mumkin va bunda sigir, biya, qo‘y va cho‘chqalarda 1-3 oydan keyingina kuyikish kuzatiladi
Esterogenlar	Эстерогены	Estrogens	organizmga murakkab ta’sir etib, urg‘ochi hayvaonlarda jinsiy a’zolarning (bachadon, qin) o‘sishi va rivojlanishiga spesifik ta’sir ko‘rsatadi. Hozirgacha esterogenlardan estron,estrodiol va estriol yaxshi o‘rganilgan bo‘lib, urg‘ochi hayvonlarda kuyikishni (estrus) chaqirganligi uchun esteroganlar deb ataladi. Esterogenlar asosan tuxumdonlarda, follikulalar ichki devori va interstisial to‘qima xujayralarida hosil bo‘ladi
Eventerasiya	Эвентерация	Eventerasiya	homilaning ichak-chovoqlarini olib tashlash bilan o‘tkaziladigan fetotomiya operasiyasi
Eyakulyasiya refleksi	Эякуляторная рефлекс	Ejaculatory reflex	muskullarining qisqarishlari oqibatida erkak hayvon jinsiy a’zolaridan spermiylar va qo‘shimcha jinsiy bezlar sekretlarining chiqarilishi bilan xarakterlanadi
Eyakulyat	Эякулят	Ejaculate	erkak hayvon jinsiy aloqa paytida bir marta ajratadigan sperma
Fetotomiya	Фетотомия	Fetotomiya	homilani ona hayvon bachadonidan butunligicha tashqariga chiqarib olishning iloji bo‘lmaganda uni bo‘laklarga maydalab olish operasiyasi
Fibrinli endometrit	Фибринозный эндометрит	Fibrinous end metritis	bachadon shilliq pardasining yallig‘lanishi bo‘lib, uning bo‘shlig‘ida fibrinli ekssudatning to‘planishi bilan xarakterlanadi

Fiziologik etilish	Физиологическая зрелость	Physiological maturity	erkak va urg‘ochi hayvonlarda organizmning to‘liq shakllanishi tugallanib, shu zot va jinsga mansub katta yoshdagi hayvonlar tanasi og‘irligining 65-75 foiziga ega bo‘ladi. Fiziologik etilish qoramollarda 16-18, qo‘y va echkilarda - 12-18 oylikda, cho‘chqalarda - 9-12, biyalarda - 36, it va mushuklarda - 10-12 va quyonlarda - 4-8 oylikda kuzatiladi. Shu muddatda ulardan ko‘paytirish maqsadida foydalanish mumkin
Follikulasti mullovchi (FSG) gormon	Фолликулостимулирующий гормон (ФСГ)	Follicle-stimulating hormone	urg‘ochi hayvonlar tuxumdonlarida follikulalarning etilishi va o‘sishini stimullaydi. Erkak hayvonlarda spermatogenezni faollashtiradi
Gabitus	Габитус	Habitus	tekshirish paytida hayvonni tashqi ko‘rinishi
Gen	Ген	Gene	xromosomalarning ular uzunligi bo‘ylab differensiallashgan maxsus qismlari (lokuslari) bo‘lib, irsiyatning eng oddiy birliklari hisoblanadi
Germafroditizm	Гермафродитизм	Germafroditizm	bitta individning o‘zida urg‘ochilik va erkaklik jinsiy a’zolarining bo‘lishi bilan xarakterlanadigan tug‘ma bepushtlik
Ginekologik dispanserlash	Гинекологическая диспансерзация	Gynecological hospital	bepushtlik sabablarini aniqlash, serpushtlik va yuqori sut maxsuldorligini ta’minlashga yo‘naltirilgan tadbirlar majmuasidir
Giperemiya	Гиперемия	Hyperemia	a’zo va to‘qimalarda qonni dimiqishining kuchayishi
Gipogalaktiya	Гипогалактия	Gipogalaktiya	kamsutlik, sut sekresiyasining kamayishi
Gipotoniya	Гипотония	Hypotension	tomirlar, muskullar, ichki a’zolar tonusining pasayishi
Gisterektomiya	Гистерэктомия	Hysterectomy	bachadonni uning ichidagi massasi (o‘lgan homila, yiringli ekssudat va b.) bilan birgalikda olib tashlash. Ona

			hayvon hayotini saqlab qolish maqsadida o‘tkaziladi
Hayvonlar ko‘payish biotexnikasi	Битехника воспроизводство животных	Animal reproduction biotexnoloji	hayvonlar ko‘payish xususiyatlarini sun’iy boshqarish usullarini o‘rgatadigan fan bo‘lib, qishloq xo‘jalik hayvonlari jinsiy a’zolarining anatomo-fiziologik xususiyatlari, jinsiy sikl, erkak hayvonlardan urug‘ olish, uni sifatini aniqlash, suyultirish, saqlash va tashish, sun’iy urug‘lantirish, embrionni transplantasiyasi hamda kuyikish, ko‘p bolalik, tug‘ishni stimullash va sinxronizasiyasi kabi biotexnologik jarayonlarni o‘z ichiga oladi
Homila a’zolarining joylashishi	Расположение членов плода	The location of the members of the fetus	homila oyoqlari, boshi va dumining gavdasiga nisbatan joylashishi
Homila davri	Плодный период	The fetal period	taraqqiy qilayotgan organizm ma’lum darajada ota-onasiga o‘xshash bo‘ladigan postembrional davr; bo‘g‘ozlik davrining taxminan 4/5 qismini o‘z ichiga oladi
Homila pardalari	Оболочки эмбриона	Fetal membranes	- homilani o‘rab turuvchi kindik bilan tutashgan pardalar. Ichki parda - **amnion,** o‘rta parda **allantois**va bachadon shilliq pardasi bilan bog‘lanuvchi tashqi parda - **xorion**farqlanadi
Homila suyuqligi	Амниотической жидкость	Amniotic fluid	rivojlanayotgan homila amnion va allontois pardalarining bo‘shliqlarini to‘ldirib turuvchi suyuqliklar
Homilani pozisiyasi	Положение плода	The position of the fetus	homila bel qismining ona hayvon qorin pardasida joylashishi bo‘lib, agar homilaning beli hayvonning umirtqa pog‘onasiga qaragan bo‘lsa homilaning pozisiyasi to‘g‘ri, ona hayvonning qorniga qaragan bo‘lsa homila noto‘g‘ri pozisiyada bo‘ladi
Homilaning maserasiyasi	Мацерация плода	Maserasiyasi pregnancy	o‘lgan omila yumshoq qismlarining fermentativ jarayonlar tufayli suyulib, hatto suyaklarning birlashgan joyidan

			ajralib qolishi
Homilaning mumyolanishi	Мумификация плода	Fetal mummification	bachadonda o‘lgan va unda ushlanib qolgan homilada yuz beradigan jarayon bo‘lib, shu davr ichida ona organizmida dastlab homila oldi suyuqliklari, so‘ng homila tanasi to‘qimalarining suyuq tarkibiy qismlari shimiladi, shu sababdan homila zich bo‘lib, birmuncha qo‘rib qoladi
Infantilizm	Инфантилизм	Infantilizm	urg‘ochi va erkak hayvon jinsiy a’zolarning gipofiz va boshqa ichki sekresiya hamda asab tizimi etishmovchiliklari oqibatida to‘liq etilmay qolishi yoki hayvon urug‘lantirish yoshiga etganida jinsiy siklning bo‘lmasligi
Involyusiya	Инволюция	Involyusiya	organizm, organlar va to‘qimalarning yoki kattalashgan organlarning (masalan, bachadonni bola tug‘ilgandan, sut bezini laktasiyadan so‘ng) teskari taraqqiyoti va kichiklashishi
Jinsiy a’zo	Половой член	Member	ildizi, tanasivaboshifarqlanadi. Uningboshiquchqorvabuqalardao‘zinc hoquchburchakshaklida, birtuyoqlilarvago‘shtxurhayvonlardad umaloqlashgan, erkakcho‘chqalardaburg‘usimonshakldabo‘lib, teshigiuningpastigaochiladi.
Jinsiy aloqa	Половой акт	Sex	shartli va shartsiz reflekslarning murakkab kompleksi bo‘lib, erkak hayvon jinsiy a’zolaridan spermatozoidlar va qo‘shimcha jinsiy bezlar sekretining chiqishi va urg‘ochi hayvon jinsiy yo‘llariga quyilishiga (urug‘lanishi) aytiladi
Jinsiy sikl	Половой цикл	Sexual cycle	deb urg‘ochi hayvonlar organizmida bir qo‘yikish bilan ikkinchi qo‘yikish o‘rtasida bir ma’romda takrorlanib turuvchi fiziologik, morfologik va

			biokimyoviy jarayonlarning har bir turdagi hayvonlarda o‘ziga xos ravishda kechishiga aytiladi
Jinsiy etilish	Половая зрелость	Puberty	hayvonlarning urchish qobiliyatiga ega bo‘lgan davri, ya’ni o‘rg‘ochi hayvonlarda jinsiy sikl kuzatilishi va tuxum xujayrasining etilishi, erkak hayvonlarda sperma ishlab chiqarilishiga aytiladi. Jinsiy etilish tuyalarda (Turkman dromedarlari) o‘rtacha - 9-12, qoramollarda - 6-9, qo‘y va echkilarda - 5-8, biyalarda - 18, cho‘chqalarda - 5-8, itlarda - 6-8, quyon va mushuklarda - 4-5 oylikda kuzatiladi
Karunkula	Карункула	Caruncle	kavshovchilarda endometriy yuzasidagi so‘rg‘ichsimon qalinlashgan qismlar; bachadon karinkulalariga embrion pardalarining kotiledonlari birikadi va birgalikda plasentomani hosil qiladi
Kesarev usulida kesish	Кесаривосечение		tabiiy yo‘llar orqali tug‘ishning iloji bo‘lmaganda homilani qorin devorini kesish orqali olish
Kindik	Пуповина	Navel	naysimon shaklga ega bo‘lib, u ikki kindik arteriyasi, ikki (buzoq, qo‘zi va uloqlarda) yoki bir (qulun va cho‘chqa bolalari-da) vena qon tomirlaridan, siydik yo‘li (urachus) va sariq xaltacha qoldig‘idan iborat bo‘ladi
Klitor	Клитор	Clit	g‘ovak tanadan tuzilgan bo‘lib, erkak hayvonlar jinsiy a’zosi rudimenti hisoblanadi. Klitorning uchida sezuvchi nervlar juda ko‘p bo‘ladi.
Kotiledon	Котелидон	Cotyledon	kavshovchilarda xorion so‘rg‘ichlarining zich to‘plami; bachadon karinkulalari bilan tutashib plasentomani hosil qiladi
Krepitasiya	Крепитация	Krepitasiya	ayrim kasalliklarda paypaslanganda va eshitib ko‘rilganda (masalan, fibrinli mastit) ishqalanish, chayqalish tovushlarining eshitilishi

Kriptorxizm	Крипторхизм	Kriptorxizm	urug‘donlar qorin bo‘shlig‘ida qolib ketadi va haroratning yuqori bo‘lishi tufayli spermatozoidlar tez o‘lib ketadi
Laktasiya	Лактация	lactase	- sut hosil bo‘lishi va uning sut bezida to‘planishi, shuningdek, vaqti-vaqti bilan sog‘ish yoki bola emizishi paytida uning bezdan tashqariga chiqarilishi bilan bog‘liq fiziologik jarayonlar
Laktorreya	Лакторрея	Laktorreya	- elinning funksional kamchiligi bo‘lib, o‘z-o‘zidan sut oqib turishi bilan tavsiflanadi.
Loxiy	Лохий	Loxiy	tuqqandan keyin bachadondan ajraladigan suyuqlik
Lyuteinlovchi (LG)**gormon**	Лютеинизирующий (ЛГ) гормон	luteinising hormone	gipofiz oldingi bo‘limining glikoproteid tabiatli gonadotrop gormoni. Urg‘ochi hayvonlarda ovulyasiya yuz berishi va sariq tana hosil bo‘lishini tezlashtiradi, erkak hayvonlarda urug‘don interstisial endokrinositlarining taraqqiyotiga ta’sir ko‘rsatadi
Lyuteositlar	**Лютеоциты**	Lyuteositis	sariq tananing parenxima xujayralari o‘z kelib chiqishi va ahamiyatiga qarab yirik, progesteron etishtiruvchi granuleozolyuteositlar va mayda, ‘sterogenlar hosil qiluvchi tekolyuteowitlarga bo‘linadi
Lyuteotrop (LTG) gormon (prolaktin)	Лютеотропный (ЛТГ), гормон (пролактин)	Lyuteotrop (LTG), hormon (prolactin)	bevosita sut bezlariga ta’sir etib sut hosil bo‘lishini faollashtiradi. Bu gormonni ishlab chiqarilishi tug‘ishdan keyin kuchayadi
Lyutiotrop gormon	**Лютиотропный гормон**	Lyutiotrop hormone	gipofiz oldingi bo‘limining oqsil tabiatli gormoni prolaktin. Sut emizuvchilarda bola tug‘ilgandan keyin sut sekresiyasini kuchaytiradi, sariq tana funksiyasini faollashtiradi
Manoservikal	Маноцервикал	Manoservikal	(qo‘l-bachadon bo‘yni) - sun’iy urug‘lantirish usuli faqat sigirlarni urug‘lantirish uchun qo‘llanilib, gavdasi kichik sigirlar, ayniqsa tanalarni urug‘lantirishda bu usuldan foydalanilmaydi
Maserasiya	Мацерация	Maserati	suyuqliklarni o‘ziga olishi tufayli hayvonlar to‘qimalarining yumshab, parchalanishi. Bachadonda o‘lib qolgan homila suyuqliklar ta’sirida maserasiyaga uchrashi mumkin

Mastit	Мастит	mastitis	sut bezining yallig‘lanishi bo‘lib, zardobli, kataral, fibrinli yiringli, qonli va spesifik mastitlar (elin oqsili, aktinomikozi, elin sili) turlari farqlanadi
Miometriy	Мышечная оболочка матки	Myometrium	bachadon devorining muskul pardasi; ichki sirkulyar, oraliq (qon tomirli) va tashqi uzunasiga joylashgan qavatlardan iborat. Bulardan sirkulyar qavatgina bachadon devorida joylashgan. Uzunasiga joylashgan muskul qavat bachadon keng payi zardobosti muskul qavatining davomi bo‘lib hisoblanadi. Cho‘chqalarda qon tomirli qavat bo‘lmaydi. Shuning uchun ham yirik qon tomirlari shilliq pardada joylashadi
Monozigot egizaklar	Монозиготные близнецы	Twins monozigot	bir zigotadan uning dastlabki blastomerlari ajralib ketishi natijasida hosil bo‘lgan, irsiy belgilari aynan bir xil bo‘lgan egizaklar
Murtakni ko‘chirish	Трансплантация эмбрионов	Embryo transplantation	“donor hayvon” jinsiy a’zolaridagi murtakni “resipient hayvon” bachadoniga ko‘chirib o‘tkazishdan iborat biotexnik jarayon. Bunda resipientlarning organizmida normal bo‘g‘ozlik boshlanib, murtak va keyinchalik, homila rivojlanadi.
Nekrospermiya	Некросперми я	Nekrosperm iya	o‘lik spermiylar saqlovchi eyakulyat
Nekrotik metrit	Некротический метрит	necrotizing metritis	bachadonning og‘ir kechadigan kasalligi bo‘lib, plasentomalar atrofida yoki bachadonning katta qismida to‘qimalarning chuqur emirilishi (nekrozi) bilan xarakterlanadi
Nimfomaniya	Нимфомания	Nimfomaniya	urg‘ochi hayvonlarda jinsiy moyillikni uzoq vaqt davom etishi yoki urg‘ochi hayvonni beto‘xtov qo‘zg‘alishi bo‘lib, kasallik ko‘pincha biya, sigir va kamroq cho‘chqa, echkilarda, ba’zan boshqa turdagi hayvonlarda ham uchraydi
Nurli toj	Радужная оболочка	Iris	etilgan ovarial follikulada follikulyar epiteliy (granulyoza)ning tuxum xujayrani bevosita o‘rab turadigan, radial joylashgan silindrsimon epiteliositlardan iborat qavati

Odatlangan abort	Аборт привычный	habitual abortion	ko‘pincha sigir va biyalarda kuzatilib, taxminan bo‘g‘ozlik davrining aynan bir muddatida, ko‘proq ikkinchi yarmida abort takrorlanib turadi
Ontogenez	Онтогенез	Ontogenesis	organizmning tuxum xujayra otalanishidan boshlab, tabiiy o‘lishigacha bo‘lgan individual rivojlanish jarayoni
Organizmning fiziologik etilish	Физиологическая зрелость	Physiological maturity	organizmning to‘liq shakllanishi, shu zot va jinsga mansub katta yoshdagi hayvon tanasi og‘irligining 65-70 foiziga ega bo‘lgan erkak va urg‘ochi hayvonlarda ta’minlangan bo‘ladi. Fiziologik etilish qoramollarda - 16-18 oylikda, qo‘y va echkilarda - 12-18 oylikda kuzatiladi
Osteomalyasiya	Остеомаляция	Osteomalacia	hayvonlarda kalsiy-fosfor va vitaminlar almashinuvining buzilishi oqibatida suyaklarning yumshab qolishi (dekalsinasiya) va ularning sinuvchan bo‘lib qolishi bilan xarakterlanadi. Ko‘pincha qari sigirlarda tug‘ishiga bir necha hafta yoki oy qolganida kuzatiladi (kutaram), shuningdek, yosh hayvonlarda ham uchraydi. Kasallik qo‘y, echki va cho‘chqalarda, ba’zan biyalarda ham kuzatiladi
Otalanish	Оплодотворение	Fertilization	spermiy va tuxum xujayrasining bir-biriga yopishishi va keyinchalik ularning o‘zaro assimiliyasiyasi va dissimilyasiyasi natijasida ikki xil nasliy xususiyatga ega bo‘lgan xujayraning (zigota) hosil bo‘lishidan iborat murakkab fiziologik jarayonga aytiladi
Ovarioektomiya	Овариоэктомия	Ovarioektomiya	urg‘ochi hayvonda tuxumdonlarni olib tashlash orqali pushsizlantirish bo‘lib, ona cho‘chqalarda ularning semirishini ta’minlash maqsadida, sigirlarda

			tuxumdonlarning kasalliklari (kistalar, sarkoma va boshqa o‘smalar), nimfomaniya paytida, biyalarda tuxumdonlarning jarohatlanishi, ish qobiliyatining pasayishi va juda kuchli qo‘zg‘aluvchan (jinsiy sikl paytida) ishchi biyalarda, nimfomaniya va havfli o‘smalarida tavsiya etiladi
Ovarit	Оварит	Owari	tuxumdonlarning yallig‘lanishihamma turdagi hayvonlarda uchrab, o‘tkir va surunkali kechishi mumkin. Zardobli, gemorragik va yiringli ovaritlar farqlanadi
Ovogenez	Овогенез	Ovogenez	urg‘ochi hayvonlar tuxumdonida tuxum xujayralarining etilishi. Ovogenezda 3 ta faza farqlanadi: ko‘payish fazasi; o‘sish fazasi; etilish fazasi
Ovulyasiya	Овуляция	ovulation	etilgan tuxum xujayrasining tuxumdondan chiqishiga aytiladi. Tuxum xujayrasi tuxum yo‘liga tushib u erda otalanish sodir bo‘ladi va hosil bo‘lgan zigota 7 kun ichida bachadonga tushadi. Ovulyasiya kuyikish boshlanishidan 15-30 soatdan keyin kuzatiladi
Parametriy	Параметрий	Parametric	bachadon bo‘yni bilan tos (chanoq) devorini birlashtirib turuvchi yumshoq biriktiruvchi to‘qima.
Perimetrit	Периметрит	Perimeters	bachadon zardob pardasining yiringli yoki fibrinli yallig‘lanishi bo‘lib, mezoteliy qavatini ko‘chib tushishi, fibrinli parda qoplashi, absseslarning paydo bo‘lishi yoki yaqin joylashgan to‘qimalarga qo‘shilib o‘sishidan chandiqlar hosil bo‘lishi bilan xarakterlanadi
Persistent sariq tana	Персистентная желтая	Lutem body	tug‘ish yoki ovulyasiyadan keyin (otalanishsiz) so‘rilib ketmagan sariq

	тела		tanaga aytiladi. Persistent sariq tana follikulalarning etilishi va rivojlanishini susaytiradigan gormonlar ishlab chiqaradi, hamda hayvonning qisir qolishiga sabab bo‘lishi mumkin
Progesteron	Прогестерон	Progesterone	sariq tana tomonidan ishlab chiqariladigan gormon, “bo‘g‘ozlik gormoni” - deb ataladi. Progesteron jinsiy qo‘zg‘alishni ya’ni, follikulalarning etilishini to‘xtatib turadi, bachadon shilliq pardasining sekretor funkwiyasiga ta’sir ‘tadi, uni murtakning birikishi va rivojlanishiga tayyorlaydi. Progesteron etishmovchiligida murtakning o‘lishi kuzatiladi. Boshlang‘ich bosqichlarida bo‘g‘ozlikni buzilishdan saqlaydi
Prostatit	Простатит	Prostatit	prostata bezi yallig‘lanishi ko‘pincha prostatit qarigan hayvonlarda uchraydi. Bundan tashqari buyrak va siydik pufagi yallig‘langanda prostatitlar uchraydi
Qin dahlizi	Влагалище	Vagina	urg‘ochi hayvonlar jinsiy a’zolarning eng keyingi bo‘limi bo‘lib, tashqi lablar bilan tugaydi. Qin dahlizining shilliq qavati ko‘p qavatli epiteliy xujayralari bilan qoplangan. Undalimfatugunlarivapastkitomonbezlarivestibulyarbezlaribo‘ladi
Qinni chiqib qolishi	Выпадение влагалища	Stay out of the vaginal	tos bo‘shlig‘ining biriktiruvchi to‘qima asosi hamda devorlari tonusining yo‘qolishi tufayli, qinning jinsiy yoriqlar orqali chiqishi tushuniladi. Qinning qisman - dorzal tomoni devorlari jinsiy yoriqdan ko‘rinib turadi) va to‘liq - qin va bachadon bo‘yinchasining jinsiy yoriqdan tashqariga chiqishi) chiqishi

			farqlanadi
Qisirlik	Бесплодие	infertility	iqtisodiy ko‘rsatkich bo‘lib, hayvonlarning xo‘jalik yili davomida ko‘tilgan miqdorda bola bermasligi tushiniladi
Qo‘shimcha jinsiy bezlar	Придаточные половые железы	Accessory genital glands	pufaksimon, prostata, piyozsimon) qo‘shimcha jinsiy bezlar ajratgan sekretlar jinsiy-siydik kanalini tozalaydi, spermani suyultiradi va harakatini stimullaydi. Birinchi navbatda piyozsimon bez sekret ajratib, kanalni tozalaydi, keyin kanalga spermiylar chiqadi, prostata bezi sekreti chiqarilib, spermani suyultiradi va jinsiy aloqadan keyin pufaksimon bez sekret ajratib, jinsiy-siydik kanalini tozalaydi
Rasion	Рацион	Ration	oziqalarning to‘yimli moddalarga nisbatan hayvonlarning sutkalik ehtiyojini qondiradigan tarkibi. Oziqlantirish me’yorlari asosida turli oziqalardan tashkil etilib, oziqalarning oziq birligi, tarkibidagi hazmlanuvchi protein, qand, vitaminlar va mineral moddalar hisobga olinadi
Reotaksis	Реотаксис	Reotaksis	spermiylarning urg‘ochi hayvon jinsiy yo‘llarida suyuqlik oqimiga qarshi harakatlanish hodisasi
Sariq tana	Желтое тело	Ellow body	ichki sekresiya bezi bo‘lib, lyutein gormonini ishlab chiqaradi, bu gormon bachadon shilliq pardasiga ta’sir qilib, uni embrionni qabul qilishga tayyorlaydi. Sariq tananing yolg‘on yoki jinsiy sikl sariq tanasi, bo‘g‘ozlik sariq tanasi va patologik sariq tana turlari farqlanadi
Septisemiya	Септицемия	Septicemia	mahalliy yallig‘lanish jarayonining asorati sifatida qonda mikroorganizmlar va ularning toksinlarining bo‘lishi, kasal

			hayvon umumiy holatining juda og‘irlashishi bilan xarakterlanadi
Siydik parda (allantois)	Аллантоис	Allantois	murtakning birlamchi ichagidan (siydik haltasi) hosil bo‘lib, kindik teshigidan burtib chiqib turadi. Siydik pardasi xaltaga o‘xshash bo‘lib, tomirli va suvli pardalarning oralig‘ida joylashadi, uning uchi kindikka ulangan siydik yo‘li - uraxus (urachus) orqali siydik pufagi bilan birlashadi
Sperma	Сперма	sperm	deb erkaklik jinsiy xujayralari (spermiy) va plazmadan (urug‘don ortig‘i va qo‘shimcha jinsiy bezlar sekreti) iborat suyuqlikka aytiladi
Spermioagglyutinasiya	Спермиоагглютинация	Spermioagglyutinasiya	deb spermiylarning manfiy elektr zaryadlarining kamayishi yoki neytrallanishi oqibatida ularning bir-biriga boshchasi yoki butun tanasi bilan yopishib qolishiga aytiladi. Spermioagglyutinasiya vaqtinchalik, ya’ni spermiylarning bir-biriga faqat boshchasi bilan yopishib qolishi (yulduzsimon agglyutinasiya) va harakatchanligining saqlanib qolishi hamda qayta tiklanmaydigan, ya’ni spermiylarning bir-biriga betartib yopishib qolishi va harakatsizligi (o‘lik) bilan kechadigan turlari uchraydi
Spermiogenez	Спермиогенез	Spermiogenez	urug‘donlarda spermiylarning o‘sishi va etilishi bo‘lib, uning to‘rt bosqichi farqlanadi: spermiylarning ko‘payishi, o‘sishi, etilishi va shakllanishi. Bu bosqichlarda jinsiy xujayralarning kattaligi, shakli o‘zgaradi va ular yadrosidagi xromosomalarda murakkab o‘zgarishlar sodir bo‘ladi
Spermiy	Спермия	Sperm	(spermatozoid) - spermaning asosiy tarkibiy qismini tashkil etib, o‘ziga xos

			tuzilishga ega va organizmdagi boshqa xujayralardan, shuningdek, tuxum xujayrasidan ham keskin farq qiladi. Spermiylarning uzunligi tuxum xujayrasi aylana diametridan 2 marta, hajmi tuxum xujayrasi hajmidan 160 ming marta kichik bo‘ladi
Sun’iy abort	Аборт	Abortion	veterinariya mutaxassislari tomonidan terapevtik yoki iqtisodiy maqsadlarda bo‘g‘ozlikni buzish hisoblanadi.
Sun’iy urug‘lantirish	Искусственное оплодотворение	Artificial inseminatio n	murakkab biotexnologik usul bo‘lib, erkak nasilli hayvonlardan maxsus asboblar yordamida olingan spermani suyultirilmagan yoki suyultirilgan holda turli asboblar yordamida urg‘ochi hayvonlar jinsiy a’zolariga yuborishdan iborat bo‘ladi
Superfekundasiya	Суперфекундация	Superfekundasiya	deb bitta jinsiy sikl davrida bir necha tuxum xujayralarining turli erkak hayvonlar spermiylari bilan otalanishiga aytiladi, bu jarayon ko‘proq it, mushuk, cho‘chqalarda va ba’zan sigir va biyalarda uchraydi
Suv parda (amnion parda)	Водная оболочка (амниотическая оболочка)	Water curtains (the veil of the amnion)	trofoblastdan burmalar hosil bo‘lishi va ularning ipchalarga aylanishi hisobiga hosil bo‘ladi. Bu homilaning eng ichki pardasi hisoblanib, barcha hayvonlarda qon tomir parda bo‘shlig‘iga kirib turadi. Homila suyuqligining miqdori ko‘payib borib, sigirlarda bo‘g‘ozlikning 1- oyida - 30-60 ml, 2- oyida - 200-450, 3- oyida -750-1400 ml, 4- oyida - 2-3,5 l, 5- oyida - 4-5, 6- oyida - 4-7,5, 8- oyida - 8-12, 9- oyida - 12-20 litrgacha bo‘ladi
Tuxumdonlar	Яичники	Ovaries	Urg‘ochilik jinsiy xujayralari va jinsiy gormonlarini ishlab chiqaruvchi oval shakldagi juft organ bo‘lib, qorin bo‘shlig‘ining bel sohasida,

			buyraklarning orqa tomonida joylashgan
To‘laqimmatli jinsiy sikl	Полноценный половой цикл	Full sexual cycle	bunda jinsiy davr bosqichlari ketma-ket kelib, qo‘yikish, jinsiy moyillik, qo‘zg‘alish va ovulyasiya fenomenlari hosil bo‘ladi
Tomirli parda (Xorion)	Сосудистый оболочка (Хорион)	Choroin	homilaning eng tashqi pardasi bo‘lib, u ona tanasidagi oziqaviy moddalar va kislorodni homilaga etkazib berish hamda homila organizmida hosil bo‘lgan almashinuv mahsulotlari va karbonat angidridni ona qon tomirlariga etkazib turish uchun xizmat qiladi
Tug‘ishdan keyingi sapremiya	Послеродовая сапремия	Birth sapremiya	bachadonning subinvalyusiyasi paytida organizmning bachadondagi suyuqliklar, homila pardalarining parchalanishi va chirishidan hosil bo‘lgan zaharli mahsulotlarning qonga so‘rilishi oqibatida intoksikasiyasi natijasida kuzatilib, urg‘ochi hayvon jinsiy a’zolarida hech qanday mahalliy yallig‘lanish kuzatilmasligi bilan xarakterlanadi
Tug‘ruqdan keyingi falaj	Послеродовая паралич	Postpartum paralysis	o‘tkir kechuvchi kasallik bo‘lib, muskullarning yarim falaji, tomoq, til, ichaklarning falaji, qondagi kalsiy miqdorining keskin kamayishi hisobiga koma holati bilan xarakterlanadi
Uraxus fistulasi	Фистула Урахуса	Fistulas Urahusa	kindik uzilgandan keyin siydik yo‘lining bekilmay qolishi bo‘lib, ko‘pincha buzoqlarda, ba’zan toylarda kuzatiladi
Urug‘ yo‘llari	Семяпроводы	Vas efferens	juft bo‘lib, urug‘don ortig‘i kanalining davomi hisoblanadi. Urug‘ yo‘llari nerv va qon tomirlari bilan birgalikda umumiy qin orqali qorin bo‘shlig‘iga

			o‘tadi va u erda nerv va qon tomirlaridan ajralib, siydik xaltasi tomonga yo‘naladi. Siydik xaltasining ustida urug‘ yo‘llari tutashib, kengaygan joy - ampulani hosil qiladi
Urug‘don ortig‘i	Придатка семенника	Appendage of the testis	bosh qismida oq pardadan biriktiruvchi to‘qimadan iborat to‘siq chiqib urug‘donning parenximasiga o‘sib kiradi va uni ko‘plab piramida shaklidagi bo‘lakchalarga ajratib turadi. Bu bo‘lakchalarning asosi urug‘donning tashqarisiga, uch tomoni esa urug‘don ortig‘ining bosh qismiga yo‘nalgan bo‘ladi. Urug‘don ortig‘ida spermiylar etiladi va to‘planib turadi
Uviz suti	Молозиво	corostrum	quyuq, yopishqoq, sarg‘ich-oq rangdagi suyuqlik bo‘lib, o‘ziga xos taqirroq noqulay ta’mga ega. Uviz tarkibida oqsillar va tuzlar, yog‘ tomchilari (uviz tanachalari) ko‘p bo‘ladi. Uviz tarkibida oddiy sutga nisbatan yog‘lar va qand kam, temir ko‘p, retinol va askorbin kislotasi 10 marta, kalsiferol 3 marta ko‘p bo‘ladi
Uvizli toksikoz	Молозивный токсикоз	Colostrictoxicosis	yangi tug‘ilgan hayvonlarning o‘tkir kechadigan kasalligi bo‘lib, diareya va umumiy toksikoz bilan xarakterlanadi
Vaginit	Вагинит	Vaginitus	qinni yallig‘lanishi
Vazektomiya	Вазэктомия	Vazektomiya	urug‘ yo‘li yoki urug‘don ortig‘ining bir qismini kesib olib tashlashdan iborat bo‘lib, bu usulda tayyorlangan sinovchi erkak hayvonlar urg‘ochi hayvonlarda kuyikishni aniqlash, bo‘g‘ozlikni erta bosqichlarida aniqlash va jinsiy funksiyalarni stimullash maqsadida foydalaniladi. Bunday hayvonlarda jinsiy reflekslar to‘liq saqlanib qolgan bo‘ladi, jinsiy aloqa paytida faqat qo‘shimcha jinsiy bezlar suyuqligi

			ajraladi
Vazopressin	Вазопрессин	Vasopressin	gipofizning orqa qismi gormoni. Qon tomirlar ichki devori silliq muskullariga ta’sir etish orqali yuzasining torayishini, buyrak egri kanalchalarida suvni kerakli darajada qayta so‘rilishini boshqarib turadi
Vestibulit	Вестибулит	Vestibulitus	qin dahlizining yallig‘lanishi
Veterinariya akusherligi	Ветеринарное акушерство	Veterinary obstetrics	hayvonlar jinsiy jarayonlar fiziologiyasi va patologiyasi, hayvonlarni tabiiy va sun’iy urug‘lantirish, bo‘g‘ozlik, tug‘ish va tug‘ishdan keyingi davr fiziologiyasivapatologiyasi hamda sut bezlari va yangi tug‘ilgan hayvonlar kasalliklarini o‘rganadigan fandir
Veterinariya ginekologiyasi	Ветеринарная гинекология	veterinary gynecology	urg‘ochi hayvonlar jinsiy a’zolarining kasalliklari va turli bepushtliklarning sabablarini, aniqlash, davolash va oldini olish usullarini o‘rgatadigan fandir
Veterinariya-sanitariya qoidalari	Ветеринарно-санитарные правила	Veterinary and sanitary rules	chorvachilik xo‘jaliklari va boshqa tashkilotlar uchun bajarilishi majbur bo‘lgan sanitariya me’yor va talablar majmuasi bo‘lib, hayvonlarni yuqumli va parazitar kasalliklardan himoya qilish hamda yuqori sanitariya sifatiga ega chorvachilik mahsulotlari etishtirishga qaratilgan tadbirlar yig‘indisidir
Veterinariya-zootexnikaviy qoidalar	Ветеринарно-зоотехнические правилы	Veterinary and zootechnical rules	qishloq xo‘jalik hayvonlarini parvarishlash, oziqlantirish va ularni sog‘ligini, yuqori mahsuldorligini, reproduktiv xususiyatlari va nasliy sifatlari hamda xo‘jalikda uzoq muddat foydalanish muddatlarini ta’minlaydigan zoogigienik me’yorlar asosida parvarishlash
Veterinarnay	Ветеринарна	Veterinarna	jinsiy a’zolar va boshqa a’zolarning

a ginekologiyasi	я гинекология	ya gynecology	bepushtliklarga sabab bo‘ladigan funksional o‘zgarishlari va patologik jarayonlar haqidagi fandir
Vezikulit	Везикулы	Vesicles	pufakchasimon bezning yallig‘lanishi
Vivariya	Вивария	vivarium	tajriba hayvonlari saqlanadigan maxsus jihozlangan bino
Vizoservikal	Визоцервикал	Vizoservikal	sigir, qo‘y va echkilarni sun’iy urug‘lantirish usuli bo‘lib, turli konstruksiyadagi shpris-kateterlar va qin oynasi qo‘llaniladi
Vulvit	Вулвит	the vulva	jinsiy lablarni yallig‘lanishi
Elin	Вымя	Uber	urg‘ochi hayvonlar sut bezi. Kavshovchi hayvonlar va biyalarda chot sohasida, sonlari orasida cho‘chqa va itlarda oq chiziqdan chap va o‘ng tomonda joylashadi. Erkak hayvonlarda sut bezlari rudimentlashgan bo‘lib, urug‘donlarning oldi tomonida joylashadi
Elin induratsiyasi	Индурасиявы мени	Induration of the udder	elin parenximasining atrofiyasi va biriktiruvchi to‘qimaning o‘sishi bilan kechadigan patologik jarayon
Elin abssesi	Абсцеси вымени	Abscess udder	mikroorganizmlarning sut yo‘llari yoki qon tomirlari orqali tarqalishi oqibatida elinda ko‘plab turli kattalikdagi yiringli uchoqlar paydo bo‘lishi
Zardobli mastit	Циррозный мастит	Whey mastitis	elinni zardobli yallig‘lanishi, giperemiya, asosan bo‘laklar aro to‘qimaga ko‘p miqdorda zardobli ekssudatning va leykositlarning to‘planishi (emigrasiyasi) bilan xarakterlanadi
Zigota	Зигота	Zygote	otalanish ya’ni erkaklik va urg‘ochilik jinsiy xujayralarining o‘zaro birikishidan hosil bo‘lgan xo‘jayra, murtak rivojlanishining boshlang‘ich bosqichi

Evaluation standards in science

Students ' mastery of subjects is assessed in a 5-point system.
5 (excellent) grade:
Conclusion and decision making;
Getting creative thoughts;
Being able to follow independent observation;
Being able to put into practice the knowledge gained;

Understanding the essence;
Know, tell;
Imagination;

4 (good) grade:

Being able to follow independent observation;
Being able to put into practice the knowledge gained;
Understanding the essence;
Know, tell;
Imagination;

3 (satisfactory) grade:

Understanding the essence;
Know, tell;
Imagination;

2 (unsatisfactory) grade:

Failure to master the program;
Ignorance of the essence of science;
Not having a clear idea;
Inability to think independently.

SCIENCE CONDUCTED ON THE QUESTIONS FOR CERTIFICATION:

1-the weather forecast for the oral questions (120)

1. 1.What does he teach the science of veterinary obstetrics?
2. 2.Veterinary obstetrics, the science of the development ofone of the scientists who contribute iga, do you know?
3. 3.What are the advantages of artificial insemination consists?
4. 4.Members of various animals, females in specific aspects of sex?

5. 5.The main functions of the ovaries?
6. 6.The effects of the hormone, which is produced in the ovaries to the body?
7. 7.Ovogenezning essence stages?
8. 8.What is the main functions of the testes?
9. 9.The differences in the lines of a sexual member in male animals different?
10. 10.Spermiogenezof the stage, which is the difference?
11. 11.In the age of the animal and which is to monitor the physiological sex?
12. 12.Home management factors which sexual function in animals?
13. 13.The stages of the sexual cycle in females the difference is in how animals?
14. 14.The excitement phase of the sexual cycle of the phenomenon is characterized by clinical signs of any?
15. 15.Animal house the night of a sexual cycle in females specific to the type of features?
16. 16.The excitement phase is caused by the calving and sinxron asinxron in the form of what?
17. 17.Sexual a sexual cycle cycle to'laqimmatli to'laqimmatli what is the difference?
18. 18.Are any types of the sexual cycle To'laqimmatli?
19. 19.Animals inseminated females to prepare?
20. 20.Natural insemination methods arethe main differences?
21. 21.Artificial insemination scroll the list of benefits from natural fertilization.
22. 22.The types of fertilization in animals?
23. 23.What is the significance of fertilization through the vagina?
24. 24.What is the significance of the uterus through fertilization?
25. 25.What is the importance of the development of artificial insemination of livestock animals rendered?
26. 26.Cows vizoservikal method of insemination advantages and disadvantages?
27. 27.Cowektoservikal method of insemination advantages and disadvantages?
28. 28.Cowanoservikal method of insemination advantages and disadvantages?
29. 29.How to select the Donor is to follow the principles of the cows?
30. 30.Resipient animals as cow, how can I use it?
31. 31.Murtak of the method of how to get from the donor used?
32. 32.Embryo transfer to the uterus of an animal can resipient on how kuchib out?
33. 33.Otalanish the essence of stages, the development of the fetus future brittle and curtains.
34. 34.Bo'g'ozlik various types of animals and duration.
35. 35.The specific changes in animal body bo'g'oz ko'zatiladi almashnuvi and substances.
36. 36.It is said that otalanish why?
37. 37.Otalanash consists of multiple stages?
38. 38.The curtains in the fetus, development of their specific consists of what?
39. 39.Do you understand what the fetus is about the satellite?

40. 40.Do you know of any type of satellite fetus?
41. 41.Identify the importance of bo'g'ozlik in animals. On the other hand bo'g'ozlik determine the external methods.
42. 42.Bo'g'ozlik detection methods from the internal side (through the rectum and the vagina).
43. 43.Bo'g'ozlik determined what the purpose of the animals?
44. 44.That is why it is said Refleksologik method?
45. 45.Check paypaslanadi through the rectum in which the members?
46. 46.Bo'g'ozlik checked in the laboratory to determine what method?
47. 47.The methods are classified in the diagnosis of infertile animal I bo'g'ozlik and how?
48. 48.In practice, the method of determining which interaction and infertile animals bo'g'ozlik much is used?
49. 49.The care and feeding of animals Bo'g'oz rules.
50. 50.Bo'g'oz animals out of the vagina.
51. 51.Bo'g'oz appear to be tumors in animals.
52. 52.From the time kuchanib and to'lg'oq previously.
53. 53.Bo'g'oz the lies of the animals remain.
54. 54.The veil of water accumulate in the fetus.
55. 55.Grijasi the uterus. The driving of the uterus remain.
56. 56.Bo'g'oz norms of feeding animals?
57. 57.The main causes of coming out of the vagina?
58. 58.The mechanism of the appearance of tumors in animals will be Bo'g'oz?
59. 59.The procedure for the treatment of diseases in osteomalyasiya bo'g'oz cow?
60. 60.Buralishi of the uterusto explain the mechanism of the development.
61. 61.Bo'g'oz prevention of diseases of animals?
62. 62.The removal of the child (abortion), the type of causes.
63. 63.Hremove children tent in complications, their treatment and prevention.
64. 64.That is why it is said to remove the child?
65. 65.To remove the child of any type do you know?
66. 66.Complete abortionof the main character, what is it?
67. 67.Incomplete and complete (abortion) what is the removal of the child?
68. 68.Htentdaaborts to prevent?
69. 69.The physiology of birth.
70. 70.Assist in the preparation and birth of animals born to.
71. 71.The next period from birth, sexual organs involyutsiyasi.
72. 72.New breeding rules for the care of animals.
73. 73.Tell that to what is born?
74. 74.To be born on the teachings of the cause?
75. 75.The fertile period of their vary?
76. 76.The denial of the features of the next period from birth?
77. 77.Born in patologiyasida the help of obstetrics prepared to show
78. 78.Kuchanib weak and to'lg'oq
79. 79.Kuchanib to'lg'oq and strong.

80. 80.The way to narrow the ministry of birth
81. 81.Born to the wrong position of the fetus in the effects of the location and the pathology of
82. 82.The main causes of the pathology to be born?
83. 83.The dynamics arising from the destruction of pathology birth?
84. 84.The types of pathology of the fetus and the uterus arising from buyinchasiochilmasligiligidan wrong location?
85. 85.The location and position of the fetus in the aftermath of the birth of pathology wrongand that's the reason.
86. 86.Hold out mate remain.
87. 87.Out to be the womb.
88. 88.Postpartum paralysis.
89. 89.Hold mate, I remainthe main reasons.
90. 90.Hold mate and remain toshow the advantage of the method and the help of obstetrics at kamchiliklarinimalar?
91. 91.Out of the uterus,that's the main reason count the number of go.
92. 92.The output of the uterus withthe help of obstetrics at show methods.
93. 93.Postpartum paralysis to explain the mechanisms of the effects of etiopatogenetik tools in the diagnosis and treatment.
94. 94.From birth to the next service and vulvit vak.
95. 95.The next endometrit from birth.
96. 96.The uterus subinvalyusiyasi
97. 97.Perimyetrit paramyetrit from birth and the next.
98. 98.The next septisemiya from birth.
99. 99.Vulvit from birth to the next, and the service procedure for the treatment of link vak?
100. 100.The next reason endometritni minds and treatment from birth?
101. 101.The uterus subinvolyutsiyasining the main causes, methods of prevention?
102. 102.From birth and the next perimyetrit paramyetritning the main causes, methods of prevention?
103. 103.The next septisemiya from birthto treatmentandprevention methods?
104. 104.The new born animals anatomo-physiological features.
105. 105.Asfiksiya.
106. 106.Toksikoz uv. Gipotrofiya Alimentar.
107. 107.First crap (a mekong) delayed remain.
108. 108.Chiqaruv hole and the back of the rectum is not congenital.
109. 109.Diseases of the umbilical cord.
110. 110.What is Asfiksiya?
111. 111.Mekongniy what is it?
112. 112.New born many diseases occurring in animals?
113. 113.The navelto be not only spiritually healthylig‘lanishthe causes and treatment of i?
114. 114.Measures for prevention of diseases of new-born animals?
115. 115.Mammary gland anatomo-physiological features.

116. 116.The classification of mastitis.
117. 117.Agalaktiya and gipogalaktiya.
118. 118.Diagnosis of mastitis in cows, treatment and prevention.
119. 119.Biya, sheep, goats mastitlarningdiagnostikasi,treatment and prevention methods.
120. 120.Which types of mastitis in cows occurs in?

2-oral questions for the weather (120)

1. 1.A solution of soda in the treatment of mastitis yelin will be sent through the teat for what purpose?
2. 2.Spesifik of mastitistypes?
3. 3.Flynn indurasiyasining causes and effects?
4. 4.Fgiperemiya the causes and treatment of the swelling and lynn procedure?
5. 5.Mastitisprevention larningumumiy?
6. 6.Sex lab,the other a vagina, the vagina and the neck of the uterus, diseases of.
7. 7.Diseases of the uterus.
8. 8.Sex lab,the other a vagina, the vagina and the neck of the uterus what are the main causes of diseases?
9. 9.Qand neck of the womb , go to the main symptoms of the diseases listed.
10. 10.Diseases of the uterus major risk factors for the disease.
11. 11.Characteristic symptoms of chronic consists endometritlarning what?
12. 12.Hidden chronic endometritlarning diagnosis is based on what?
13. 13.Hunt.
14. 14.Persistent yellow body.
15. 15.Atrophy of ovaries and gipofunksiyasi.
16. 16.Kistasi ovaries.
17. 17.Nimfomaniya.
18. 18.Methods for the treatment of inflammation of the ovaries?
19. 19.Causes and diagnosis of ovarian kistasining?
20. 20.Persistent yellow body what?
21. 21.Ovaries are the main causes of multiple sclerosis?
22. 22.Ovaries gipofunksiyasini the basic principles of treatment?
23. 23.The concept of infertility and qisir.
24. 24.These are the main causes infertile azerbaijanis and classification.
25. 25.Obstetrician-gynecological dispanserlash, transfer lines and deadlines.
26. 26.Causes and types of infertile
27. 27.In animals, pushsizlikning immunological causes what can be?

28. 28.Of iodine in the diet will be observed how the mechanism of infertility?
29. 29.Akconstruction-ginakdispanserlash the importance of an olon transfer?
30. 30.Obstetrician-gynecological dispanserlash consists of several stages?
31. 31.Gynecological dispanserlash cow in the term in which o'tkasilsdi?
32. 32.Andrologik dispanserlash.
33. 33.The type of male sexual weakness and degeneration in animals naslli and pessimism.
34. 34.Sex male members of the animal's diseases.
35. 35.Hinfertile avoid such events in the tent.
36. 36.Andrologik dispansarlash stages?
37. 37.The type of male sexual weakness and degeneration in animals naslli and pessimism.
38. 38.Sex male members of the animal's diseasestoprevention measures.
39. 39.Additional sexual glands diseases, causes, treatment and prevention measures in the event?
40. 40.Increasing the effectiveness of artificial insemination, the importance of?
41. 41.Hinfertile avoid such events in the tent.
42. 42.Members of biya how the sex parts?
43. 43.Other various animals in the vagina and the vagina to the limit is determined by how much?
44. 44.Animals, which drew divertikula females there?
45. 45.Animals transverse folds in the neck of the uterus which is well developed?
46. 46.In animals which ovulyasion bo'ladi7 combs
47. 47.In animals in which the surface of the ovaries of the perks of note?
48. 48.On mucous membranes of the uterus which is katelidonlar animals?
49. 49.Male animal sex of the members of the anatomo-physiological features and threads
50. 50.Refleks be sexual male animals and their management.
51. 51.How testes bag from the floor is?
52. 52.What is the importance of testes raised the proverbial muscles?
53. 53.In the neck of the bag in the testes of the animals, which is a good show?
54. 54.From the testes, which is more than a part of?
55. 55.Animals sex in which a member of its s - shaped bent part?
56. 56.The number in the testes of the animals, which is located in the back part of the bone?
57. 57.Quchqor, bull, and the fluid in the prostate gland of male pigs in how ayg'ir konsistensiyasi is there a difference?
58. 58.Which glands are well developed in animals piyozchasimon?

59. 59.Sperm from male animals get to prepare to the collection and use of artificial vagina
60. 60.The structure of the artificial vagina, and prepare to use them.
61. 61.Naslli ayg'ir, bull, pig and get the sperm quchqorlardan technique.
62. 62.In the year 1942, which formed part of the sample from the artificial vagina?
63. 63.Is there any type of Spermayig'gichlarning?
64. 64.How to water at a temperature of the compartment should be Su'iy to the vagina?
65. 65.How to disinfect rubber yasalgavn spermayig'gichlar will be?
66. 66.Getting sperm from animals which requires attention should be focused on?
67. 67.Bull obtain the seed from which methods do you know?
68. 68.You need to hold at any angle of obtaining sperm from the vagina artificial qo'chqorlar?
69. 69.Technique to get a sperm from a life of ayg'ir please explain?
70. 70.Designed to get sperm Xurozlardan what should be the temperature of the room?
71. 71.To get sperm from male animals at various time?
72. 72.Bull identify for what purpose is it used?
73. 73.Determine which methods known major bull kuyikishni you prepared to be?
74. 74.Vazektomiya what it is, how it is made using the method?
75. 75.Sex with a member of its s-shaped buralishi how to put the bet method is carried out?
76. 76.Shipilov vazektomiya explain the essence of the method method.
77. 77.Sex with a member of prepusiya is made to move and how?
78. 78.The excitement phase of the sexual cycle is characterized by what?
79. 79.The stage of sexual excitement in the cow show.
80. 80.Cow bodies and the time of insemination depends on which factors?
81. 81.The method of insemination through the vagina, which do you know?
82. 82.Insemination of cows used in main and auxiliary scroll the list of wielding.
83. 83.Glass syringe-catheter elaboration of methods to use.
84. 84.Advantages and disadvantages of artificial insemination in cows vizoservikal method.
85. 85.Manoservikal method of insemination technique.
86. 86.Bodies and cow insemination dose and depends on what it is?
87. 87.For artificial insemination, which are required to put on the whole armor of biya?
88. 88.Sperm for the insemination of sperm in a dose biya how it should be?
89. 89.Mating in biya is determined by how much?

90. 90.Frozen-thawed sperm ayg'ir what is the procedure?Go to the list of methods of artificial insemination of sheep, their advantages and disadvantages.
91. 91.After insemination sheep care rules.
92. 92.Syringe for the sheep-processing rules to a catheter.
93. 93.Which method are used more than artificial insemination of goats?
94. 94.Females animal kuyikishini determine the methodslisted to go to.
95. 95.What should be the age and body weight of the pigs for the first time urug'lantirilishida?
96. 96.The essence of the method fraksion insemination of pigs.
97. 97.Artificial insemination in pigs is used as a complementary solution to what?
98. 98.Let me explain the technique of artificial insemination dogs.
99. 99.How much is a dose of sperm for artificial insemination of poultry?
100. 100.Parradalar suyultiruvchi the environment for which the use of diluted sperm?
101. 101.Let me explain the essence of the method of artificial insemination chicken.
102. 102.Artificial insemination of turkeys, is carried out how?
103. 103.How does track changes in the uterus during bo'g'ozlik?
104. 104.How to determine the king of the condition of the uterus, can on?
105. 105.What is the uniqueness of the curtain in allontois biya?
106. 106.The amount of fluid at the end of amnion Bog'ozlikning biya, cow and qo'ylarda is how?
107. 107.The age of the fetus is determined by how much?
108. 108.The fetus of the sheep in the month of 2.5 will be able to figure how to?
109. 109.How to 7.5 monthly index of the fetus will be able to biya?
110. 110.The cows of the fetus will be able to figure out how to in 6 months?
111. 111.Scroll the list of methods to determine bo'g'ozlik.
112. 112.Let me explain the essence of the method Servikal fluid check.
113. 113.The cow will have a personal effect in the osmotr determine the method of bo'g'ozlik since when?
114. 114.On the other hand paypaslab bo'g'ozlik the biya, which is determined?
115. 115.Bo'g'ozlik of the vagina is detected by the method is based on what?
116. 116.See how it is prepared before you determine bo'g'ozlik through the rectum?
117. 117.Bo'g'ozlik through the rectum in the identification technical safety rules.
118. 118.Scroll the list of methods to determine bo'g'ozlik.
119. 119.Using ultrasound waves to identify the short bo'g'ozlik (HeTT) what is the principle of the method?

120. 120.HeTin order to check the fetus in the uterus signs of lack of T.

Questions for oral YaB (300 units)

1. 1.What does he teach the science of veterinary obstetrics?
2. 2.Veterinary obstetrics, the science of the development ofone of the scientists who contribute iga, do you know?
3. 3.What are the advantages of artificial insemination consists?
4. 4.Members of various animals, females in specific aspects of sex?
5. 5.The main functions of the ovaries?
6. 6.The effects of the hormone, which is produced in the ovaries to the body?
7. 7.Ovogenezning essence stages?
8. 8.What is the main functions of the testes?
9. 9.The differences in the lines of a sexual member in male animals different?
10. 10.Spermiogenezof the stage, which is the difference?
11. 11.In the age of the animal and which is to monitor the physiological sex?
12. 12.Home management factors which sexual function in animals?
13. 13.The stages of the sexual cycle in females the difference is in how animals?
14. 14.The excitement phase of the sexual cycle of the phenomenon is characterized by clinical signs of any?
15. 15.Animal house the night of a sexual cycle in females specific to the type of features?
16. 16.The excitement phase is caused by the calving and sinxron asinxron in the form of what?
17. 17.Sexual a sexual cycle cycle to'laqimmatli to'laqimmatli what is the difference?
18. 18.Are any types of the sexual cycle To'laqimmatli?
19. 19.Animals inseminated females to prepare?
20. 20.Natural insemination methods arethe main differences?
21. 21.Artificial insemination scroll the list of benefits from natural fertilization.
22. 22.The types of fertilization in animals?
23. 23.What is the significance of fertilization through the vagina?
24. 24.What is the significance of the uterus through fertilization?
25. 25.What is the importance of the development of artificial insemination of livestock animals rendered?
26. 26.Cows vizoservikal method of insemination advantages and disadvantages?
27. 27.Cowektoservikal method of insemination advantages and disadvantages?

28. 28.Cowanoservikal method of insemination advantages and disadvantages?
29. 29.How to select the Donor is to follow the principles of the cows?
30. 30.Resipient animals as cow, how can I use it?
31. 31.Murtak of the method of how to get from the donor used?
32. 32.Embryo transfer to the uterus of an animal can resipient on how kuchib out?
33. 33.Otalanish the essence of stages, the development of the fetus future brittle and curtains.
34. 34.Bo'g'ozlik various types of animals and duration.
35. 35.The specific changes in animal body bo'g'oz ko'zatiladi almashnuvi and substances.
36. 36.It is said that otalanish why?
37. 37.Otalanash consists of multiple stages?
38. 38.The curtains in the fetus, development of their specific consists of what?
39. 39.Do you understand what the fetus is about the satellite?
40. 40.Do you know of any type of satellite fetus?
41. 41.Identify the importance of bo'g'ozlik in animals. On the other hand bo'g'ozlik determine the external methods.
42. 42.Bo'g'ozlik detection methods from the internal side (through the rectum and the vagina).
43. 43.Bo'g'ozlik determined what the purpose of the animals?
44. 44.That is why it is said Refleksologik method?
45. 45.Check paypaslanadi through the rectum in which the members?
46. 46.Bo'g'ozlik checked in the laboratory to determine what method?
47. 47.The methods are classified in the diagnosis of infertile animal I bo'g'ozlik and how?
48. 48.In practice, the method of determining which interaction and infertile animals bo'g'ozlik much is used?
49. 49.The care and feeding of animals Bo'g'oz rules.
50. 50.Bo'g'oz animals out of the vagina.
51. 51.Bo'g'oz appear to be tumors in animals.
52. 52.From the time kuchanib and to'lg'oq previously.
53. 53.Bo'g'oz the lies of the animals remain.
54. 54.The veil of water accumulate in the fetus.
55. 55.Grijasi the uterus. The driving of the uterus remain.
56. 56.Bo'g'oz norms of feeding animals?
57. 57.The main causes of coming out of the vagina?
58. 58.The mechanism of the appearance of tumors in animals will be Bo'g'oz?
59. 59.The procedure for the treatment of diseases in osteomalyasiya bo'g'oz cow?
60. 60.Buralishi of the uterusto explain the mechanism of the development.

61. 61.Bo'g'oz prevention of diseases of animals?
62. 62.The removal of the child (abortion), the type of causes.
63. 63.Hremove children tent in complications, their treatment and prevention.
64. 64.That is why it is said to remove the child?
65. 65.To remove the child of any type do you know?
66. 66.Complete abortionof the main character, what is it?
67. 67.Incomplete and complete (abortion) what is the removal of the child?
68. 68.Htentdaaborts to prevent?
69. 69.The physiology of birth.
70. 70.Assist in the preparation and birth of animals born to.
71. 71.The next period from birth, sexual organs involyutsiyasi.
72. 72.New breeding rules for the care of animals.
73. 73.Tell that to what is born?
74. 74.To be born on the teachings of the cause?
75. 75.The fertile period of their vary?
76. 76.The denial of the features of the next period from birth?
77. 77.Born in patologiyasida the help of obstetrics prepared to show
78. 78.Kuchanib weak and to'lg'oq
79. 79.Kuchanib to'lg'oq and strong.
80. 80.The way to narrow the ministry of birth
81. 81.Born to the wrong position of the fetus in the effects of the location and the pathology of
82. 82.The main causes of the pathology to be born?
83. 83.The dynamics arising from the destruction of pathology birth?
84. 84.The types of pathology of the fetus and the uterus arising from buyinchasiochilmasligiligidan wrong location?
85. 85.The location and position of the fetus in the aftermath of the birth of pathology wrongand that's the reason.
86. 86.Hold out mate remain.
87. 87.Out to be the womb.
88. 88.Postpartum paralysis.
89. 89.Hold mate, I remainthe main reasons.
90. 90.Hold mate and remain toshow the advantage of the method and the help of obstetrics at kamchiliklarinimalar?
91. 91.Out of the uterus,that's the main reason count the number of go.
92. 92.The output of the uterus withthe help of obstetrics at show methods.
93. 93.Postpartum paralysis to explain the mechanisms of the effects of etiopatogenetik tools in the diagnosis and treatment.
94. 94.From birth to the next service and vulvit vak.
95. 95.The next endometrit from birth.
96. 96.The uterus subinvalyusiyasi
97. 97.Perimyetrit paramyetrit from birth and the next.

98. 98.The next septisemiya from birth.
99. 99.Vulvit from birth to the next, and the service procedure for the treatment of link vak?
100. 100.The next reason endometritni minds and treatment from birth?
101. 101.The uterus subinvolyutsiyasining the main causes, methods of prevention?
102. 102.From birth and the next perimyetrit paramyetritning the main causes, methods of prevention?
103. 103.The next septisemiya from birthto treatmentandprevention methods?
104. 104.The new born animals anatomo-physiological features.
105. 105.Asfiksiya.
106. 106.Toksikoz uv. Gipotrofiya Alimentar.
107. 107.First crap (a mekong) delayed remain.
108. 108.Chiqaruv hole and the back of the rectum is not congenital.
109. 109.Diseases of the umbilical cord.
110. 110.What is Asfiksiya?
111. 111.Mekongniy what is it?
112. 112.New born many diseases occurring in animals?
113. 113.The navelto be not only spiritually healthylig‘lanishthe causes and treatment of i?
114. 114.Measures for prevention of diseases of new-born animals?
115. 115.Mammary gland anatomo-physiological features.
116. 116.The classification of mastitis.
117. 117.Agalaktiya and gipogalaktiya.
118. 118.Diagnosis of mastitis in cows, treatment and prevention.
119. 119.Biya, sheep, goats mastitlarningdiagnostikasi,treatment and prevention methods.
120. 120.Which types of mastitis in cows occurs in?
121. 121.A solution of soda in the treatment of mastitis yelin will be sent through the teat for what purpose?
122. 122.Spesifik of mastitistypes?
123. 123.Flynn indurasiyasining causes and effects?
124. 124.Fgiperemiya the causes and treatment of the swelling and lynn procedure?
125. 125.Mastitisprevention larningumumiy?
126. 126.Sex lab,the other a vagina, the vagina and the neck of the uterus, diseases of.
127. 127.Diseases of the uterus.
128. 128.Sex lab,the other a vagina, the vagina and the neck of the uterus what are the main causes of diseases?
129. 129.Qand neck of the womb , go to the main symptoms of the diseases listed.
130. 130.Diseases of the uterus major risk factors for the disease.

131. 131.Characteristic symptoms of chronic consists endometritlarning what?
132. 132.Hidden chronic endometritlarning diagnosis is based on what?
133. 133.Hunt.
134. 134.Persistent yellow body.
135. 135.Atrophy of ovaries and gipofunksiyasi.
136. 136.Kistasi ovaries.
137. 137.Nimfomaniya.
138. 138.Methods for the treatment of inflammation of the ovaries?
139. 139.Causes and diagnosis of ovarian kistasining?
140. 140.Persistent yellow body what?
141. 141.Ovaries are the main causes of multiple sclerosis?
142. 142.Ovaries gipofunksiyasini the basic principles of treatment?
143. 143.The concept of infertility and qisir.
144. 144.These are the main causes infertile azerbaijanis and classification.
145. 145.Obstetrician-gynecological dispanserlash, transfer lines and deadlines.
146. 146.Causes and types of infertile
147. 147.In animals, pushsizlikning immunological causes what can be?
148. 148.Of iodine in the diet will be observed how the mechanism of infertility?
149. 149.Akconstruction-ginakdispanserlash the importance of an olon transfer?
150. 150.Obstetrician-gynecological dispanserlash consists of several stages?
151. 151.Gynecological dispanserlash cow in the term in which o'tkasilsdi?
152. 152.Andrologik dispanserlash.
153. 153.The type of male sexual weakness and degeneration in animals naslli and pessimism.
154. 154.Sex male members of the animal's diseases.
155. 155.Hinfertile avoid such events in the tent.
156. 156.Andrologik dispansarlash stages?
157. 157.The type of male sexual weakness and degeneration in animals naslli and pessimism.
158. 158.Sex male members of the animal's diseasestoprevention measures.
159. 159.Additional sexual glands diseases, causes, treatment and prevention measures in the event?
160. 160.Increasing the effectiveness of artificial insemination, the importance of?
161. 161.Hinfertile avoid such events in the tent.
162. 162.Members of biya how the sex parts?
163. 163.Other various animals in the vagina and the vagina to the limit is determined by how much?
164. 164.Animals, which drew divertikula females there?

165. 165.Animals transverse folds in the neck of the uterus which is well developed?
166. 166.In animals which ovulyasion bo'ladi7 combs
167. 167.In animals in which the surface of the ovaries of the perks of note?
168. 168.On mucous membranes of the uterus which is katelidonlar animals?
169. 169.Male animal sex of the members of the anatomo-physiological features and threads
170. 170.Refleks be sexual male animals and their management.
171. 171.How testes bag from the floor is?
172. 172.What is the importance of testes raised the proverbial muscles?
173. 173.In the neck of the bag in the testes of the animals, which is a good show?
174. 174.From the testes, which is more than a part of?
175. 175.Animals sex in which a member of its s - shaped bent part?
176. 176.The number in the testes of the animals, which is located in the back part of the bone?
177. 177.Quchqor, bull, and the fluid in the prostate gland of male pigs in how ayg'ir konsistensiyasi is there a difference?
178. 178.Which glands are well developed in animals piyozchasimon?
179. 179.Sperm from male animals get to prepare to the collection and use of artificial vagina
180. 180.The structure of the artificial vagina, and prepare to use them.
181. 181.Naslli ayg'ir, bull, pig and get the sperm quchqorlardan technique.
182. 182.In the year 1942, which formed part of the sample from the artificial vagina?
183. 183.Is there any type of Spermayig'gichlarning?
184. 184.How to water at a temperature of the compartment should be Su'iy to the vagina?
185. 185.How to disinfect rubber yasalgavn spermayig'gichlar will be?
186. 186.Getting sperm from animals which requires attention should be focused on?
187. 187.Bull obtain the seed from which methods do you know?
188. 188.You need to hold at any angle of obtaining sperm from the vagina artificial qo'chqorlar?
189. 189.Technique to get a sperm from a life of ayg'ir please explain?
190. 190.Designed to get sperm Xurozlardan what should be the temperature of the room?
191. 191.To get sperm from male animals at various time?
192. 192.Bull identify for what purpose is it used?
193. 193.Determine which methods known major bull kuyikishni you prepared to be?
194. 194.Vazektomiya what it is, how it is made using the method?

195. 195.Sex with a member of its s-shaped buralishi how to put the bet method is carried out?
196. 196.Shipilov vazektomiya explain the essence of the method method.
197. 197.Sex with a member of prepusiya is made to move and how?
198. 198.The excitement phase of the sexual cycle is characterized by what?
199. 199.The stage of sexual excitement in the cow show.
200. 200.Cow bodies and the time of insemination depends on which factors?
201. 201.The method of insemination through the vagina, which do you know?
202. 202.Insemination of cows used in main and auxiliary scroll the list of wielding.
203. 203.Glass syringe-catheter elaboration of methods to use.
204. 204.Advantages and disadvantages of artificial insemination in cows vizoservikal method.
205. 205.Manoservikal method of insemination technique.
206. 206.Bodies and cow insemination dose and depends on what it is?
207. 207.For artificial insemination, which are required to put on the whole armor of biya?
208. 208.Sperm for the insemination of sperm in a dose biya how it should be?
209. 209.Mating in biya is determined by how much?
210. 210.Frozen-thawed sperm ayg'ir what is the procedure?Go to the list of methods of artificial insemination of sheep, their advantages and disadvantages.
211. 211.After insemination sheep care rules.
212. 212.Syringe for the sheep-processing rules to a catheter.
213. 213.Which method are used more than artificial insemination of goats?
214. 214.Females animal kuyikishini determine the methodslisted to go to.
215. 215.What should be the age and body weight of the pigs for the first time urug'lantirilishida?
216. 216.The essence of the method fraksion insemination of pigs.
217. 217.Artificial insemination in pigs is used as a complementary solution to what?
218. 218.Let me explain the technique of artificial insemination dogs.
219. 219.How much is a dose of sperm for artificial insemination of poultry?
220. 220.Parradalar suyultiruvchi the environment for which the use of diluted sperm?
221. 221.Let me explain the essence of the method of artificial insemination chicken.
222. 222.Artificial insemination of turkeys, is carried out how?
223. 223.How does track changes in the uterus during bo'g'ozlik?

224. 224.How to determine the king of the condition of the uterus, can on?
225. 225.What is the uniqueness of the curtain in allontois biya?
226. 226.The amount of fluid at the end of amnion Bog'ozlikning biya, cow and qo'ylarda is how?
227. 227.The age of the fetus is determined by how much?
228. 228.The fetus of the sheep in the month of 2.5 will be able to figure how to?
229. 229.How to 7.5 monthly index of the fetus will be able to biya?
230. 230.The cows of the fetus will be able to figure out how to in 6 months?
231. 231.Scroll the list of methods to determine bo'g'ozlik.
232. 232.Let me explain the essence of the method Servikal fluid check.
233. 233.The cow will have a personal effect in the osmotr determine the method of bo'g'ozlik since when?
234. 234.On the other hand paypaslab bo'g'ozlik the biya, which is determined?
235. 235.Bo'g'ozlik of the vagina is detected by the method is based on what?
236. 236.See how it is prepared before you determine bo'g'ozlik through the rectum?
237. 237.Bo'g'ozlik through the rectum in the identification technical safety rules.
238. 238.Scroll the list of methods to determine bo'g'ozlik.
239. 239.Using ultrasound waves to identify the short bo'g'ozlik (HeTT) what is the principle of the method?
240. 240.HeTin order to check the fetus in the uterus signs of lack of T.
241. 241.What can be the reason for abortion?
242. 242.What are idiopatik and symptomatic abortion?
243. 243.In the conditions of the fetus and how maserasiyasi petrifikasiyasi happens?
244. 244.What is a secret abortion?
245. 245.What is the procedure to eliminate the complications of abortion?
246. 246.Go to the list of measures for prevention of abortion?
247. 247.Born in the night helps when you need to show how norms?
248. 248.Mother's birth in the process of pigs, how was your night ?
249. 249.Pregnant birth in twin to help the show?
250. 250.To show the purpose of obstetrics help?
251. 251.Cow and bborn in iya how was your night?
252. 252.How was the night the dog and cat birth
253. 253.On the way to the birth of the fetus characterized by what is placed in?
254. 254.Mother of the animal associated with the body of the causes of pathology and obstetrics help the procedure of the show.
255. 255.Way to the birth of eochilmasligidan pathology arising from a tar.
256. 256.Remain out of the uterus.

257. 257.The members of the fetus wrong location.
258. 258.Twin fetus wrong location
259. 259.The uterus is coming out of the reasons how do you know?
260. 260.The factors to influence the production of the uterus, are you?
261. 261.You've Tug'riqdan the causes of stroke in the next half?
262. 262.What is the procedure for the treatment of paralysis in the next half tug'riqdan?
263. 263.Next time less used method to send in the air to yelin cow disease what is the reason?
264. 264.Causes of the disease, pathogenesis.
265. 265.Davolash and methods of prevention.
266. 266.Satellite of the fetus, partial, and full) in the diagnosis of noto'liq out is based on what?
267. 267.Hold mate and the rest of conservative and operative treatment when the fetus is access to?
268. 268.Stay on hold in the conservative treatment of the fetus, which is a satellite and that the use of the drug?
269. 269.How can I determine that the fetus is fully separated from the satellite?
270. 270.Endometrit be caused by the fetus and to avoid the development of mate hold of the left is based on what?
271. 271.How to separate the satellite of the fetus is carried out using a hand?
272. 272.Mastitis ofltrabinafsha with light treatment methods?
273. 273.Hidden in the treatment of mastitis ?
274. 274.Yelin indurrasiyasi go to the clinical symptoms listed.
275. 275.Yelin aktinamikozini please explain the treatment procedure.
276. 276.Methods of prevention of mastitis?
277. 277.What are different types of metritis and how to get them?
278. 278.The next kataral from birth-how endometrit is characterized by purulent clinical signs?
279. 279.From birth to the next endometrit a fibrin is characterized by clinical signs how?
280. 280.Clinical signs of metritis is characterized by necrotic how?
281. 281.How Gangrenoz septic metritis is characterized by clinical signs?
282. 282.How hidden metritis is characterized by clinical signs?
283. 283.What are different types of metritis and how to get them?
284. 284.The next kataral from birth-how endometrit is characterized by purulent clinical signs?
285. 285.From birth to the next endometrit a fibrin is characterized by clinical signs how?
286. 286.Clinical signs of metritis is characterized by necrotic how?
287. 287.How Gangrenoz septic metritis is characterized by clinical signs?
288. 288.How hidden metritis is characterized by clinical signs?

289. 289.The inflammation of the skin which occurs in testes of bag animals more?
290. 290.Inflammation of the testes go to the listed cause.
291. 291.Pufakchasimon gland inflammationto the diagnosis of asoslsnadi what?
292. 292.Inflammation of the prostate gland is the main clinical symptoms.
293. 293.Sexual prepusiya bag and a member of inflammation. what to avoid based on?
294. 294.Polyethylene sterilize jars and methods.
295. 295.Artificial vagina and prepare to use them.
296. 296.Sun'iyurug'lantirishda solution used, filters, septoplasty and napkins ready.
297. 297.Sperm (amount) determine the size of.
298. 298.The color of sperm, smell, and identify konsistensiyasi.
299. 299.Sperm physics-chemical and biological properties.
300. 300.The effects of external factors to sperm.

1-the job of writing for WEATHER questions (150)

1. 1.Determine the density of sperm.
2. 2.Determine the mobility of the sperm.
3. 3.Identify dead and pathological forms of sperm.
4. 4.Rezistentligi which is determined using the method of sperm?
5. 5.Sperm does not determine the intensity of the breath of qayda?
6. 6.Bull, qo'chqor, ayg'ir male pigs how sperm is frozen?
7. 7.How ftoroplast granules and sperm is frozen in the plate?
8. 8.Sperm granules (somoncha) how in the form of frozen?
9. 9.Sperm muzdan start (re-thawed) let us explain the essence of the method.
10. 10.Dyu edishlari network when working with technical safety rules?
11. 11.Dyu edishlarini the size of network types and how would you?
12. 12.Prepare a solution of copper kuporosi.
13. 13.Check for fluid cows drew obtained.
14. 14.The hormonal method biya bo'g'oz detected.
15. 15.Scroll the list of methods to determine bo'g'ozlik.
16. 16.Let me explain the essence of the method Qindan check the fluid obtained.
17. 17.In the gormonalusulda determine how bo'g'ozlik biya?
18. 18.Through the vagina with the check bo'g'ozlik determine the method is based on what?
19. 19.The topography of the mammary gland?
20. 20.Classification of diseases of the mammary gland?
21. 21.Mastitis occurs a lot in any type of agriculture?
22. 22.It is said that hidden mastitis why?

23. 23.Yelin indurrasiyasi what is it?
24. 24.How to collect anamnesis and information to note sick animals should be done?
25. 25.The method of how to see and foreign members of checked paypaslab sex?
26. 26.The separation of a member of the sex which is also a clinical sign of a pathological process ekssudat them?
27. 27.How in the vagina of the animal is carried out through inspections?
28. 28.B. g. Pankov from qoshiqcha are used for what purpose?
29. 29.Members of checked through the rectum sex for what purpose?
30. 30.Eggs in the ovaries and rectum to check by the way what is the technique?
31. 31.Functional tests of the method is made in the n. a. flegmatov how?
32. 32.Invalyusiyasini tests are conducted to determine how the uterus?
33. 33.Slimy Qindan taken in the liquid bacteriological inspections are conducted, how?
34. 34.The slimy liquid in the uterus buyinchasidan taken bacteriological inspections are conducted, how?
35. 35.How Dispanserlash include events?
36. 36.Gynecological dispanserlashning explain the essence.
37. 37.Stimullashning of the main methods of sexual function in females and male animals.
38. 38.Infertile cows in the aftermath of the economic damage is determined by how much?
39. 39.For active females and male animals messiah give to explain the organization of.
40. 40.What is the procedure of data collection in animals naslli anamnesis?
41. 41.Check naslli total explain the procedure for transfer of animals.
42. 42.Identify the indicators of blood, which is held in andrologik dispanserlash did?
43. 43.The bull with higher levels of fertilization will be able to figure out how?
44. 44.The level of fertilization will be able to figure out how naslli average bull?
45. 45.The bull will be able to figure out how low the level of fertilization?
46. 46.How you will get the bull will not be able to index?
47. 47.How is the assessment of sperm naslli bull indicator?
48. 48.How to separate the satellite of the fetus is carried out using a hand?
49. 49.Mastitis ofltrabinafsha with light treatment methods?
50. 50.Hidden in the treatment of mastitis ?
51. 51.Yelin indurrasiyasi go to the clinical symptoms listed.
52. 52.Yelin aktinamikozini please explain the treatment procedure.

53. 53.Methods of prevention of mastitis?
54. 54.What are different types of metritis and how to get them?
55. 55.The next kataral from birth-how endometrit is characterized by purulent clinical signs?
56. 56.From birth to the next endometrit a fibrin is characterized by clinical signs how?
57. 57.Clinical signs of metritis is characterized by necrotic how?
58. 58.How Gangrenoz septic metritis is characterized by clinical signs?
59. 59.How hidden metritis is characterized by clinical signs?
60. 60.What are different types of metritis and how to get them?
61. 61.The next kataral from birth-how endometrit is characterized by purulent clinical signs?
62. 62.From birth to the next endometrit a fibrin is characterized by clinical signs how?
63. 63.Clinical signs of metritis is characterized by necrotic how?
64. 64.How Gangrenoz septic metritis is characterized by clinical signs?
65. 65.Scroll the list of methods to determine bo'g'ozlik.
66. 66.Let me explain the essence of the method Servikal fluid check.
67. 67.The cow will have a personal effect in the osmotr determine the method of bo'g'ozlik since when?
68. 68.On the other hand paypaslab bo'g'ozlik the biya, which is determined?
69. 69.Bo'g'ozlik of the vagina is detected by the method is based on what?
70. 70.See how it is prepared before you determine bo'g'ozlik through the rectum?
71. 71.Bo'g'ozlik through the rectum in the identification technical safety rules.
72. 72.Scroll the list of methods to determine bo'g'ozlik.
73. 73.Using ultrasound waves to identify the short bo'g'ozlik (HeTT) what is the principle of the method?
74. 74.HeTin order to check the fetus in the uterus signs of lack of T.
75. 75.What can be the reason for abortion?
76. 76.What are idiopatik and symptomatic abortion?
77. 77.In the conditions of the fetus and how maserasiyasi petrifikasiyasi happens?
78. 78.What is a secret abortion?
79. 79.What is the procedure to eliminate the complications of abortion?
80. 80.Go to the list of measures for prevention of abortion?
81. 81.Born in the night helps when you need to show how norms?
82. 82.Mother's birth in the process of pigs, how was your night ?
83. 83.Pregnant birth in twin to help the show?
84. 84.To show the purpose of obstetrics help?
85. 85.Cow and bborn in iya how was your night?
86. 86.How was the night the dog and cat birth

87. 87.On the way to the birth of the fetus characterized by what is placed in?
88. 88.Mother of the animal associated with the body of the causes of pathology and obstetrics help the procedure of the show.
89. 89.Way to the birth of eochilmasligidan pathology arising from a tar.
90. 90.Remain out of the uterus.
91. 91.The members of the fetus wrong location.
92. 92.Twin fetus wrong location
93. 93.The uterus is coming out of the reasons how do you know?
94. 94.The factors to influence the production of the uterus, are you?
95. 95.You've Tug'riqdan the causes of stroke in the next half?
96. 96.What is the procedure for the treatment of paralysis in the next half tug'riqdan?
97. 97.Next time less used method to send in the air to yelin cow disease what is the reason?
98. 98.Causes of the disease, pathogenesis.
99. 99.Davolash and methods of prevention.
100. 100.Satellite of the fetus, partial, and full) in the diagnosis of noto'liq out is based on what?
101. 101.Hold mate and the rest of conservative and operative treatment when the fetus is access to?
102. 102.Stay on hold in the conservative treatment of the fetus, which is a satellite and that the use of the drug?
103. 103.How can I determine that the fetus is fully separated from the satellite?
104. 104.Endometrit be caused by the fetus and to avoid the development of mate hold of the left is based on what?
105. 105.Advantages and disadvantages of artificial insemination in cows vizoservikal method.
106. 106.Manoservikal method of insemination technique.
107. 107.Bodies and cow insemination dose and depends on what it is?
108. 108.For artificial insemination, which are required to put on the whole armor of biya?
109. 109.Sperm for the insemination of sperm in a dose biya how it should be?
110. 110.Mating in biya is determined by how much?
111. 111.Frozen-thawed sperm ayg'ir what is the procedure?Go to the list of methods of artificial insemination of sheep, their advantages and disadvantages.
112. 112.After insemination sheep care rules.
113. 113.Syringe for the sheep-processing rules to a catheter.
114. 114.Which method are used more than artificial insemination of goats?
115. 115.Females animal kuyikishini determine the methodslisted to go to.

116. 116.What should be the age and body weight of the pigs for the first time urug'lantirilishida?
117. 117.The essence of the method fraksion insemination of pigs.
118. 118.Artificial insemination in pigs is used as a complementary solution to what?
119. 119.Let me explain the technique of artificial insemination dogs.
120. 120.How much is a dose of sperm for artificial insemination of poultry?
121. 121.Parradalar suyultiruvchi the environment for which the use of diluted sperm?
122. 122.Let me explain the essence of the method of artificial insemination chicken.
123. 123.Artificial insemination of turkeys, is carried out how?
124. 124.How does track changes in the uterus during bo'g'ozlik?
125. 125.How to determine the king of the condition of the uterus, can on?
126. 126.What is the uniqueness of the curtain in allontois biya?
127. 127.The amount of fluid at the end of amnion Bog'ozlikning biya, cow and qo'ylarda is how?
128. 128.The age of the fetus is determined by how much?
129. 129.The fetus of the sheep in the month of 2.5 will be able to figure how to?
130. 130.How to 7.5 monthly index of the fetus will be able to biya?
131. 131.The cows of the fetus will be able to figure out how to in 6 months?
132. 132.Scroll the list of methods to determine bo'g'ozlik.
133. 133.Let me explain the essence of the method Servikal fluid check.
134. 134.The cow will have a personal effect in the osmotr determine the method of bo'g'ozlik since when?
135. 135.Which glands are well developed in animals piyozchasimon?
136. 136.Sperm from male animals get to prepare to the collection and use of artificial vagina
137. 137.The structure of the artificial vagina, and prepare to use them.
138. 138.Naslli ayg'ir, bull, pig and get the sperm quchqorlardan technique.
139. 139.In the year 1942, which formed part of the sample from the artificial vagina?
140. 140.Is there any type of Spermayig'gichlarning?
141. 141.How to water at a temperature of the compartment should be Su'iy to the vagina?
142. 142.How to disinfect rubber yasalgavn spermayig'gichlar will be?
143. 143.Getting sperm from animals which requires attention should be focused on?
144. 144.Bull obtain the seed from which methods do you know?
145. 145.You need to hold at any angle of obtaining sperm from the vagina artificial qo'chqorlar?
146. 146.Technique to get a sperm from a life of ayg'ir please explain?

147. 147.Designed to get sperm Xurozlardan what should be the temperature of the room?
148. 148.To get sperm from male animals at various time?
149. 149.Bull identify for what purpose is it used?
150. 150.Major methods to determine which prepared you to be kuyikishni bull

2-questions written work obuchun (150)

1. 1.Andrologik dispansarlash stages?
2. 2.The type of male sexual weakness and degeneration in animals naslli and pessimism.
3. 3.Sex male members of the animal's diseasestoprevention measures.
4. 4.Additional sexual glands diseases, causes, treatment and prevention measures in the event?
5. 5.Increasing the effectiveness of artificial insemination, the importance of?
6. 6.Hinfertile avoid such events in the tent.
7. 7.Members of biya how the sex parts?
8. 8.Other various animals in the vagina and the vagina to the limit is determined by how much?
9. 9.Animals, which drew divertikula females there?
10. 10.Animals transverse folds in the neck of the uterus which is well developed?
11. 11.In animals which ovulyasion bo'ladi7 combs
12. 12.In animals in which the surface of the ovaries of the perks of note?
13. 13.On mucous membranes of the uterus which is katelidonlar animals?
14. 14.Male animal sex of the members of the anatomo-physiological features and threads
15. 15.Refleks be sexual male animals and their management.
16. 16.How testes bag from the floor is?
17. 17.What is the importance of testes raised the proverbial muscles?
18. 18.In the neck of the bag in the testes of the animals, which is a good show?
19. 19.From the testes, which is more than a part of?
20. 20.Animals sex in which a member of its s - shaped bent part?
21. 21.The number in the testes of the animals, which is located in the back part of the bone?
22. 22.Quchqor, bull, and the fluid in the prostate gland of male pigs in how ayg'ir konsistensiyasi is there a difference?
23. 23.Which glands are well developed in animals piyozchasimon?
24. 24.Sperm from male animals get to prepare to the collection and use of artificial vagina
25. 25.The structure of the artificial vagina, and prepare to use them.

26. 26.Naslli ayg'ir, bull, pig and get the sperm quchqorlardan technique.
27. 27.Diseases of the uterus major risk factors for the disease.
28. 28.Characteristic symptoms of chronic consists endometritlarning what?
29. 29.Hidden chronic endometritlarning diagnosis is based on what?
30. 30.Hunt.
31. 31.Persistent yellow body.
32. 32.Atrophy of ovaries and gipofunksiyasi.
33. 33.Kistasi ovaries.
34. 34.Nimfomaniya.
35. 35.Methods for the treatment of inflammation of the ovaries?
36. 36.Causes and diagnosis of ovarian kistasining?
37. 37.Persistent yellow body what?
38. 38.Ovaries are the main causes of multiple sclerosis?
39. 39.Ovaries gipofunksiyasini the basic principles of treatment?
40. 40.The concept of infertility and qisir.
41. 41.These are the main causes infertile azerbaijanis and classification.
42. 42.Obstetrician-gynecological dispanserlash, transfer lines and deadlines.
43. 43.Causes and types of infertile
44. 44.In animals, pushsizlikning immunological causes what can be?
45. 45.Of iodine in the diet will be observed how the mechanism of infertility?
46. 46.Akconstruction-ginakdispanserlash the importance of an olon transfer?
47. 47.Obstetrician-gynecological dispanserlash consists of several stages?
48. 48.Gynecological dispanserlash cow in the term in which o'tkasilsdi?
49. 49.Andrologik dispanserlash.
50. 50.The type of male sexual weakness and degeneration in animals naslli and pessimism.
51. 51.Sex male members of the animal's diseases.
52. 52.Hinfertile avoid such events in the tent.
53. 53.On the other hand paypaslab bo'g'ozlik the biya, which is determined?
54. 54.Bo'g'ozlik of the vagina is detected by the method is based on what?
55. 55.See how it is prepared before you determine bo'g'ozlik through the rectum?
56. 56.Bo'g'ozlik through the rectum in the identification technical safety rules.
57. 57.Scroll the list of methods to determine bo'g'ozlik.
58. 58.Using ultrasound waves to identify the short bo'g'ozlik (HeTT) what is the principle of the method?
59. 59.HeTin order to check the fetus in the uterus signs of lack of T.

60. 60.What can be the reason for abortion?
61. 61.What are idiopatik and symptomatic abortion?
62. 62.In the conditions of the fetus and how maserasiyasi petrifikasiyasi happens?
63. 63.What is a secret abortion?
64. 64.What is the procedure to eliminate the complications of abortion?
65. 65.Go to the list of measures for prevention of abortion?
66. 66.Born in the night helps when you need to show how norms?
67. 67.Mother's birth in the process of pigs, how was your night ?
68. 68.Pregnant birth in twin to help the show?
69. 69.To show the purpose of obstetrics help?
70. 70.Cow and bborn in iya how was your night?
71. 71.How was the night the dog and cat birth
72. 72.On the way to the birth of the fetus characterized by what is placed in?
73. 73.Mother of the animal associated with the body of the causes of pathology and obstetrics help the procedure of the show.
74. 74.Way to the birth of eochilmasligidan pathology arising from a tar.
75. 75.Remain out of the uterus.
76. 76.The members of the fetus wrong location.
77. 77.Twin fetus wrong location
78. 78.The uterus is coming out of the reasons how do you know?
79. 79.The factors to influence the production of the uterus, are you?
80. 80.You've Tug'riqdan the causes of stroke in the next half?
81. 81.What is the procedure for the treatment of paralysis in the next half tug'riqdan?
82. 82.Next time less used method to send in the air to yelin cow disease what is the reason?
83. 83.Causes of the disease, pathogenesis.
84. 84.Davolash and methods of prevention.
85. 85.Satellite of the fetus, partial, and full) in the diagnosis of noto'liq out is based on what?
86. 86.Hold mate and the rest of conservative and operative treatment when the fetus is access to?
87. 87.Stay on hold in the conservative treatment of the fetus, which is a satellite and that the use of the drug?
88. 88.How can I determine that the fetus is fully separated from the satellite?
89. 89.Endometrit be caused by the fetus and to avoid the development of mate hold of the left is based on what?
90. 90.How to separate the satellite of the fetus is carried out using a hand?
91. 91.Mastitis ofltrabinafsha with light treatment methods?
92. 92.Hidden in the treatment of mastitis ?
93. 93.Yelin indurrasiyasi go to the clinical symptoms listed.

94. 94.Yelin aktinamikozini please explain the treatment procedure.
95. 95.Methods of prevention of mastitis?
96. 96.What are different types of metritis and how to get them?
97. 97.The next kataral from birth-how endometrit is characterized by purulent clinical signs?
98. 98.From birth to the next endometrit a fibrin is characterized by clinical signs how?
99. 99.Clinical signs of metritis is characterized by necrotic how?
100. 100.How Gangrenoz septic metritis is characterized by clinical signs?
101. 101.How hidden metritis is characterized by clinical signs?
102. 102.What are different types of metritis and how to get them?
103. 103.The next kataral from birth-how endometrit is characterized by purulent clinical signs?
104. 104.From birth to the next endometrit a fibrin is characterized by clinical signs how?
105. 105.Clinical signs of metritis is characterized by necrotic how?
106. 106.How Gangrenoz septic metritis is characterized by clinical signs?
107. 107.How hidden metritis is characterized by clinical signs?
108. 108.The inflammation of the skin which occurs in testes of bag animals more?
109. 109.Inflammation of the testes go to the listed cause.
110. 110.Pufakchasimon gland inflammationto the diagnosis of asoslsnadi what?
111. 111.Inflammation of the prostate gland is the main clinical symptoms.
112. 112.Sexual prepusiya bag and a member of inflammation. what to avoid based on?
113. 113.Polyethylene sterilize jars and methods.
114. 114.Artificial vagina and prepare to use them.
115. 115.Sun'iyurug'lantirishda solution used, filters, septoplasty and napkins ready.
116. 116.Sperm (amount) determine the size of.
117. 117.The color of sperm, smell, and identify konsistensiyasi.
118. 118.Sperm physics-chemical and biological properties.
119. 119.The effects of external factors to sperm.
120. 120.Determine the density of sperm.
121. 121.Determine the mobility of the sperm.
122. 122.Identify dead and pathological forms of sperm.
123. 123.Rezistentligi which is determined using the method of sperm?
124. 124.Sperm does not determine the intensity of the breath of qayda?
125. 125.Bull, qo'chqor, ayg'ir male pigs how sperm is frozen?
126. 126.How ftoroplast granules and sperm is frozen in the plate?
127. 127.Sperm granules (somoncha) how in the form of frozen?
128. 128.Sperm muzdan start (re-thawed) let us explain the essence of the method.
129. 129.Dyu edishlari network when working with technical safety rules?

130. 130.Dyu edishlarini the size of network types and how would you?
131. 131.Prepare a solution of copper kuporosi.
132. 132.Check for fluid cows drew obtained.
133. 133.The hormonal method biya bo'g'oz detected.
134. 134.Scroll the list of methods to determine bo'g'ozlik.
135. 135.Let me explain the essence of the method Qindan check the fluid obtained.
136. 136.In the gormonalusulda determine how bo'g'ozlik biya?
137. 137.Through the vagina with the check bo'g'ozlik determine the method is based on what?
138. 138.The topography of the mammary gland?
139. 139.Classification of diseases of the mammary gland?
140. 140.Mastitis occurs a lot in any type of agriculture?
141. 141.It is said that hidden mastitis why?
142. 142.Yelin indurrasiyasi what is it?
143. 143.How to collect anamnesis and information to note sick animals should be done?
144. 144.The method of how to see and foreign members of checked paypaslab sex?
145. 145.The separation of a member of the sex which is also a clinical sign of a pathological process ekssudat them?
146. 146.How in the vagina of the animal is carried out through inspections?
147. 147.B. g. Pankov from qoshiqcha are used for what purpose?
148. 148.Members of checked through the rectum sex for what purpose?
149. 149.Eggs in the ovaries and rectum to check by the way what is the technique?
150. 150.Functional tests of the method is made in the n. a. flegmatov how?

Questions for written work yab (500 units)

JAMLANMA OF QUESTIONS ON THE SUBJECT OF VETERINARY OBSTETRICS.

1. 1.What does he teach the science of veterinary obstetrics?
2. 2.Veterinary obstetrics, the science of the development ofone of the scientists who contribute iga, do you know?
3. 3.What are the advantages of artificial insemination consists?
4. 4.Members of various animals, females in specific aspects of sex?
5. 5.The main functions of the ovaries?
6. 6.The effects of the hormone, which is produced in the ovaries to the body?
7. 7.Ovogenezning essence stages?
8. 8.What is the main functions of the testes?

9. 9.The differences in the lines of a sexual member in male animals different?
10. 10.Spermiogenezof the stage, which is the difference?
11. 11.In the age of the animal and which is to monitor the physiological sex?
12. 12.Home management factors which sexual function in animals?
13. 13.The stages of the sexual cycle in females the difference is in how animals?
14. 14.The excitement phase of the sexual cycle of the phenomenon is characterized by clinical signs of any?
15. 15.Animal house the night of a sexual cycle in females specific to the type of features?
16. 16.The excitement phase is caused by the calving and sinxron asinxron in the form of what?
17. 17.Sexual a sexual cycle cycle to'laqimmatli to'laqimmatli what is the difference?
18. 18.Are any types of the sexual cycle To'laqimmatli?
19. 19.Animals inseminated females to prepare?
20. 20.Natural insemination methods arethe main differences?
21. 21.Artificial insemination scroll the list of benefits from natural fertilization.
22. 22.The types of fertilization in animals?
23. 23.What is the significance of fertilization through the vagina?
24. 24.What is the significance of the uterus through fertilization?
25. 25.What is the importance of the development of artificial insemination of livestock animals rendered?
26. 26.Cows vizoservikal method of insemination advantages and disadvantages?
27. 27.Cowektoservikal method of insemination advantages and disadvantages?
28. 28.Cowanoservikal method of insemination advantages and disadvantages?
29. 29.How to select the Donor is to follow the principles of the cows?
30. 30.Resipient animals as cow, how can I use it?
31. 31.Murtak of the method of how to get from the donor used?
32. 32.Embryo transfer to the uterus of an animal can resipient on how kuchib out?
33. 33.Otalanish the essence of stages, the development of the fetus future brittle and curtains.
34. 34.Bo'g'ozlik various types of animals and duration.
35. 35.The specific changes in animal body bo'g'oz ko'zatiladi almashnuvi and substances.
36. 36.It is said that otalanish why?
37. 37.Otalanash consists of multiple stages?

38. 38.The curtains in the fetus, development of their specific consists of what?
39. 39.Do you understand what the fetus is about the satellite?
40. 40.Do you know of any type of satellite fetus?
41. 41.Identify the importance of bo'g'ozlik in animals. On the other hand bo'g'ozlik determine the external methods.
42. 42.Bo'g'ozlik detection methods from the internal side (through the rectum and the vagina).
43. 43.Bo'g'ozlik determined what the purpose of the animals?
44. 44.That is why it is said Refleksologik method?
45. 45.Check paypaslanadi through the rectum in which the members?
46. 46.Bo'g'ozlik checked in the laboratory to determine what method?
47. 47.The methods are classified in the diagnosis of infertile animal I bo'g'ozlik and how?
48. 48.In practice, the method of determining which interaction and infertile animals bo'g'ozlik much is used?
49. 49.The care and feeding of animals Bo'g'oz rules.
50. 50.Bo'g'oz animals out of the vagina.
51. 51.Bo'g'oz appear to be tumors in animals.
52. 52.From the time kuchanib and to'lg'oq previously.
53. 53.Bo'g'oz the lies of the animals remain.
54. 54.The veil of water accumulate in the fetus.
55. 55.Grijasi the uterus. The driving of the uterus remain.
56. 56.Bo'g'oz norms of feeding animals?
57. 57.The main causes of coming out of the vagina?
58. 58.The mechanism of the appearance of tumors in animals will be Bo'g'oz?
59. 59.The procedure for the treatment of diseases in osteomalyasiya bo'g'oz cow?
60. 60.Buralishi of the uterusto explain the mechanism of the development.
61. 61.Bo'g'oz prevention of diseases of animals?
62. 62.The removal of the child (abortion), the type of causes.
63. 63.Hremove children tent in complications, their treatment and prevention.
64. 64.That is why it is said to remove the child?
65. 65.To remove the child of any type do you know?
66. 66.Complete abortionof the main character, what is it?
67. 67.Incomplete and complete (abortion) what is the removal of the child?
68. 68.Htentdaaborts to prevent?
69. 69.The physiology of birth.
70. 70.Assist in the preparation and birth of animals born to.
71. 71.The next period from birth, sexual organs involyutsiyasi.
72. 72.New breeding rules for the care of animals.

73. 73.Tell that to what is born?
74. 74.To be born on the teachings of the cause?
75. 75.The fertile period of their vary?
76. 76.The denial of the features of the next period from birth?
77. 77.Born in patologiyasida the help of obstetrics prepared to show
78. 78.Kuchanib weak and to'lg'oq
79. 79.Kuchanib to'lg'oq and strong.
80. 80.The way to narrow the ministry of birth
81. 81.Born to the wrong position of the fetus in the effects of the location and the pathology of
82. 82.The main causes of the pathology to be born?
83. 83.The dynamics arising from the destruction of pathology birth?
84. 84.The types of pathology of the fetus and the uterus arising from buyinchasiochilmasligiligidan wrong location?
85. 85.The location and position of the fetus in the aftermath of the birth of pathology wrongand that's the reason.
86. 86.Hold out mate remain.
87. 87.Out to be the womb.
88. 88.Postpartum paralysis.
89. 89.Hold mate, I remainthe main reasons.
90. 90.Hold mate and remain toshow the advantage of the method and the help of obstetrics at kamchiliklarinimalar?
91. 91.Out of the uterus,that's the main reason count the number of go.
92. 92.The output of the uterus withthe help of obstetrics at show methods.
93. 93.Postpartum paralysis to explain the mechanisms of the effects of etiopatogenetik tools in the diagnosis and treatment.
94. 94.From birth to the next service and vulvit vak.
95. 95.The next endometrit from birth.
96. 96.The uterus subinvalyusiyasi
97. 97.Perimyetrit paramyetrit from birth and the next.
98. 98.The next septisemiya from birth.
99. 99.Vulvit from birth to the next, and the service procedure for the treatment of link vak?
100. 100.The next reason endometritni minds and treatment from birth?
101. 101.The uterus subinvolyutsiyasining the main causes, methods of prevention?
102. 102.From birth and the next perimyetrit paramyetritning the main causes, methods of prevention?
103. 103.The next septisemiya from birthto treatmentandprevention methods?
104. 104.The new born animals anatomo-physiological features.
105. 105.Asfiksiya.
106. 106.Toksikoz uv. Gipotrofiya Alimentar.
107. 107.First crap (a mekong) delayed remain.

108. 108.Chiqaruv hole and the back of the rectum is not congenital.
109. 109.Diseases of the umbilical cord.
110. 110.What is Asfiksiya?
111. 111.Mekongniy what is it?
112. 112.New born many diseases occurring in animals?
113. 113.The navelto be not only spiritually healthylig‘lanishthe causes and treatment of i?
114. 114.Measures for prevention of diseases of new-born animals?
115. 115.Mammary gland anatomo-physiological features.
116. 116.The classification of mastitis.
117. 117.Agalaktiya and gipogalaktiya.
118. 118.Diagnosis of mastitis in cows, treatment and prevention.
119. 119.Biya, sheep, goats mastitlarningdiagnostikasi,treatment and prevention methods.
120. 120.Which types of mastitis in cows occurs in?
121. 121.A solution of soda in the treatment of mastitis yelin will be sent through the teat for what purpose?
122. 122.Spesifik of mastitistypes?
123. 123.Flynn indurasiyasining causes and effects?
124. 124.Fgiperemiya the causes and treatment of the swelling and lynn procedure?
125. 125.Mastitisprevention larningumumiy?
126. 126.Sex lab,the other a vagina, the vagina and the neck of the uterus, diseases of.
127. 127.Diseases of the uterus.
128. 128.Sex lab,the other a vagina, the vagina and the neck of the uterus what are the main causes of diseases?
129. 129.Qand neck of the womb , go to the main symptoms of the diseases listed.
130. 130.Diseases of the uterus major risk factors for the disease.
131. 131.Characteristic symptoms of chronic consists endometritlarning what?
132. 132.Hidden chronic endometritlarning diagnosis is based on what?
133. 133.Hunt.
134. 134.Persistent yellow body.
135. 135.Atrophy of ovaries and gipofunksiyasi.
136. 136.Kistasi ovaries.
137. 137.Nimfomaniya.
138. 138.Methods for the treatment of inflammation of the ovaries?
139. 139.Causes and diagnosis of ovarian kistasining?
140. 140.Persistent yellow body what?
141. 141.Ovaries are the main causes of multiple sclerosis?
142. 142.Ovaries gipofunksiyasini the basic principles of treatment?
143. 143.The concept of infertility and qisir.
144. 144.These are the main causes infertile azerbaijanis and classification.

145. 145.Obstetrician-gynecological dispanserlash, transfer lines and deadlines.
146. 146.Causes and types of infertile
147. 147.In animals, pushsizlikning immunological causes what can be?
148. 148.Of iodine in the diet will be observed how the mechanism of infertility?
149. 149.Akconstruction-ginakdispanserlash the importance of an olon transfer?
150. 150.Obstetrician-gynecological dispanserlash consists of several stages?
151. 151.Gynecological dispanserlash cow in the term in which o'tkasilsdi?
152. 152.Andrologik dispanserlash.
153. 153.The type of male sexual weakness and degeneration in animals naslli and pessimism.
154. 154.Sex male members of the animal's diseases.
155. 155.Hinfertile avoid such events in the tent.
156. 156.Andrologik dispansarlash stages?
157. 157.The type of male sexual weakness and degeneration in animals naslli and pessimism.
158. 158.Sex male members of the animal's diseasestoprevention measures.
159. 159.Additional sexual glands diseases, causes, treatment and prevention measures in the event?
160. 160.Increasing the effectiveness of artificial insemination, the importance of?
161. 161.Hinfertile avoid such events in the tent.
162. 162.Members of biya how the sex parts?
163. 163.Other various animals in the vagina and the vagina to the limit is determined by how much?
164. 164.Animals, which drew divertikula females there?
165. 165.Animals transverse folds in the neck of the uterus which is well developed?
166. 166.In animals which ovulyasion bo'ladi7 combs
167. 167.In animals in which the surface of the ovaries of the perks of note?
168. 168.On mucous membranes of the uterus which is katelidonlar animals?
169. 169.Male animal sex of the members of the anatomo-physiological features and threads
170. 170.Refleks be sexual male animals and their management.
171. 171.How testes bag from the floor is?
172. 172.What is the importance of testes raised the proverbial muscles?
173. 173.In the neck of the bag in the testes of the animals, which is a good show?
174. 174.From the testes, which is more than a part of?
175. 175.Animals sex in which a member of its s - shaped bent part?

176. 176.The number in the testes of the animals, which is located in the back part of the bone?
177. 177.Quchqor, bull, and the fluid in the prostate gland of male pigs in how ayg'ir konsistensiyasi is there a difference?
178. 178.Which glands are well developed in animals piyozchasimon?
179. 179.Sperm from male animals get to prepare to the collection and use of artificial vagina
180. 180.The structure of the artificial vagina, and prepare to use them.
181. 181.Naslli ayg'ir, bull, pig and get the sperm quchqorlardan technique.
182. 182.In the year 1942, which formed part of the sample from the artificial vagina?
183. 183.Is there any type of Spermayig'gichlarning?
184. 184.How to water at a temperature of the compartment should be Su'iy to the vagina?
185. 185.How to disinfect rubber yasalgavn spermayig'gichlar will be?
186. 186.Getting sperm from animals which requires attention should be focused on?
187. 187.Bull obtain the seed from which methods do you know?
188. 188.You need to hold at any angle of obtaining sperm from the vagina artificial qo'chqorlar?
189. 189.Technique to get a sperm from a life of ayg'ir please explain?
190. 190.Designed to get sperm Xurozlardan what should be the temperature of the room?
191. 191.To get sperm from male animals at various time?
192. 192.Bull identify for what purpose is it used?
193. 193.Determine which methods known major bull kuyikishni you prepared to be?
194. 194.Vazektomiya what it is, how it is made using the method?
195. 195.Sex with a member of its s-shaped buralishi how to put the bet method is carried out?
196. 196.Shipilov vazektomiya explain the essence of the method method.
197. 197.Sex with a member of prepusiya is made to move and how?
198. 198.The excitement phase of the sexual cycle is characterized by what?
199. 199.The stage of sexual excitement in the cow show.
200. 200.Cow bodies and the time of insemination depends on which factors?
201. 201.The method of insemination through the vagina, which do you know?
202. 202.Insemination of cows used in main and auxiliary scroll the list of wielding.
203. 203.Glass syringe-catheter elaboration of methods to use.
204. 204.Advantages and disadvantages of artificial insemination in cows vizoservikal method.
205. 205.Manoservikal method of insemination technique.

206. 206.Bodies and cow insemination dose and depends on what it is?
207. 207.For artificial insemination, which are required to put on the whole armor of biya?
208. 208.Sperm for the insemination of sperm in a dose biya how it should be?
209. 209.Mating in biya is determined by how much?
210. 210.Frozen-thawed sperm ayg'ir what is the procedure?Go to the list of methods of artificial insemination of sheep, their advantages and disadvantages.
211. 211.After insemination sheep care rules.
212. 212.Syringe for the sheep-processing rules to a catheter.
213. 213.Which method are used more than artificial insemination of goats?
214. 214.Females animal kuyikishini determine the methodslisted to go to.
215. 215.What should be the age and body weight of the pigs for the first time urug'lantirilishida?
216. 216.The essence of the method fraksion insemination of pigs.
217. 217.Artificial insemination in pigs is used as a complementary solution to what?
218. 218.Let me explain the technique of artificial insemination dogs.
219. 219.How much is a dose of sperm for artificial insemination of poultry?
220. 220.Parradalar suyultiruvchi the environment for which the use of diluted sperm?
221. 221.Let me explain the essence of the method of artificial insemination chicken.
222. 222.Artificial insemination of turkeys, is carried out how?
223. 223.How does track changes in the uterus during bo'g'ozlik?
224. 224.How to determine the king of the condition of the uterus, can on?
225. 225.What is the uniqueness of the curtain in allontois biya?
226. 226.The amount of fluid at the end of amnion Bog'ozlikning biya, cow and qo'ylarda is how?
227. 227.The age of the fetus is determined by how much?
228. 228.The fetus of the sheep in the month of 2.5 will be able to figure how to?
229. 229.How to 7.5 monthly index of the fetus will be able to biya?
230. 230.The cows of the fetus will be able to figure out how to in 6 months?
231. 231.Scroll the list of methods to determine bo'g'ozlik.
232. 232.Let me explain the essence of the method Servikal fluid check.
233. 233.The cow will have a personal effect in the osmotr determine the method of bo'g'ozlik since when?
234. 234.On the other hand paypaslab bo'g'ozlik the biya, which is determined?

235. 235.Bo'g'ozlik of the vagina is detected by the method is based on what?
236. 236.See how it is prepared before you determine bo'g'ozlik through the rectum?
237. 237.Bo'g'ozlik through the rectum in the identification technical safety rules.
238. 238.Scroll the list of methods to determine bo'g'ozlik.
239. 239.Using ultrasound waves to identify the short bo'g'ozlik (HeTT) what is the principle of the method?
240. 240.HeTin order to check the fetus in the uterus signs of lack of T.
241. 241.What can be the reason for abortion?
242. 242.What are idiopatik and symptomatic abortion?
243. 243.In the conditions of the fetus and how maserasiyasi petrifikasiyasi happens?
244. 244.What is a secret abortion?
245. 245.What is the procedure to eliminate the complications of abortion?
246. 246.Go to the list of measures for prevention of abortion?
247. 247.Born in the night helps when you need to show how norms?
248. 248.Mother's birth in the process of pigs, how was your night ?
249. 249.Pregnant birth in twin to help the show?
250. 250.To show the purpose of obstetrics help?
251. 251.Cow and bborn in iya how was your night?
252. 252.How was the night the dog and cat birth
253. 253.On the way to the birth of the fetus characterized by what is placed in?
254. 254.Mother of the animal associated with the body of the causes of pathology and obstetrics help the procedure of the show.
255. 255.Way to the birth of eochilmasligidan pathology arising from a tar.
256. 256.Remain out of the uterus.
257. 257.The members of the fetus wrong location.
258. 258.Twin fetus wrong location
259. 259.The uterus is coming out of the reasons how do you know?
260. 260.The factors to influence the production of the uterus, are you?
261. 261.You've Tug'riqdan the causes of stroke in the next half?
262. 262.What is the procedure for the treatment of paralysis in the next half tug'riqdan?
263. 263.Next time less used method to send in the air to yelin cow disease what is the reason?
264. 264.Causes of the disease, pathogenesis.
265. 265.Davolash and methods of prevention.
266. 266.Satellite of the fetus, partial, and full) in the diagnosis of noto'liq out is based on what?
267. 267.Hold mate and the rest of conservative and operative treatment when the fetus is access to?

268. 268.Stay on hold in the conservative treatment of the fetus, which is a satellite and that the use of the drug?
269. 269.How can I determine that the fetus is fully separated from the satellite?
270. 270.Endometrit be caused by the fetus and to avoid the development of mate hold of the left is based on what?
271. 271.How to separate the satellite of the fetus is carried out using a hand?
272. 272.Mastitis ofltrabinafsha with light treatment methods?
273. 273.Hidden in the treatment of mastitis ?
274. 274.Yelin indurrasiyasi go to the clinical symptoms listed.
275. 275.Yelin aktinamikozini please explain the treatment procedure.
276. 276.Methods of prevention of mastitis?
277. 277.What are different types of metritis and how to get them?
278. 278.The next kataral from birth-how endometrit is characterized by purulent clinical signs?
279. 279.From birth to the next endometrit a fibrin is characterized by clinical signs how?
280. 280.Clinical signs of metritis is characterized by necrotic how?
281. 281.How Gangrenoz septic metritis is characterized by clinical signs?
282. 282.How hidden metritis is characterized by clinical signs?
283. 283.What are different types of metritis and how to get them?
284. 284.The next kataral from birth-how endometrit is characterized by purulent clinical signs?
285. 285.From birth to the next endometrit a fibrin is characterized by clinical signs how?
286. 286.Clinical signs of metritis is characterized by necrotic how?
287. 287.How Gangrenoz septic metritis is characterized by clinical signs?
288. 288.How hidden metritis is characterized by clinical signs?
289. 289.The inflammation of the skin which occurs in testes of bag animals more?
290. 290.Inflammation of the testes go to the listed cause.
291. 291.Pufakchasimon gland inflammationto the diagnosis of asoslsnadi what?
292. 292.Inflammation of the prostate gland is the main clinical symptoms.
293. 293.Sexual prepusiya bag and a member of inflammation. what to avoid based on?
294. 294.Polyethylene sterilize jars and methods.
295. 295.Artificial vagina and prepare to use them.
296. 296.Sun'iyurug'lantirishda solution used, filters, septoplasty and napkins ready.
297. 297.Sperm (amount) determine the size of.
298. 298.The color of sperm, smell, and identify konsistensiyasi.
299. 299.Sperm physics-chemical and biological properties.
300. 300.The effects of external factors to sperm.

301. 301.Determine the density of sperm.
302. 302.Determine the mobility of the sperm.
303. 303.Identify dead and pathological forms of sperm.
304. 304.Rezistentligi which is determined using the method of sperm?
305. 305.Sperm does not determine the intensity of the breath of qayda?
306. 306.Bull, qo'chqor, ayg'ir male pigs how sperm is frozen?
307. 307.How ftoroplast granules and sperm is frozen in the plate?
308. 308.Sperm granules (somoncha) how in the form of frozen?
309. 309.Sperm muzdan start (re-thawed) let us explain the essence of the method.
310. 310.Dyu edishlari network when working with technical safety rules?
311. 311.Dyu edishlarini the size of network types and how would you?
312. 312.Prepare a solution of copper kuporosi.
313. 313.Check for fluid cows drew obtained.
314. 314.The hormonal method biya bo'g'oz detected.
315. 315.Scroll the list of methods to determine bo'g'ozlik.
316. 316.Let me explain the essence of the method Qindan check the fluid obtained.
317. 317.In the gormonalusulda determine how bo'g'ozlik biya?
318. 318.Through the vagina with the check bo'g'ozlik determine the method is based on what?
319. 319.The topography of the mammary gland?
320. 320.Classification of diseases of the mammary gland?
321. 321.Mastitis occurs a lot in any type of agriculture?
322. 322.It is said that hidden mastitis why?
323. 323.Yelin indurrasiyasi what is it?
324. 324.How to collect anamnesis and information to note sick animals should be done?
325. 325.The method of how to see and foreign members of checked paypaslab sex?
326. 326.The separation of a member of the sex which is also a clinical sign of a pathological process ekssudat them?
327. 327.How in the vagina of the animal is carried out through inspections?
328. 328.B. g. Pankov from qoshiqcha are used for what purpose?
329. 329.Members of checked through the rectum sex for what purpose?
330. 330.Eggs in the ovaries and rectum to check by the way what is the technique?
331. 331.Functional tests of the method is made in the n. a. flegmatov how?
332. 332.Invalyusiyasini tests are conducted to determine how the uterus?
333. 333.Slimy Qindan taken in the liquid bacteriological inspections are conducted, how?
334. 334.The slimy liquid in the uterus buyinchasidan taken bacteriological inspections are conducted, how?
335. 335.How Dispanserlash include events?

336. 336.Gynecological dispanserlashning explain the essence.
337. 337.Stimullashning of the main methods of sexual function in females and male animals.
338. 338.Infertile cows in the aftermath of the economic damage is determined by how much?
339. 339.For active females and male animals messiah give to explain the organization of.
340. 340.What is the procedure of data collection in animals naslli anamnesis?
341. 341.Check naslli total explain the procedure for transfer of animals.
342. 342.Identify the indicators of blood, which is held in andrologik dispanserlash did?
343. 343.The bull with higher levels of fertilization will be able to figure out how?
344. 344.The level of fertilization will be able to figure out how naslli average bull?
345. 345.The bull will be able to figure out how low the level of fertilization?
346. 346.How you will get the bull will not be able to index?
347. 347.How is the assessment of sperm naslli bull indicator?
348. 348.Diseases of the uterus.
349. 349.Sex lab,the other a vagina, the vagina and the neck of the uterus what are the main causes of diseases?
350. 350.Qand neck of the womb , go to the main symptoms of the diseases listed.
351. 351.Diseases of the uterus major risk factors for the disease.
352. 352.Characteristic symptoms of chronic consists endometritlarning what?
353. 353.Hidden chronic endometritlarning diagnosis is based on what?
354. 354.Hunt.
355. 355.Persistent yellow body.
356. 356.Atrophy of ovaries and gipofunksiyasi.
357. 357.Kistasi ovaries.
358. 358.Nimfomaniya.
359. 359.Methods for the treatment of inflammation of the ovaries?
360. 360.Causes and diagnosis of ovarian kistasining?
361. 361.Persistent yellow body what?
362. 362.Ovaries are the main causes of multiple sclerosis?
363. 363.Ovaries gipofunksiyasini the basic principles of treatment?
364. 364.The concept of infertility and qisir.
365. 365.These are the main causes infertile azerbaijanis and classification.
366. 366.Obstetrician-gynecological dispanserlash, transfer lines and deadlines.
367. 367.Causes and types of infertile
368. 368.In animals, pushsizlikning immunological causes what can be?

369. 369.Of iodine in the diet will be observed how the mechanism of infertility?
370. 370.Akconstruction-ginakdispanserlash the importance of an olon transfer?
371. 371.Obstetrician-gynecological dispanserlash consists of several stages?
372. 372.Gynecological dispanserlash cow in the term in which o'tkasilsdi?
373. 373.Andrologik dispanserlash.
374. 374.The type of male sexual weakness and degeneration in animals naslli and pessimism.
375. 375.Sex male members of the animal's diseases.
376. 376.Hinfertile avoid such events in the tent.
377. 377.Andrologik dispansarlash stages?
378. 378.The type of male sexual weakness and degeneration in animals naslli and pessimism.
379. 379.Sex male members of the animal's diseasestoprevention measures.
380. 380.Additional sexual glands diseases, causes, treatment and prevention measures in the event?
381. 381.Increasing the effectiveness of artificial insemination, the importance of?
382. 382.Hinfertile avoid such events in the tent.
383. 383.Members of biya how the sex parts?
384. 384.Other various animals in the vagina and the vagina to the limit is determined by how much?
385. 385.Animals, which drew divertikula females there?
386. 386.Animals transverse folds in the neck of the uterus which is well developed?
387. 387.In animals which ovulyasion bo'ladi7 combs
388. 388.In animals in which the surface of the ovaries of the perks of note?
389. 389.On mucous membranes of the uterus which is katelidonlar animals?
390. 390 years.Male animal sex of the members of the anatomo-physiological features and threads
391. 391.Refleks be sexual male animals and their management.
392. 392.How testes bag from the floor is?
393. 393.What is the importance of testes raised the proverbial muscles?
394. 394.In the neck of the bag in the testes of the animals, which is a good show?
395. 395.From the testes, which is more than a part of?
396. 396.Animals sex in which a member of its s - shaped bent part?
397. 397.The number in the testes of the animals, which is located in the back part of the bone?
398. 398.Quchqor, bull, and the fluid in the prostate gland of male pigs in how ayg'ir konsistensiyasi is there a difference?

399. 399.Which glands are well developed in animals piyozchasimon?
400. 400.Sperm from male animals get to prepare to the collection and use of artificial vagina
401. 401.The structure of the artificial vagina, and prepare to use them.
402. 402.Naslli ayg'ir, bull, pig and get the sperm quchqorlardan technique.
403. 403.In the year 1942, which formed part of the sample from the artificial vagina?
404. 404.Is there any type of Spermayig'gichlarning?
405. 405.How to water at a temperature of the compartment should be Su'iy to the vagina?
406. 406.How to disinfect rubber yasalgavn spermayig'gichlar will be?
407. 407.Getting sperm from animals which requires attention should be focused on?
408. 408.Bull obtain the seed from which methods do you know?
409. 409.You need to hold at any angle of obtaining sperm from the vagina artificial qo'chqorlar?
410. 410.Technique to get a sperm from a life of ayg'ir please explain?
411. 411.Designed to get sperm Xurozlardan what should be the temperature of the room?
412. 412.To get sperm from male animals at various time?
413. 413.Bull identify for what purpose is it used?
414. 414.Determine which methods known major bull kuyikishni you prepared to be?
415. 415.Vazektomiya what it is, how it is made using the method?
416. 416.Sex with a member of its s-shaped buralishi how to put the bet method is carried out?
417. 417.Shipilov vazektomiya explain the essence of the method method.
418. 418.Sex with a member of prepusiya is made to move and how?
419. 419.The procedure for the treatment of diseases in osteomalyasiya bo'g'oz cow?
420. 420.Buralishi of the uterusto explain the mechanism of the development.
421. 421.Bo'g'oz prevention of diseases of animals?
422. 422.The removal of the child (abortion), the type of causes.
423. 423.Hremove children tent in complications, their treatment and prevention.
424. 424.That is why it is said to remove the child?
425. 425.To remove the child of any type do you know?
426. 426.Complete abortionof the main character, what is it?
427. 427.Incomplete and complete (abortion) what is the removal of the child?
428. 428.Htentdaaborts to prevent?
429. 429.The physiology of birth.
430. 430.Assist in the preparation and birth of animals born to.
431. 431.The next period from birth, sexual organs involyutsiyasi.

432. 432.New breeding rules for the care of animals.
433. 433.Tell that to what is born?
434. 434.To be born on the teachings of the cause?
435. 435.The fertile period of their vary?
436. 436.The denial of the features of the next period from birth?
437. 437.Born in patologiyasida the help of obstetrics prepared to show
438. 438.Kuchanib weak and to'lg'oq
439. 439.Kuchanib to'lg'oq and strong.
440. 440.The way to narrow the ministry of birth
441. 441.Born to the wrong position of the fetus in the effects of the location and the pathology of
442. 442.The main causes of the pathology to be born?
443. 443.The dynamics arising from the destruction of pathology birth?
444. 444.The types of pathology of the fetus and the uterus arising from buyinchasiochilmasligiligidan wrong location?
445. 445.The location and position of the fetus in the aftermath of the birth of pathology wrongand that's the reason.
446. 446.Hold out mate remain.
447. 447.Out to be the womb.
448. 448.Postpartum paralysis.
449. 449.Hold mate, I remainthe main reasons.
450. 450.Hold mate and remain toshow the advantage of the method and the help of obstetrics at kamchiliklarinimalar?
451. 451.Out of the uterus,that's the main reason count the number of go.
452. 452.The output of the uterus withthe help of obstetrics at show methods.
453. 453.Postpartum paralysis to explain the mechanisms of the effects of etiopatogenetik tools in the diagnosis and treatment.
454. 454.From birth to the next service and vulvit vak.
455. 455.The next endometrit from birth.
456. 456.The uterus subinvalyusiyasi
457. 457.Perimyetrit paramyetrit from birth and the next.
458. 458.The next septisemiya from birth.
459. 459.Vulvit from birth to the next, and the service procedure for the treatment of link vak?
460. 460.The next reason endometritni minds and treatment from birth?
461. 461.The uterus subinvolyutsiyasining the main causes, methods of prevention?
462. 462.From birth and the next perimyetrit paramyetritning the main causes, methods of prevention?
463. 463.The next septisemiya from birthto treatmentandprevention methods?
464. 464.The new born animals anatomo-physiological features.
465. 465.Asfiksiya.
466. 466.Toksikoz uv. Gipotrofiya Alimentar.

467. 467.First crap (a mekong) delayed remain.
468. 468.Chiqaruv hole and the back of the rectum is not congenital.
469. 469.Diseases of the umbilical cord.
470. 470.What is Asfiksiya?
471. 471.Mekongniy what is it?
472. 472.New born many diseases occurring in animals?
473. 473.The navelto be not only spiritually healthylig‘lanishthe causes and treatment of i?
474. 474.Agalaktiya and gipogalaktiya.
475. 475.Diagnosis of mastitis in cows, treatment and prevention.
476. 476.Biya, sheep, goats mastitlarningdiagnostikasi,treatment and prevention methods.
477. 477.Which types of mastitis in cows occurs in?
478. 478.A solution of soda in the treatment of mastitis yelin will be sent through the teat for what purpose?
479. 479.Spesifik of mastitistypes?
480. 480.Flynn indurasiyasining causes and effects?
481. 481.Fgiperemiya the causes and treatment of the swelling and lynn procedure?
482. 482.Mastitisprevention larningumumiy?
483. 483.Sex lab,the other a vagina, the vagina and the neck of the uterus, diseases of.
484. 484.Diseases of the uterus.
485. 485.Sex lab,the other a vagina, the vagina and the neck of the uterus what are the main causes of diseases?
486. 486.Qand neck of the womb , go to the main symptoms of the diseases listed.
487. 487.Diseases of the uterus major risk factors for the disease.
488. 488.Characteristic symptoms of chronic consists endometritlarning what?
489. 489.Hidden chronic endometritlarning diagnosis is based on what?
490. 490.Hunt.
491. 491.Persistent yellow body.
492. 492.Atrophy of ovaries and gipofunksiyasi.
493. 493.Kistasi ovaries.
494. 494.Nimfomaniya.
495. 495.Methods for the treatment of inflammation of the ovaries?
496. 496.Causes and diagnosis of ovarian kistasining?
497. 497.Persistent yellow body what?
498. 498.Ovaries are the main causes of multiple sclerosis?
499. 499.Ovaries gipofunksiyasini the basic principles of treatment?
500. 500.The concept of infertility and

1-weather test questions (200)

1.The hormone-producing cells in the testes of male animals which you have ley?
A .testesteron
B. progesterone
Oksitosin D.
E. estrofan

2.Sexual excitement in male animals, which is finished with refleks?
A .eyakulyasiya
B. ereksiya
D. quchoqlashib
E. approach

3.Refleks with sexual excitement in male animals, which do you start?
A .approach
B. ereksiya
D. quchoqlashib
E. eyakulyasiya

4.Male sexual weakness in animals is called what?
A .impotensiya
B. aspermiya
B. orxit
B. balanopostit

5.The male sex gland which is the animal?
A .testes
B. sexual member
D. yorg'oq
E. the way of seed

6.The founder of the method of artificial insemination of animals?
A .I.Ivanov
B. K. Milovanov
D. F. Rumors May Be Able To
E. V. Smirnov

7.The development of egg cells in which a member of the animal?
A .In the ovaries
B. Klitor
D. the king in the uterus
E. in the body of the uterus

8.The allantois up to the amount of fluid in the monthly bo'g'oz 11-12 biya is how?

A .10-20 liters
B. 4-6 liters
D. 6-8 liters
E. 8-9 liters

9.Repeat the rhythm of a sexual cycle a few times during the year on the basis of how the animals are called animals, and the cycle stand?
A .policy
B. monosiklik
D. disiklik
E. trisiklik

10.The temperature in the artificial vagina at the time of obtaining sperm from male animals should be?
A .40-42
B. 37-38
D. 39-40
E. 43-44

11.Testesteron cells, which produces the hormone of the testes?
A .ley you
Sertoli B.
D. leykositlar
E. microcirculation

12.Diluted sperm of bull +can run up to a few hours when stored at a temperature of 4 degrees?
A .72
B. 15
D. 30
E. 80

13.Animals male sex hormone is called?
A .testosterone
B. estrogen
D. progesterone
E. oksitosin

14.The animal in which the infertile addiction wouldn't it be cured?
A .congenital
B. gained
D. alimentar
Symptomatic E.

15.The temperature of the testes of male animals from bag, body temperature, how low?
A .2-3
4-5 B.
D. 6-7
E. 8 - 9

16.Which hormone would reach tuxtatib will follikul technique?
A .progesterone
B. estrogen
Fs d. get
E. LG

17.Taking common method of sperm in the present day?
A .using suniy vagina
B. elektroyeyakulyasiya
D. using the surgical method
Massage method E.

18.Animals sex hormone hormone which females?
A .estrogen
B. testesteron
Oksitosin D.
Adrenaline E.

19.Continue to the average of a sexual cycle cow in few days?
A .18-21
B. 14-15
D. 10-12
E. 28-30

20.Sperm to move against the flow of fluid what is the feature?
A .reotaksis
B. action ilgarilanma
D. against the flow
E. compatibility

21.Hormones which is produced by the ovaries?
A .estrogen and progesterone relaksin
B. progesterone, oksitosin
Eterogenlar D., follikulastimullovchi
E. oksitosin, prozerin

22.Females cycle after which the animals should monitor the phenomenon of sex urug'lantirilishi?

A .sexual batter
B. general reaction
D. leaks
Ovulyasiya E.

23.The main stage was the night of the testes which is part of Spermatogenezni?
A .burama channel
B. right channel
Curtains in oqsilli D.
Channel sperm-producing E.

24.Its part of which is located in the core of sperm?
A .the main part
B. neck
D. in the tail
E. in the part of the body

25.Be the first who created a method of the depth of freezing sperm?
A .I. V. Smirnov
K. B. I. Milovanov
Ivanov D. SH.I.
E. M. Mirzaev

26.Quzg'alishni called sexual hormones?
A .estrogen
Progesterone is B.
D. relaksin
Adrenaline E.

27.Neyrosekretlar stimulating the sexual cycle (liberinlar) which is produced in the body?
A .Gipatalamusda
In The Pituitary Of B.
In Ovarian D.
E. in the mammary gland

28.Allantois which type of animal is surrounded by the veil of the fetus in all the way?
A .biya in
In b. cow
Pigs in D.
E. the sheep-goat

29.Few days more than the tail part otalantirish sperm in testes has the ability to save?

A .10-20
B. 30-40
D. 60-70
E. 80-90

30.The most basic method of artificial insemination and the murtak kuchib purpose?
A .speed up work seleksya
B. prevention of diseases
D. increase serpushtlikni
E. increasing the number of animals

31.Formed in testes where sperm is saved?
A .testes than in
B. cells liy
D. produce on the channel
E. on the right channel

32.Sperm density, the movement of dead-pathological method of the form in which the living and the percent concentration and assessed?
A .microscopic
Makroskopik B.
D. organoleptik
E. Laboratory

33.What should be the density of the bull sperm in moderation?
A .dense, dense average
B. average dense, sparse
D. sparse average
E. sparse

34.The development of the sperm suyultirgichlarga mikroorganimlarni tuxtatib added to what?
A .antibiotics and sulfanilamidlar
B. glucose
D. sodium sitrat
E. egg yolk

35.The stage which is finished with Otalanish?
A .get access to sitoplazma
Shred the veil illuminating the crown B.
Get into spots a shiny D.
To attack iran

36.Otalanish the first stage of what is called?

A .attack
B. access to the cells
Access to the spots a shiny D.
E. ovogenez

37.Azotdan liquid to a few degrees is freezing sperm?
A .-196
B. -183
D. -79
E. -150

38.Nampyon is how the birth process?
A .from the opening of the cervix
The satellite separated from B.
D. the fetus out from
E. kindigi plucked from the fetus

39.Which part of the egg cell, will hinder spermiylariga other types of animals?
A .shiny curtains
B. in the crown illuminating aconite
D. correspondence curtains
Yellow cavity E.

40.Glycerin is added to the sperm suyultirgichlarga for what purpose?
A .ice crystals appear not to
B. bring the sperm to move
D. to be vetrifikasiya
To convert the ice to par E.

41.Is not of a sexual cycle?
A .anafrodiziya
B. asinxron
D. allantois
E. amnion
42.A long time back in a sexual cycle every 2-5 days and continue to be, a strong demonstration of what is to be the character of sexual excitement?
A .nimfomaniya
B. atrofiya
D. distrofiya
Ovulyasiya E.

43.Sperm is added sodium sitrat suyultirgichlarga for what purpose?
A .media (pH) to keep it the same
B. a source of energy
D. from cold storage

Increase the size of iran

44.Glucose is added to the sperm suyultirgichlarga what purpose?
A .energy source
B. increase the size
D. from cold storage
Save from heat, E.

45.A member of Otalanish which is realized?
A .on the way to the egg
In ovarian B.
D. the king in the uterus
E. in the uterus buyni

46.Inflammation of the ovaries is called what?
A .hunt
B. service
D. vak
E. endometrit

47.The growth of egg cells in the ovaries and to reach what is called?
A .Ovogenez
Ovulyasiya B.
D. Filogenez
Ontogenez E.

48.Referred to reduction of muscles of the abdominal wall how?
A .to kuchanib
B. tulg'oq
The beginning to the birth of D.
E. strain

49.Sperm in animals, which is qaymoqsimon konsistensiyasi?
A .in qo'chqorlar
B. in horses
D. dogs
E. chuchqalarda

50.Otalangan will fall to the king of the uterus a few days after egg cells?
A .7-10
B. 3
D. 4
E. 12

51.Inflammation of the prostate gland in male animals is called what?

A .prostatitis
B. salpingit
Fimoz D.
E. orxit

52.The volume of sperm a few ml in pigs is the average male in the norms?
.400 A-600
B. 410-800
D. 150-200
E. 50-100

53.Which method is used in the insemination of animals from fraksion?
A .pork
Sheep B.
D. goat
E. biya

54.Many follikul rupture what is it?
A .poliovulyasiya
Ovulyasiya B.
D. ovogenez
Spermatogenez E.

55.It is said that oligospermiya why?
A .be less than the amount norms sperm
B. in general might not be sperm
D. nekrospermiya
E. pathological sperm be of the form

56.Which animal most of the sperm of liquid (sparse) will be?
A .pork
B. ayg'ir
D. bull
E. qo'chqor

57.The volume of sperm a few ml is average in qo'chqorlar norms?
A .1-1.5 a
B. 3,5-4,0
D. 5-5,5
E. 4-4,5

58.Ovulyasiya at which stage of the reproductive cycle in the cow is observed?
A .1
B. 2
D. 3

E. 4

59.Select which part of the egg cell sperm transfer capability has?
A .the veil of shiny
B. core
Sitoplazma d.
Crown light E.

60.Sexual Anestral what is a cycle?
A .to be flowing
B. mating is not
D. the general reaction might not be
Ovulyasiya is not E.

61.The cow is in a few of the uterine wall from the floor?
A .3
B. 2
D. 1
E. 4

62.What is the type of fertilization in pigs and biya?
A .the uterus in the type of
B. eggs way
The neck of the uterus D.
E. through the vagina

63.25-30 days for more than so'rilmagan yellow Bo'g'oz in the animal body is called what?
A .persistent yellow body
B. real yellow body
D. ovarian kistasi
E. yellow body

64.Virgin, the sexual tendency which is, does it happen in the phenomenon of the effects of the hormone?
A .estrogen
Progesterone is B.
D. relyaksin
E. oksitosin

65.Multiple stage ovogenez did in the night?
A .3
B. 2
D. 4
E. 5

66.Several stages of the sexual cycle in females at animals?
At a stage .3
B. in stage 2
D. phase 4
E. phase 5

67.Sexual Anovulyator what is a cycle?
A .ovulyasiya is not
B. to be flowing
Mating is not D.
E. the general reaction might not be

68.Male sperm develops in the organs of animals which?
A .testes
Testes than in B.
D. in the uterus
Ovarian iran

69.In four animals in which there is the veil of the fetus?
A .camel
Sheep B.
D. cow
E. Dog

70.The ripening of egg cells from the ovaries what is the output?
A .ovulyasiya
B. ovogenez
D. spermiogenez
E. follikul
71.Sperm spermiylarning in what is called?
A .aspermiya
B. nekrospermiya
D. changed the color of sperm
E. is the smell of sperm

72.What is called the depth of diluted sperm freezing?
A .kriokonservasiya
B. ekvilibrasiya
D. start muzdan
E. auskultasiya
73.The deep freezing of semen diluted in what is used for?
A .liquid nitrogen
B. alcohol
Liquid oxygen D.

E. liquid hydrogen

74.How much is the average size of the bull sperm?
A .4-5
B. 7-10
D. 10-15
E. 20-25

75.The veil of the water of the fetus that is what is called the language of science?
A .amnion
B. allantois
D. chorus
E. allantoxorion

76.The decrease of the abdominal wall at the time of birth is called what?
A .to kuchanib
B. strain
D. to'lg'oq
E. disturbance

77.Serum inflammation of the uterus, called the floor is how?
A .lipid parameters
B. the perimeter of lipid
D. endometrit
E. miometrit

78.Name the hormone which is produced by the yellow body?
A .progesterone
B. combination
D. sinestrol
E. estrol
79.Cow, sheep, goat and what is the type of fertilization in bug'ular?
A .vagina type
B. type in the uterus
D. the way of eggs
The neck of the uterus E.

80.What is called the language of science in the urinary curtains of the fetus?
A .allantois
B. amnion
D. allantoxorion
Chorus E.

81.Spermiyalarni testes growth and to reach what is called?
A .spermiogenez

B. ovogenez
Ontogenez D.
E. filogenez

82.The method from which sperm is taken with cock?
A .massage method
B. elektroeyakulyator
D. using machalka
E. artificial vagina

83.Makroskopik indicators in assessing the quality of sperm which did you identify it?
A .size, color, smell and konsistentsiyasi
B. size, color, smell, and density
D. size, color, smell and movement
E. size, color, smell and shape

84.In the few months of an adult sexual biya?
A .10-12
B. 16-18
D. 18-24
E. 24-28
85.Continue to the average of pigs bo'g'ozlik in few days?
A .114
124 B.
224 D.
214 e.

86.The reproductive cycle lasts an average of the cow in few days?
A .18-21
B. 28-30
D. 10-12
E. 14-15

87.Understand about what is the service?
A .inflammation of the neck of the uterus
B. inflammation of the vagina
D. inflammation of urinary tract
E. inflammation of the uterus

88.To what is observed in the effects of sperm is cold?
A .shokin temperature
B. action ilgarilanma
D. gemoliz
E. kaogulyasiya

89.A drug that would strengthen the contraction of the muscles of the wall of the uterus?
A .Oksitosin
B. no-focused
D. Tetracycline
Analgin E.

90.Inflammation of the mucous membrane of the uterus is called the inner what?
A .endometrit
B. the perimeter of lipid
D. miometrit
Vulvit E.
91.What should be the density of the bull sperm in moderation?
A .dense, dense average
B. average dense, sparse
D. sparse average
E. sparse

92.The stage which is finished with Otalanish?
A .get access to sitoplazma
Shred the veil illuminating the crown B.
Get into spots a shiny D.
To attack iran

93.According to the location of the teat, in the fetus in animals go'shtxur any type of mate?
A .every-in every place
B. bulk
D. disksimon
E. ball-the ball is located

94.The amount of fluid in the amnion bo'g'ozlik 1 biya is how much?
A .40-50 ml
B. 15-20 ml
D. 60-80 ml
E. 100-200 ml

95.Biya in bo'g'ozlik of 11-how much is the amount of fluid in the amnion?
A .10-around 20 l
Around 1-2 b. l
Around 4-6 l D.
Around 40-50 e. l

96.Bo'g'ozlik 2 in the cow-the amount of fluid in the amnion is how much?

A .150-450 ml
B. 100-120 ml
D. 500-650 ml
E. 800-850 ml
97.The cow at the end of the period in the amount of the curtain suyuqliq bo'g'ozlik allantois is how much?
.4 A-8 liter
B. 1-2 liters
D. ml 500-660
E. 700-880 ml

98.Number bo'g'ozlik up and come to the end of a few pieces in the cow plasentomalar how great is it?
A .average 80-100 far up and duck eggs at large
B. average 40-50 far up and duck eggs at large
D. 200-300 at large, and far up the average chicken eggs
E. average 100-120 far up and duck eggs at large

99.The fetus in the uterus of the cow with the part of the satellite part of the fetus is in any type of interaction?
A .desmoxorial
B. epitelioxorial
D. gemoxorial
E. axorial (without teat)

100.With the part of the fetus in the uterus of a fetus satellite biya part in any type of interaction?
A .epitelioxorial
B. desmoxorial
D. gemoxorial
E. axorial (without teat)

101.When the length of the fetus in the birth kindigi stay close to the cow, how?
A .30-40 cm
B. 10-20 cm
D. 80-85 cm
E. to 1 meter

102.Bo'g'ozlik with the fetus, which in many animals can be at night?
A .pork
Sheep B.
D. cow
E. biya
103.Bo'g'oz animals which appear in the uterus at karunkulalar?
A .cow, sheep, goat

B. the dog and cat, pig
D. camel, biya, pork
E. dog, rabbit, cat

104.Bo'g'ozlik term lasts an average of qo'ylarda few days?
A .150
B. 114
D. 285
305 E.

105.Thomas the children give in and qo'ylarda goat occurs in a few percent?
A .10-15 5-7
B. 2-3, and 4-6
22-25 and 20-30 D.
E. and 50-70 60-80

106.Bo'g'ozlik usually takes a few days in the cow?
A .285-305 days
B. 250-260 days
D. day 320-340
E. 170-190 days

107.Murtak Trofoblast stage pass into the uterus will start with how fed?
A .mucous membranes of the uterus, producing a “uterine milk”
B. the blood vessels coming through nutritional substances
D. nutritional substances coming through the lymph vessels
E. cervical mucous membranes of sperm to stick to the rest

108.On the day of bo'g'ozlik bo'g'ozlik yellow cow, which is the maximum level of development in the body?
A .bo'g'ozlik's 90-day
B. bo'g'ozlik 60-day
D. bo'g'ozlik of the 120-day
On the 13th day of bo'g'ozlik E.
109.Which animal bo'g'oz hormone in the hypothalamic-growth follikul gipofizar through the system and pauses that?
A .progesterone
B. gonadotropin
Folikula stimullovchi D.
E. oksitosin

110.In the neck of the uterus in the cow bo'g'ozlik slimy liquid which can hang from tirqishga suyuqlashishi sex?
A .5-6
B. 3-4

D. 7-8
E. 8-9

111.The cow in ca and p, which can give the development of the disease etrlicha of salt in the food?
A .bo'g'oz osteomalyatsiyasi animals
B. remove the child bo'g'oz animals
D. bo'g'oz gipovitaminoz animals
E. bo'g'oz gipotoniya animals

112.Cow, sheep, starting from the second half of progesterone in the body biya bo'g'ozlik from where it is produced, in addition to yellow again?
A .on mucous membranes of the uterus
In the pituitary of b.
D. in the hypothalamus
E. ut slug‘ in the way

113.In bo'g'ozlik will increase several times the weight of the uterus during biya?
A .4-5 times
B. 1-2 times
D. 6-8 times
E. 6-10 times

114.Produced from the milk of the cow bo'g ipsos should establish an average of the period of few days?
.60 a day
B. 40 days
D. 90 days
E. 120-160 days
115.Which methods the clinical and infertile animals bo'g'ozlik interaction detection method?
A .refleksologik method; paypaslab to it through the rectum, through the vagina
B. refleksologik method; paypaslab to the rectum, through the blood check
D. x-ray using; to paypaslab, through the rectum, through the vagina
E. refleksologik method; ultrasound check, through the rectum

116.Sex and animals by natural or artificial methods urug'lantirilgandan kuyikishning kuzatilmasligi for 3-4 weeks after the batter what?
A .initial mark bo'g'ozlikhihg
B. 3 month mark bo'g'ozlikhihg
Bo'g'oz not the mark of D.
Mark E. initial kasallikhihg

117.The animals bo'g'ozlik ULTRASOUND (ultra sound check) detected using insemination (gestasiyaning) 20-day embryo round-dumboqcha will be how?

A .3 mm (small rice at large)
6-8 mm B. (small of peas at large)
D. 20-30 mm nuts (at large)
E. 2-3 cm (quail eggs at large)

118.Scanning, starting in the days of the embryo can be observed that the reduction of the heart muscle, which bug'ozlikning?
A .bug'ozlikning 26-29 days
B. bug'ozlikning 36-39 days
D. 66-70 bug'ozlikning days
E. bug'ozlikning 120-160 days

119.The method is called through the rectum bo'g'ozlik how to check?
A .rectal check
B. save with hit bull
D. check vaginal
E. check for foreign

120.Which is the accumulation of fluid in the uterus 150-450 ml bo'g'oz cow?
A .2
B. 3
D. 5
E. 4
121.Biya bo'g'ozlik in the ultrasound (ultra-sound check using which you can determine the sex of the fetus in the days bug'ozlikning detected in?
A .55 in 90 days...
100 B. 120 days...
D. 110 to 160 in the day...
154 E. 180 days...

122.The method is called in through the rectum and camel biya bo'g'ozlik how to check?
A .rectal check
B. save with hit bull
D. check vaginal
E. check for foreign

123.In check in through the rectum from the medium in which biya bo'g'ozlik bo'g'oz the vibrations of the arteries of the uterus begins to feel weak?
.4 A
B. 6
D. 7
E. 8

124.Bo'g'ozlik lasts an average of 9 months in which animals?

A .cow
B. horse
D. provisional president
E. goat

125.Bo'g'oz from which karunkulalar paypaslanadi cow?
.4 A
B. 2
D. 1
E. 3

126.Paralysis how these diseases are more common born from the next half of the cows?
A .many birth, extremely fat, many milky
B. arriq, less milky
D. young animals
Animals in the e. qar
127.Novocaine for the conduction of anesthesia in the cow jump from how much solution is required?
A .2% solution in 10-20 ml li
B. 0.2-0.5% li eritmasidan20-30 ml
D. 2% solution 2-3 ml li
E. 3% solution from 5-10 ml li

128.Bo'g'oz soften the bones of animals is called anday disease remain with quotation?
A .osteomalyatsiya
B. gipovitaminoz
D. gipotoniya
Osteoxondroz E.

129.At the time of mating and sexual diapediz bleeding from the uterus caused by rupture of blood vessels can be observed in a few percent of the cow and the bodies?
A .3-5%
B. 6-8%
D. 10-15%
E. 30-50%

130. Tear of the abdominal wall muscles in animals bo'g'oz be caused by the child in her bag grija be in the form of disease called the descent of the uterus is how?
A .the uterus grijasi
B. bashadon atoniyasi
D. the uterus subunvolyutsiyasi
E. bashadon of istisqo

131.Besides bo'g'ozlik to be developed to the developing fetus in the womb during how another is called murtak?
A .additional bo'g'ozlik
Bug'ozlik B. false
D. used bo'g'ozlik
Hidden bo'g'ozlik E.

132.The milk from cows which are removed from bo'g'oz?
A .7 months
B. 5 months
D. 3 months
E. 8 months
133.Inflammation of the mucous membrane of the uterus is called the inner what?
A .endometrit
B. the perimeter of lipid
D. miometrit
Vulvit E.

134.Inflammation of the middle floor of the muscles of the uterus is called what?
A .miometrit
B. the perimeter of lipid
D. endometrit
Vulvit E.

135.For the production of milk from the mammary gland of a cow should pass several liters to 1 liter of blood?
A .500
B. 200
D. 300
400 E.

136.A.P.Classification according to Studensov there are several types of abortion?
A .infectious infectious and parazitar
B. infectious and infectious alimentar
D. infectious and infectious idiopatik
E. are infectious, and parazitar idiopatik

137.What is mumifikasiyasi of the fetus?
A .the fetus mumiyolanishi
B. shib going to be seen in the fetus
D. the fetus out of the uterus
E. the birth of the fetus be dead

138.What is petrifikasiyasi of the fetus?

A .the cover of the calcium salt of the fetus
B. the embryo out of the womb
D. remain the embryo built
The embryo remain to soften E.
139.The reduction of the uterus, what is it?
A .to'lg'oq
B. to kuchanib
The beginning to the birth of D.
E. zuriqish

140.The dead fetus and bone divorce place to stay in the united suyilib what did he say?
A .masiratsiya
B. induratsiya
D. petrifikatsiya
E. osteomalyatsiya

141.The veil of which is formed from the primary ichagi murtak of the fetus, the umbilical cord is bulging out from the bag?
A .allantois
B. amnion
D. chorus
E. white curtains

142.Which type of abortion of the fetus in the uterus at the time of the fetus in the uterus, the rest can die and one or more tug'lishi normal?
A .incomplete abortion
B. complete abortion
D. abortion used
E. early abortion

143.Yelin in the cow teat canal narrow to be treated how?
A .surgery method
B. make massage
D. physiotherapy
E. antibiotikoterapiya

144.Cover the surface of the calcium salt of the dead fetus, the rest qattiqlashib what did you say to her?
A .petrifikatsiyasi of the fetus
B. matsiratsiyasi of the fetus
D. the fetus mumyolanishi
E. gangrenasi of the fetus
145.The egg cells from the ovaries what is the output?
A .ovulyasiya

B. ovogenez
D. spermiogenez
E. follikulogenez

146.What do I need to start to show the new born animals to help?
A .the mouth and nose of bushlig'ini tozlashdan
B. the umbilical cord is tied from
D. the solution sent from the caffeine
From e. lactating

147.The reduction of their position in the uterus to come what did you say?
A .involyusiya
B. invaginasiya
D. subinvolyusiya
E. implantasiya

148.A drug that would strengthen the contraction of the muscles of the wall of the uterus?
A .oksitosin
B. noshpa
D. tetracycline
Analgin E.

149.The cow in the birthing process continue to be the average time (hours)?
A .5-6
B. 3-4
D. 2
E. 7-8

150.Cows with the birthing process, what ends?
A .the separation of the fetus yuldash
B. the fetus be out of
Be out of the uterus D.
E. mating sex
151.The neck of the uterus during childbirth large cutting end with what can be ripped?
A .be out of the uterus
B. remain the yuldash ushlsnub
D. endometrit
E. complications parezi

152.The decrease of the abdominal wall at the time of birth is called what?
A .to kuchanib
B. zuriqish
D. tulg'oq

E. disturbance

153.Tuf during what is called a reduction of the wall of the uterus?
A .to'lg'oq
B. to kuchanib
The beginning to the birth of D.
E. zuriqish

154.The birthing process is divided into multiple periods?
A .3
B. 2
D. 4
E. 5

155.Vitamin and mineral substances in the form in which it should be applied to infertile?
A .alimentar
B. Simtomatik
D. congenital
E. gained

156.How integral is called the hold time and the rest in the cow hoimila mate?
A .24 hours
B. up to 6 hours
D. up to 28 hours
E. up to 32 hours
157.The surface of the vagina and the narrow pelvis, the fetus is excessively large if the method in which tug'diriladi?
A .Kesarev method
B. fitotomiya
D. the uterus amputatsiyasi
E. vazektamiya

158.How to cut dead fetus in the uterus is called the method to separate the parts?
A .fitotomiya
B. method kesarev
D. amputatsiya
E. transplantation

159.New breeding the cow back and still be on the low side of the disease, which is the separation of the fetus than a satellite can be observed?
A .be out of the uterus
B. be out of the vagina
D. the uterus atoniyasi
E. the uterus subinvalyutsiyasi

160.Kesarev dissection method is recommended when abdominal wall and the uterus in the cow?
A .Tosninig fits with the size of the fetus when the size of the surface
B. in order to remove the rest of the fetus to die Bachdonda
D. the uterus inflamed in buyni
Iran tug'ayotgan cows for the first time

161.Kesarev the abdomen and uterus in the cow dissection method in place of the abdominal wall is made of several layers of cut in animals?
A .2-floor 3
B. floor 4-5
D. 1 floor
E. kamiga floor 4

162.Method of dissection surgery abdominal wall and the uterus in the cow Kesarev few days later, the animals fed the diet is usually transferred to?
A .8-9 days
B. 1-2 days
D. 15-20 days
E. 1-1,5 months
163.How to remove operation is called bachdonda the rest of the fetus to die?
A .fetotomiya
B. method to cut in the abdominal wall kesarev
D. vazektomiya
E. ovariotomiya

164.The closed method is used in the cutting tool fetotomiyaning how?
A .under the skin of the fetus
B. on the skin of the fetus
D. under the veil of cervical mucous
E. the fetus in the abdominal cavity

165.Cut with the body of the fetus fetotomiyada the instrument to be introduced into the cavity between the wall of the uterus is called how?
A .open method
B. closed method
D. method qonsiz
E. cold method

166.Which is used a lot in the practice of obstetrics fetotomlar?
A .Besxlebnov and Phlyans fetotomi
Fetotomi B. Afanasev
Phlyans fetotomi and d. korobov
E. a fetotomlar times

167.Fetotomiya in the intestine of the fetus-how to remove chovoqlarini is called?
A .eventerasiya
B. pertubatsiya
D. eksikatsiya
E. keratinizatsiya

168.The proper conditions of agricultural animals in parvarishlanganda how much time was at the end of the period from birth to the next?
A .3 weeks, not later than 1 month
B. 6 weeks of treatment and 2 months
D. 2-2,5 months
E. in 7-8 days
169.How cows from birth to the edge of narrowing of the uterus in the next 3 days?
A .4 cm
B. 2 cm
D. 12 cm
E. 20 cm

170.In the next days in the cow from birth to'lg'icha of uterine cervix, which are closed?
A .15-day 17
B. in 10-12 days
D. 25-27 days
E. 45-65 days

171.Return the position of the cow in their reproductive members (invalyutsiya) to the next day which is born from to'g'rikeladi?
A .20-25 days
B. 30-35 days
D. 40-50 days
E. 60-65 days

172.The next period from birth completes with what?
A .the beginning of a complete sexual cycle
B. the beginning of a cycle of sexual incomplete
D. the uterus involyusiyasi
E. the uterus qisqarmasligi

173.The process of returning the character position of the uterus after birth of infertility cows with delayed how the disease is called?
A .the uterus subinvolyutsiyasi
B. the uterus atoniyasi
D. inflammation of the uterus
E. ovarian subinvolyutsiyasi

174.From birth to the next kataral sharp-how is separated from the way xususuyatli ekssudat purulent endometrit during sex?
A .whey-purulent
B. whey-bloody
D. a fibrin-a hemorrhagic
E. ixoroz-kataral
175.The next night, which should be differentiated from similar disease which at endometritni kataral from birth?
A .the uterus invalyusiyasi
B. kataral miometrit
D. the service with fibrin
E. traumatic retikulit

176.Animals from birth, then make tissue inflammation of the uterus or the vagina before that night with how wide the disease is called?
A .Lipid parameters from birth to the next
B. the perimeter of czechoslovakia from birth to the next
D. from birth to the next miometrit
From birth the next endometrit E.

177.Local microorganisms and their toxins in the blood as the complications of the inflammatory process of the general condition of the animal at that night with a very sick og'irlashib how the disease is called?
A .septisemiya
B. piemiya
D. lipid parameters
E. endometrit

178.Frimartinizm form in which to enter infertile?
A .congenital
B. symptomatic
D. alimentar
E. ekspluatasion

179.Serum inflammation of the uterus, called the floor is how?
A .lipid parameters
B. the perimeter of lipid
D. endometrit
E. miometrit

180.Which wouldn't be cured of the animal in the form of infertile?
A .congenital
B. symptomatic
D. alimentar

E. ekspluatasion
181.Several different according to the clinical manifestation of mastitis was yesterday?
A .clinical, subklinik
B. acute, chronic
D. sharp, subklinik
E. hidden, chronic

182.Germofroditizm form in which to enter infertile?
A .congenital
B. symptomatic
D. alimentar
E. ekspluatasion

183.The appearance of which in the form of infertility is caused by diseases?
A .symptomatic
B. ekspluatasion
D. alimentar
E. congenital

184.What is infertility?
A .lack of the fetus in the uterus
B. economic indicators
D. pregnancy
E. congenital

185.A warm compress is not recommended in the treatment of mastitis in which form?
A .hemorrhagic
B. purulent
Whey D.
E. kataral

186.The physiological aspects of birth new born animals from which to'laqimmatli without a disease?
A .antinatal gipotrofiya
Toksikoz uv-B.
D. asfiksiya
E. omphalorrhagia
187.New born calf is in the heart a few times in may reap minutes in 1 minute?
.148 times
B. 162 times
D. 170 times
E. 180 times

188.New born in the first hours of life in animals, which is absorbed into the blood through the wall of the intestine and immune globulin will take?
A .24-in 36 hours
B. in the hour of 40-66
D. 72-76 hours
E. in only 6 hours

189.Bo'g'oz infected with fungi and a new birth to cow hay, silage, which is his reason hayonlarning sick newborn senaj of nutrients like to be given?
A .toksikoz uv
B. asfiksiya
D. gipotrofiya
E. gastroenterit

190.Asfiksiya in new-born animals (steam stay) to start what do you need help?
A .slimy breathing of the way of cleaning fluid
B. the production of the body ishqab
Suniy to breathe shaving D.
E. glucose blood vessels to send

191.In which form should be used in the prevention of addiction on the animal infertile?
A .ekspluatasion
B. alimentar
D. simtomatik
E. congenital

192.What is called the new-born animal to breathe the difficult matters?
A .asfiksiya
B. hansirash
D. gipotrofiya
E. gipovitaminoz
193.When the blood went from new-born animals is how kindigi cures?
A .the umbilical cord is tied
B. antibiotic is applied
D. ointment is driven
E. is washed with water

194.New born that night how the disease with diarrhea in animals is called?
A .toksikoz uv
B. antinatal gipotrofiya
D. asfiksiya
E. omphalorrhagia

195.What is inflammation of the mammary gland?

A .mastitis
B. vak
D. rhinitis
Arthritis E.

196.Ty of the blood into the milk lines, which can be mixed inflammatory yelin?
A .hemorrhagic
B. purulent
D. kataral
E. inflammation of the skin of the udder

197.According to the clinical manifestation of several different mastitis in cows was yesterday?
A .clinical, subklinik
B. acute, chronic
D. sharp, subklinik
E. hidden, chronic

198.Mastitis, which is banned in the form yelin o'qalash?
A .purulent
Whey B.
D. hemorrhagic (bloody)
E. kataral-whey
199.A warm compress is not recommended in the treatment of mastitis in which form?
A .hemorrhagic
B. purulent
Whey D.
E. kataral

200.The narrowing of the channel in which the teat of the cow yli its jarohatlanganda set it to remain what you did?
A .milk catheter
B. qisgich
D. frequent milking
E. nothing

2-test questions for the weather (200)

1.In the acute form of mastitis the night with the rising of body temperature, which belong to the group of the drug should be used?
A .antibiotics and sulfanilamidlar
B. the temperature falls and laxative drugs which
D. the temperature dropped and heart which glikozidi
E. antigelmintiklar and sulfanilamidlar

2.Chiqaruv of the mammary gland is formed from the addition of lydda as what?
A .milk channel
B. milk tank
D. yelin of the teat
E. foreign artery shame

3.Yelin types of inflammatory change in the milk, which wouldn't be?
A .yelin inflammation of the skin
B. hemorrhagic
D. purulent
E. kataral

4.The rupture of the skin of the teat Yelin because of the lack of vitamin in the body, which is observed?
A .B2 vitamin
Vitamin B.
D. vitamin d3
E. c and vitamin k

5.Gave birth for the first time, the possibility of productivity is great, but eli can be the origin of the small defect in which the cow?
A .self-suction
B. remain achib milk
D. laktorreya
Yelin E. induratsiyasi

6.What does this teach science andrologiya?
A .diseases of male animals
B. male animals use to
Methods to get seeds D.
E. obstetrician-gynecological dispanserlash

7.Andrologik despansirizasiyada are studied what ?
A .erkaklik defects and diseases of sexual organs
B. defects and diseases of the sexual organs urg'ochilik
D. born to help make
E. animals be born

8.Inflammation of the prostate gland in male animals is called what?
A .prostatitis
B. Salpingit
Fimoz D.
E. Orxit

9.Spermiyalarni testes growth and to reach what is called?
A .spermiogenez
B. ovogenez
Ontogenez D.
E. filogenez

10.How much is the average size of the bull sperm?
A .4-5
5-8 B.
D. 10-15
E. 40-50

11.How chiqarilmasligi cperma work in male animals is called?
A .aspermiya
B. nekrospermiya
D. changed the color of sperm
E. is the smell of sperm

12.A member of what is called inflammation of the head part of sexual male animals?
A .bala
B. vezikulit
D. prostate
E. orxit

13.The level of fertilization the sperm of the bull that is high in the structure of living up to the amount of sperm is how?
A .80-95%
B. 60-70%
D. 50-60%
E. 30-40%

14.Hit the bull who keep the cows every day in the morning and in the evening a few hours to put zagonlarga sent?
A .1,5-2 hours
B. 2.5-3 hours
D. 3,5-4 hours
Iran, 4.5-6 hours

15.Pufakchasimon gland inflammation (vezikulit), which often occurs in type animals.
A .bull and male pigs
In b. taurus and male dogs
D. ayg'ir and male pigs
In e. quchqor and taka

16.Yelin signs of inflammation in the disease of which the local temperature may be raised to be painful and is not observed, milk yield was reduced with the passage of time will go?
A .yelin's indurasiyasi
B. yelin's flegmonasi
D. yelin inflammation of kataral
E. yelin's atoniyasi

17.Yelin yelin chirituvchi to be caused by tissue necrosis and litter fall of microorganisms with quotation how the disease is called?
A .yelin gangrenasi
B. yelin's indurasiyasi
D. yelin's atoniyasi
E. yelin's flegmonasi

18.The development of egg cells in which a member of the animal?
A .in the ovaries
B. klitor
D. the king in the uterus
E. in the body of the uterus

19.The ripening of egg cells from the ovaries what is the output?
A .ovulyasiya
B. ovogenez
D. spermiogenez
E. follikulogenez

20.Vitamin and mineral substances in the form in which it should be applied to infertile?
A .alimentar
B. simtomatik
D. congenital
E. gained

21.Frimartinizm form in which to enter infertile?
A .congenital
B. symptomatic
D. alimentar
E. ekspluatasion

22.Which wouldn't be cured of the animal in the form of infertile?
A .congenital
B. symptomatic
D. alimentar

E. ekspluatasion

23.Several different according to the clinical manifestation of mastitis was yesterday?
A .clinical, subklinik
B. acute, chronic
D. sharp, subklinik
E. hidden, chronic

24.Germofroditizm form in which to enter infertile?
A .congenital
B. symptomatic
D. alimentar
E. ekspluatasion

25.The appearance of which in the form of infertility is caused by diseases?
A .symptomatic
B. ekspluatasion
D. alimentar
E. congenital

26.What is infertility?
A .loss of sexual ability
B. economic indicators
D. the term of pregnancy
E. congenital

27.A warm compress is not recommended in the treatment of mastitis in which form?
A .all the answers are correct
B. purulent
D. kataral
Hemorrhagic E.

28.In which form should be used in the prevention of addiction on the animal infertile?
A .ekspluatasion
B. alimentar
D. simtomatik
E. congenital

29.The animal in the form of feeding in which the infertile will improve in the treatment of addiction?
A .alimentar
B. symptomatic

B. congenital
B. ekspluatasion

30.Estrogen and progesterone hormone, which is produced relaksin a member of?
A .ovaries
B. testes
D. yellow body
E. are follikul

31.Inflammation of the ovaries is called what?
A .hunt
B. service
D. vak
E. endometrit

32.What are the complications of mastitis?
A .indurasiyasi the udder, udder gangrenasi
B. aktinamikozi the udder, purulent mastitis
D. tuberculosis of the udder, mastitis whey
Udder indurasiyasi E., purulent mastitis

33.The eggs of the way in which the method is used to determine bekilib stay?
A .pertubatsiya
B. kateterlash
D. to paypaslab
E. perputsiya

34.Peace in the position of the uterus after childbirth when the state re-development is how slowing disease called?
A .subinvalyusiyasi of the uterus
B. the uterus atoniyasi
D. the uterus amputatsiyasi
Hyperplasia of the uterus E.

35.Which type of mastitis in 80% cases the milk is determined using laboratory inspections?
A .subklinik mastitis
B. hemorrhagic mastitis
Mastitis is a fibrin D.
E. kataral-purulent mastitis

36.Cow in old age (klimakterik few) infertility at the age of do you start?
A .15-20
B. 20-23
D. 10-15

E. 20-25

37.Sex in inflammation of the vagina and cleanse the lips of the other how to get ekssudat basically use a tool?
A . disinfectant solution (1:5000 potassium permanganate ratio, 1:5000 ratio furasilin solution) and washed with antiseptic solution in one (5%-li ixtiol, 3%-li tetracycline solution), washed with napkins dry, and the ointment (ointment levomekol) and is driven by.
B. disinfectant solution (1:4000 ratio of potassium permanganate, 1:5000 ratio furasilin solution) and washed with antiseptic solution in one (5%-li ixtiol, 3%-li tetracycline solution), washed with napkins dry, and the ointment (ointment levomekol) and is driven by.
D. disinfectant solution (1:4000 ratio of potassium permanganate, 1:4000 furasilin ratio in solution) and washed with antiseptic solution in one (5%-li ixtiol, 5%-li tetracycline solution), washed with napkins dry, and the ointment (ointment levomekol) and is driven by.
E. there is no correct answer.

38.Vulvit and how the use of means in the treatment of medicinal vestibulitni?
A . 1:5000 potassium permanganate ratio, 1:5000 ratio furasilin solution, 5%-li ixtiol, 3%-li tetracycline solution, dry with a napkin, and the ointment (ointment levomekol) and is driven by.
B. 1:4000 ratio of potassium permanganate, 1:4000 solution furasilin ratio, 3%-li ixtiol, 2%-li solution is washed with tetracycline.
D. 1:5000 potassium permanganate ratio, 1:5000 ratio furasilin solution, 4%-li ixtiol, 2%-li solution is washed with tetracycline.
E. 1:5000 potassium permanganate ratio, 1:5000 ratio furasilin solution, 3%-li ixtiol, 1%-li tetracycline solution, dry with a napkin, and the ointment (ointment levomekol) and is driven by.

39.The vagina is carried out in the treatment of vaginitni katetirlash how?
A .katet their 30-40º at an angle of 15-20 cm is sent to
B. katet their 30-40º at an angle of 25-30 cm is sent.
D. katet their 25-15-20 cm at an angle of 30º is sent.
E. katet their 30-35º at an angle of 15-20 cm is sent to

40.Method in which the heating of liquid medicines before sending through the vagina?
A .still in the water, 37-40°C
B. when you boil.
D. isotiladi alcohol lamps.
E. qurut is heated in the oven to

41.How to ensure an appropriate distribution of medicines after medicines has been sent?

A . put on disposable gloves to catch the rectum through the vagina with massage provides slow on the distribution of medicines.
B. put on disposable gloves to catch the vagina to vagina slowly on the distribution of medicines with the same kirgizilib uqalaniladi provides.
D. yurg'uziladi animal for 10-15 minutes.
The oldest and largest animal after the condition is left of iran

42.When the disease was severe and what is the use of vestibulit vak?
A . rinsing with antibiotics and are a solution of potassium permanganate.
B. antibiotics and are rinsing with warm water.
Rinsing with antibiotics and are vadarod d. perikl solution.
E. are frequent rinsing with warm water

43.Vak vestibulit disease with medicines and mouthwash qindahlizi vagina and how much time?
A . 2 times a day
B. 3 times a day.
D. every 4 hours per day in 1 times.
Iran 1 times per day

44.What is inflammation of the cervix called the language of science?
A. Servisitis
B. Service.
D. Sevisitis.
E. Servisitiss

45.Inflammation of the cervix as a result of how the animals exposed to the disease, would you?
A. animal remains qisir
B. in the animal out pishop will be changed.
D. the animal the child has been removed.
There is no correct answer E.

46.In cases of inflammatory disease of the cervix is often what develops?
A. tug'uruq shikastlanishdan in time
B. the animal suniy urug'lantirayotganda.
B. the natural fertilization of the animal.
B. no independent folding of the disease is not associated in servitsit

47.Inflammation of the cervix mucous membranes in nature, how is it?
A .shades ko'kimtir
B. in reddish shades.
D. in ochre.
E. in natural color

48.What is in being covered with mucous membrane inflammation of the cervix?
A. purulent or purulent ekssudat is being covered with a coating
B. purulent ekssudat is being covered with a coating or natural.
D. purulent or is being covered with a coating shilimshiqsimon ekssudat
E. answers a and c are correct

49.The canal of the cervix of the uterus is usually the case, how?
A. half open
B. open.
D. does not open.
There is no correct answer E.

50.Meter - inflammation of the uterus, what are you featured?
A . nospesefik
B. spesefik
D. endometrik
E. all answers are correct

51.Inflammation of the muscles of the floor of the uterus - ?
A . miometrit
B. the perimeter of lipid
D. endometrit
E. metritis

52.Serum inflammation of the uterus, the floor of it?
A . the perimeter czechoslovakia
B. endometrit
D. miometritlar.
E. metritis

53.From birth to the next kataral sharp-endometrit clinical signs of purulent kassalligining when it would show up after the birth?
A .8-10, 6-7 days bazan
B. 6-8, 10-11 bazan days.
8-10 D., bazan 4-6 days.
8-10 E., bazan in 3-4 days

54.Kistasi yellow body with what it usually was the night?
A . is not of a sexual cycle
B. the top of a sexual cycle.
D. the lack of a sexual cycle.
There is no correct answer E.

55.When the size of what can be put kistalarining ovarian disease diagnosis?
A .different

B. large.
D. small.
E. average

56.When a few tiny bubbles in the ovaries, which is in the position of its surface?
A .this g'adir
B. smooth.
D. does not feel.
E. all answers are correct

57.Animals, which will be held in check by the repeated bo'g'ozlik more?
A . biya in
B. in the cow.
D. in sheep and goats
E. all answers are correct

58.In order to improve blood circulation in the ovaries and how ovarian each time for the nutrition massage?
A .3-5 minutes
B. 3-7 minutes.
D. 5-7 minutes.
E. 2-3 minutes

59.How to apply the methods in the treatment of persistent yellow body?
A . symptomatic and operational
B. symptomatic.
D. operative.
There is no correct answer E.

60.The yellow body in the treatment of Persistent of any drug are recommended?
A . Estrogen and vagotrop
B. Estrogen Are.
D. vagotrop.
E. other drugs is not recommended

61.Let it qisir?
A .females hayvonlarda fireayear n davomida wasalashtirilgabol naI have to takeaslik will
B. inflammation of sexual way
D. females urug'lanmasligi uz at the time of the animal
E. animal fertilization of females is 30%

62.Professor a. p. t Studensovasnifi ona sabablarigwith a viewa few pushtsizlikning type mavjud?
.7 A

B. 6.
D. 5.
E. 8

63.Females hav yvonningaqtincha qisir a lifetime, or becomea what is this sabab can be?
A . taunfavorable environment shqiat ya’secret
B. a violation of the diet.
D. matsionning is not good.
E. as a result of the effects of mechanics

64.Hayvonlar fell pushtsizlikka how can that be?
A .had fbavomidan encounter v bea congenitala
B. as a result of mechanical effects.
D. medicines as a result of the character to be sent.
There is no correct answer E.

65.Halaya increasean sabablarga viewof a few different germ pessimismarga isadi?
.8 A
B. 7.
D. 6.
E. 9

66.Alimonyis agerm of pessimism r how many come out?
A . hawrong yvonni oziqliatuf ntirishayli come outadi.
B. females otliah rniaddan tashqaishl settings for manyatooth, sentenceadan lydda as‘a va biya at the breed chopqirarini without interruption aravaga often adda, sex is a’zolafunction of the sus rav flush remaina qisira sababadi.
Females of d. va authorityak hayvonlarning the majority of kasalaflow settingaupa qisir let fallacan be built in the us.
E. hayvonlaclimate jih raupasharp n fathe other ingredients toadigiaplace n aan the second place, a move makeanidaa hundredaga comeadi this isa hayvonlanew yash rash sharoitlariga fit atacity,a cannot beaydi.

67.Qasettingsa , aloq, afew cows and pessimism has one germ at age do you start?
A .15-age 20a
B. the 12-17 agea.
D. 16-20 years old.
E. 18-20yoshda

68.Qasettingsa aloqagerm v and pessimism has one sheep, a goat, arda few at the age of do you start?
A .8-9 to the age ofa
B. 6-7 years old.
D. 8-10 years old.

E. 7-9 years old

69.Qasettingsa aloqagerm pork and pessimism has onealarda few at the age of do you start?
A .6-8 the age of thea
Age 6-9 B.a.
D. age 7-8a.
Age 8-10 E.a

70.Qasettingsa aloqabiya and pessimism has one germ atarda few at the age of do you start?
A .20-25 agea
B. the aged 16-18a.
D. the age of 16-20a.
E. 17-18yoshda

71.Females va authorityak hasex yvon a’zolafull rningelanguage Iay or h remainaseeded yvonayoung ntirisha reachanidaa sexual cycleaslia what ayt fail to keepadi?
A . Infantilizm
B. I gerafroditizm.
Fri, d. Iartinizm.
There is no correct answer E.

72.Congenitala qisir is divided into several types?
A .3
B. 4
D. 2
E. 5

73.Bittois a an individual who ata females va authority ofasexual click a’zolahave undergone rini her?
A . I gerafroditizm
Fri, b. Iartinizm
D. Infantilizm
E. all answers are correct

74.Pushtsizlikka sabab ifadigiagynecological n kasalar orasidis
a penis a’zolardacondition on katta salmoqqa eggto a?
A .yallig'lashoots a jararecruitedasettings
B. mechanical effects
D. physiological effects
E. biological effects

75.Haon yvon ifad onast atahk ma’lumot ataball at the rniashdaa nima veterinarian toariya yordiami kerais kav the next nli tug'uruqaqt va xarakteri hayvonning kuyuk, stand by, night kuyikishning va jadall is hafew
yvonnia manetworka va qachon highlights atantirilgathe nli, forgive, letan kasalasettings asrav sha parv, abrowsing atash sharoitlasettings aniqlanadi. Check how this method?
A . Anacheck mnez
B. Clinical check
D. general check
E. internal check

76.Clinical examinationafew type r to be checked?
A .3
B. 2
D. 4
E. 1

77.Artificial seededanew ntirishan sperma few ball should be?
.8 A
B. 6
D. 7
E. 9

78.Artificial seededantirish ice atalanguage takeafew seed at least most of the n ball geta eggwith a ker beak?
.4 A
B. 6
D. 5
E. 3

79.The basis of the cavity of the pelvis due to the loss of connective tissue and the walls tonusi?
A .to get the penis out of the vagina comes through the cracks
B. the process of production becomes more difficult and urine tezaklash
D. mucous membranes of the vagina and the wound is deep
E. review kuchanib appear strong

80.The vagina is that it is out of the sleeve.....?
A .Dorzal is reflected from the side walls of the vagina in the sexual crack.
B. the vagina, uterus, and bladder neck to be out of the sexual crack
D. the sexual crack of the neck of the uterus be out of
The sexual crack of the neck of the vagina and uterus to be out of the e.

81.It is to be fully out of the vagina.....?
A .Be out of the sexual crack of the neck of the uterus and the vagina

B. the vagina, uterus, and bladder neck to be out of the sexual crack
D. the sexual crack of the neck of the uterus be out of
E. is reflected from the side walls of the vagina dorzal the sexual crack.

82.The mucous membranes of the walls of the vagina ..... tumors appear?
A .The slowing of blood circulation due to
Due to constantly be impressed with urine and droppings B.
D. review is due to be frequently repeated kuchanib
E. deep vagina mucous membranes of the injuries, due to inflammation of the abdominal curtains and uremiya

83.Bo'g'oz remain the lies of animals (Osteomalyasiya, Osteomalatio, Paraplegia gravidarum).....?
A .In animals, calcium-phosphorus metabolism and bone caused by violation of the impact of vitamins remain (dekalsinasiya) and their fragility is characterized by swelling
B. the fragility of the bone caused by a disorder of the metabolism of vitamins in animals is characterized by swelling
D. bug'in swelling of Foot, feet, and displacement of the lower jaw bone quymich of animals, characterized remain have had to stand up or lay
The animal oriqlaydi E. strong, muscles tissue that are characterized atrofiyaga

84.Abortion (the abortion) when you say –?
A .The effects of disruption from an earlier time bo'g'ozlik
B. the body, microorganisms, viruses, or however the effects of the outpouring zamburug
D. the fetus or the effects of the direct effects of its members pharmacists spesifik disease risk factors
E. diseases or complications of improper storage and feeding native animals of them

85.Kuchanib to'lg'oq ahead of time and the normal birth of animals from which the aspects is the difference?
A .All the answers are correct
B. check the results of Internal
D. fertilization journal data to the account
Birth sign of the absence of E.

86.Born to cows that keep the time and stay a few weeks previously from when kuchanib to'lg'oq can be recorded?
A .3-4 weeks
B. 1-5 weeks
D. 1-3 weeks
E. 2-5 weeks

87.From the time the symptoms that may keep to'lg'oq kuchanib and previously?
A .Disturbance, sometimes the body temperature to be raised up with the heartbeat and the breathing appears to be the number of
B. Disturbance, appears to be up with the number of heartbeat and breathing
D. Disturbance, sometimes the descent of the body temperature, heartbeat and breathing appears to be up with the number of
E. Disturbance, sometimes the body temperature to be raised up the number of the heartbeat and the breathing quickly appears with sweat

88.And the cow and the time from the previously kuchanib be keeping in to'lg'oq biya how long can you last?
A .Biya 2 hours from 12 hours up to 2-3 days in the cow pm
B. biya in 16 hours from 1 hour up to 2-4 days in the cow pm
Up to 14 hours D. 5 hours from biya, the cow pm in 1-2 days
E. biya in 5 hours up to 14 hours, 1-4 days in the cow pm

89.Yuqorigi positioned lengthwise in the fetus position and obstetrics instruments cow, which, when positioned with the side of the head and back, it gives a good effect?
A .Obstetrics ekstraktorlari
B. feed the rope and Obstetrics, Obstetrics and ilmoq qisgichlari
D. Bekker and Kyu ayri of Obstetrics ayri of st. vitus qis
E. mwf respective Lingorst and rope (the strip)

90.Fetotomiya tools for .....?
A .Uzuksimon knife, hidden blade, Obstetrics qachovi, Pflyans fetotomi
B. Uzuksimon knife, hidden blade, Gear qisqichlar, Pflyans fetotomi
D. Uzuksimon knife, hidden blade, Pflyans fetotomi
E. Uzuksimon knife, hidden blade, Obstetrics and ilmoq qisgichlari, Pflyans fetotomi

91.New breeding animals to a bucket of warm water (35-37°C) 100-150 500-600 g g salt and sugar is given to how and at what time?
A .40-60 minutes after you drink. This ensures the reduction of the excretion of the uterus and a good partner
B. 40-60 minutes after the drink. This ensures the excretion of a good partner
D. 40-60 minutes after the drink. This provides a reduction of the uterus
E. 30-60 minutes then drink it. This ensures the reduction of the excretion of the uterus and a good partner

92.Obstetrics thickness and length of rope, how much?
A .the thickness of 0.5-0.7 cm and length of 1.5-3 m
B. thickness 0,6-0,9 cm in length and 1.5-4 m
D. the thickness of 0.4-0.8 cm in length and 1.5-3 m

E. thickness 0.4-0.7 cm and length of 1.5-3 m

93.The birth of tools which help in making pigs will give the best results?
A .St. vitus qis
B. feed the rope and Obstetrics, Obstetrics and ilmoq qisgichlari
D. Bekker and Kyu ayri of Obstetrics ayri of
E. mwf respective Lingorst and rope (the strip)

94.Fetotomiya it?
A .Get the grate dead fetus
B. the birth of the animal to help make the dead fetus
Using hand tools to get out of the dead fetus and D.
E. dead dead fetus, or the birth of the fetus to the animal to help you get the grate

95.What is the drawback of obstetrics and saws?
A .Quickly o'tmaslashib remain
B. cut in his only uzin
D. Obstetrics qushimcha the need in the use of power saws
E. all answers are correct

96.How to sterilize all the tools used help to show obstetrics animal?
A .1%-liz lee added 2% to at least 30 minutes in soda solution qaynaynatiladi li
B. 3%-added liz lee 2%-li soda boil in the solution for at least 20 minutes
D. using the soap with hot water, washed thoroughly
E. 3%-added carbon li-2% of li in the solution for at least 20 minutes boil soda

97.The fetus is used to send push tools?
A .Ayri of obstetrics, ayri of Kayzer, and kyu ayri of the Bekker
St. vitus B. qis, obstetrics ayri
Ayri of Kayzer D., Bekker and ayrilariva Kyu Qisgichlar
E. all answers are correct

98.Properly placed in the uterus of a fetus?
A .Previous to the leg and pelvis without putting the head with the side of the side of the head to lay to lay with
B. before the feet without putting the head in the transverse position of the back and lay with the side of the head
D. the previous head and lay with the side of the head with the back without putting the feet in standing
There is no correct answer E.

99.At the time of the birth of the mother animal which are related to pathological reasons?
A .to'lg'oq and kuchaniq weak or strong, of the way to the birth of etar at a level not open, the narrow pelvis of the ministry and others

B. to'lg'oq kuchaniq and strong, the way to the birth of etar at a level not open, the narrow pelvis of the ministry and others
To'lg'oq kuchaniq and D. weak or strong, of the way to the birth of ethe tar level in the opening of the ministry of the pelvis narrow, animal and others of obesity
E. to'lg'oq and kuchaniq weak or strong, of the way to the birth of etar at a level not open, the ministry of the pelvis narrow, animal tuyimli oziqlantirilmaganligi with nutrients and others

100.The primary to'lg'oq kuchaniq and weak?
A .At the start of the birth process and weak to'lg'oq kuchaniq
B. normal birth in the process at the start of the birth process and weak to'lg'oq kuchaniq
D. darmonsizlanishi arising caused by animals
E. weak Muscles and a decrease prolonged pause between them as a result of the departure of boxes

101.To'lg'oq kuchaniq secondary and weak?
A .darmonsizlanishi arising caused by the animal
B. weak Muscles and a decrease prolonged pause between them as a result of the departure of boxes
D. at the start of the birth process and weak to'lg'oq kuchaniq
There is no correct answer E.

102.The primary causes weak and to'lg'oq kuchaniqni to come out?
A .low quality nutritious feed and in the period with the nutrients you will bo'g'ozlik etar a move is not going to be excessively lengthened the wall of the uterus of a fetus be very large and twin pregnancy, accumulation of fluid in the abdominal cavity and the abdominal wall grijasi, and left her hanging, and others
Low quality will feed you with the nutrients and nutrient bo'g'ozlik in the period
B. etar a move is not going to be excessively lengthened the wall of the uterus, the uterus and the foetus in the wrong location of the members of twin pregnancy, the accumulation of fluid in the abdominal cavity and the abdominal wall grijasi, and left her hanging, and others
D. the wrong location of the members of the fetus in the uterus, the fetus is not compatible with the size of the width of the pelvis to each other, the birth of the way to be narrow
Low quality will feed you with the nutrients and nutrient E. in the period bo'g'ozlik etar a move is not going to be excessively lengthened the wall of the uterus, the uterus of the members of the fetus in the wrong location, a weak decrease of the muscles and the pause between them and others is going to be prolonged boxes

103.Secondary causes weak and to'lg'oq kuchaniqni to come out?

A .the wrong location of the members of the fetus in the uterus, the fetus is not compatible with the size of the width of the pelvis to each other, the birth of the way to be narrow
Low quality will feed you with the nutrients and nutrient bo'g'ozlik in the period
B. etar a move is not going to be excessively lengthened the wall of the uterus, the uterus and the foetus in the wrong location of the members of twin pregnancy, the accumulation of fluid in the abdominal cavity and the abdominal wall grijasi, and left her hanging, and others
Low quality will feed you with the nutrients and nutrient D. in the period bo'g'ozlik etar a move is not going to be excessively lengthened the wall of the uterus of a fetus be very large and twin pregnancy, accumulation of fluid in the abdominal cavity and the abdominal wall grijasi, and left her hanging, and others
Low quality will feed you with the nutrients and nutrient E. in the period bo'g'ozlik etar a move is not going to be excessively lengthened the wall of the uterus, the uterus of the members of the fetus in the wrong location, a weak decrease of the muscles and the pause between them and others is going to be prolonged boxes

104.Tetanik a reduction of the uterus is that?
A .The loss of the uterus and the pause between boxes and absolutely tulg'oq review kuchanib a continuous decrease over the long term
D. review the pause between the boxes and absolutely tulg'oq kuchanib as a result of loss of muscles darmonsizlanishi
E. review and boxes tulg'oq kuchanib be a long time in the pause between the uterus and a continuous decrease over the long term
Tulg'oq and the strong reduction of the uterus and the pause between the loss review kuchanib absolutely boxes

105.Tulg'oq kuchaniq occurs in many animals and in which strong?
A .biya in
In b. cow
Pigs in D.
E. all answers are correct

106.Tulg'oq kuchaniqlarning strong and what is the reason?
A .The size of the fetus is born with a width of ways-either not come on
B. review and the loss of the uterus and the pause between boxes tulg'oq kuchanib absolutely a continuous decrease over the long term
D. excessively lengthened going to be of the wall of the uterus
E. the increase of fluid in the fetus disease curtain

107.The service is this?
A .Yalig'lanishi of the cervix
B. inflammation of the vagina
D. inflammation of the lip sexual

E. other inflammation of vagina

108.At the time of the birth of the mother animal which are related to pathological reasons?
A .to'lg'oq kuchanib weak or strong, and the birth of the way enough to not open in the narrow pelvis of the ministry and others
B. weak or strong and to'lg'oq kuchanib birth, opening the way to a sufficient level, the ministry will consist of narrow pelvis and others
D. weak or strong and to'lg'oq kuchanib birth, not enough of the way to open the narrow pelvis of the ministry of the fetus and others will consist of location wrong
E. to'lg'oq kuchanib and normal birth, not enough of the way to open the narrow pelvis of the ministry will consist of, and others

109.The length and thickness of ilmoq should be how much?
A .45-50;5
B. 40-50 cm; 6
D. 50-60 cm; 4
E. 45-50 cm; 4 mm

110.Bend your legs and write the rest of what is fetal cattle to send?
A .always the fetus is pushing back
B. enter the uterus from the plaques will hold bruised foot slave
D. sirtmoq to joints shall be bruised foot kaft
E. on all

111.Posed to the members of the fetus positioned wrong when this is possible, which method is used?
A .fetotamiya
B. different method of pull rope
D. method klyuka
There is no correct answer E.

112.First patalogiya which usually occurs in animals?
A .cow, provisional president, goat
B. pigs, animals gushtxur
D. cows, pigs, biya
E. sheep, animals gushtxur

113.The fetus will be reinforced by being in the wrong how?
A .transverse and vertical
B. gorizantal
D. transverse and gorizantal
E. transverse, and vertical gorizantal

114.To'g'rijoylashgan the fetus in the uterus, the fetus of normal sized tulliq opened the way to the birth of utis for its large-small is not enough ..... is called?
A .the ministry of the pelvis narrow
B. the vagina of the tyre
D. ministry of the lip narrow sexual
E. members of the fetus in particular its wrong place

115.For reasons which appear to narrow the ministry of the pelvis?
A .be the usib and breakage due to malformations of the pelvic bone
B. feeding animal feed, mul
D. the fetus to be excessively large
E. yo'qori on all

115.Initially check with the head turned the way the fetus if they can determine how internal yonboshga remain?
A . paypaslanib the previous two legs, two short and one of the legs is determined that this is from the second
B. know the rest of the neck and under the chest of the fetus turned paypaslab
D. previous paypaslanib two legs, it is determined that two of the legs is equal to
E. previous paypaslanib two legs, this is equal to two of the legs under the chest and neck of the fetus is determined and turned paypaslab know the rest

116.The members of the fetus into the uterus of an animal the wrong place clean with soapy water, sesame oil or vaseline on the way to the birth, and is sent to a water solution, what is the reason that lanolein rides?
A .for the good of the fetus sirg'anib
B. to edit the members located to facilitate wrong
D. members of the opening for good sex
E. secondary infections to avoid falling

117.The part of the breast and of the fetus out of the birth of the palace while on the way to the back part of how either if it gets clogged‘ should I keep?
A .previous hold of one of the legs of the fetus, you need to pull qiyalatib by turn
B. eye is on the way out and using it to the birth of ilmog'i out
D. from the foot of the fetus from the beginning and turn-by-turn pulled will get out of it
E. the right foot to the left, the left leg-right you need to pull

118.Jag into the lower of the fetus in cases sirtmoq what is solid?
A .eye of the fetal pelvis pulled to the side of his head holding the cup of the hand when the power does not
B. getting the twists of the fetus cervix
D. the condition of the fetus to the bottom of tug'rilash
With the snow to the side of the fetus positioned transverse to the previous e. tug'rilash

119. With the snow to the side of the fetus occurs in many animals and in which the location of the previous transverse?
A .ko'ndalangiga the fetus lies, gets access to the way to the birth of his four legs. often biya
B. the fetus ko'ndalangiga lay gets into the back of his legs the way they were born to. often biya
D. depending on the way back to the birth of the mother without and the animal is transverse to gavin. often in the cow
E. the legs before looking up his head and stands. often in the cow

120.In cases fetotomiya what method should I use?
A .The head of the fetus and the cervix of the uterus is positioned on the inside or the back of his head to look sirtmoq bog'lag'ichiga stabbed in the absence of the possibility of tapering ilmoq
B. the beginning of the fetus and the uterus located at the bottom of qayga catch it back because it won't touch
D. the fetus around its own axis by 180° to 90° by when you have the opportunity to correct by turning
E. when positioned transverse to the side of the fetus with the snow earlier if possible tug'rilashni

121.Previous placed to the side of the fetus in transverse horses with the snow?
A .of the uterus is observed in the rest of the driving
B. bend of the uterus and left when
D. the king in the uterus before the beginning and one of the legs, the back legs of the second king, the king of the uterus is bent back
E. yo'qori on all

122.In what cases around the body of the fetus from the current integrated held saws, does it get cut?
A .when the bend of the uterus and left
The driving of the uterus is observed in the rest of B.
D. the king in the uterus before the beginning and one of the legs, the back legs of the second king, the king of the uterus is bent back
E. yo'qori on all

123.One tug'adigan animals are born a twin in the two cases bo'g'oz how the fetus at the time?
.1 A-2 from a few hours to the south
Many a night and day B.
D. 4-5 hours from a few kingach
There is no correct answer E.

124.Animals in the two cases one twin tug'adigan bo'g'oz the mother at the birth of the fetus in animal uzgarib how does this monitor review?
A .strong and appear again kuchanib to'lg'oq
B. after the birth of the first one will be neglected compared to him
Members of sex does not open tulliq
D. on all yo'qori

125.It is located near the outside of the back than the front part of the fetus?
A .yo'qori on all
B. the part of the fetus to term by pushing the back of the previous part is trying to pull out
D. the fetus from the uterus before it is exhausted to the outside of the legs and head
E. cut the abdominal wall, and its members is excreted within, or integrated with current integrated current arralangan saws fetotom of the spine, and the fetus will get pulled out into separate pieces

126.With the snow to the side of the fetus in transverse previous in sheep and goats is a way to keep the fetus is correct?
A .yo'qori on all
B. if possible, the hand can be inserted into the uterus before the fetus ascending from the back foot, pushing the side of the cavity of the uterus preceding the legs.
D. sirtmoq feet rope and the rope shall be pulled from from the back of the fetus, and the fetus is taken out of.
E. previous part of the fetus into the cavity of the uterus and enter when you have the opportunity of pushing his legs are cut off the rear portion is pulled out from previous

127.How cases remain out of the uterus ko‘ occurs??
A .after childbirth occurs and appears in two different form
B. occurs after the form appears in three different tug'uruq
D. occurs and before the form appears in two different animal tug'uruq zo'riqqanda
E. after sex

128.Incomplete and out of the uterus?
A .yo'qori on all
B. troubled animals, often kuchanib, is reduced to the muscles of the abdominal press
D. down the back of the animal, the tail is up, kuchanib at the time to keep little while secreted in the urine and droppings
E. holsizlanish is observed in some animals, appetite and return loss kavsh

129.How incomplete is determined to be out of the uterus?
A .internal check is determined with the method. With this hand and rolls out the part of the uterus is found paypaslab

B. is determined through external inspections. Thus, partial stands out of the uterus
D. is determined through external inspections. Thus, the sexual crack of the uterus, hang down from the unit until the jump
E. yo'qori on all

130.The full output of the uterus is determined by how much?
A .is determined through external inspections. Thus, the sexual crack of the uterus falls from the unit until the jump hang
B. is determined with the method of internal check. With this hand and rolls out the part of the uterus is found paypaslab
B. is determined through external inspections. Thus, partial stands out of the uterus
D. is determined through external inspections. Thus, the sexual crack of the uterus falls from the unit until the jump hang
E. yo'qori on all

131.Out of the uterus be incomplete biya, how was your night?
A . colic appear
Hechqanday biya does not follow the characters in B.
D. the flow of liquid is formed on the lips of the tumor biya's sex
E. holsizlanish is observed, return loss and appetite kavsh

132.Kapil is observed in animals in which leakage of blood out of the uterus?
A .biya in
B. in pigs
D. sheep, goat
In e. cow

133.In the uterus the uterus in which animals out of many of the intestine and mucous membranes will be in view of the length of a cross-folds are there can you see that?
A .pigs
B. biya
D. sheep, goat
In e. cow

134.Oksitosin inekiya out is why in the uterus?
A .ineksiyadan then 5 minutes later, the uterus is reduced to 30% of it is correct and who is qattiqlashadi light
B. ineksiyadan then 10-15 minutes later, the uterus is reduced to 50% of it is correct and who is qattiqlashadi light
D. secondary infection and mikroorganizmlargaqarshi
E. yo'qori on all

135.Paralysis of half the postpartum (postpartum gipokalsiemiya) is characterized by what?

A . yo'qori on all
B. if it is accompanied with acute disease, the muscles half of the stroke, the throat, the tongue, paralysis of the intestine
B. the amount of calcium in the blood decrease dramatically at the expense of the condition of coma
D. mainly third-fifth the incidence of high yielding cows born within a week after birth
E. cow disease is recorded when the birth of stay for 1-2 days

136.To come out of the paralysis of half the postpartum causes?
A .excess energy, and oqsilli kalsiyli feeding, the milk produced in the period from very-energy feeding, the failure of vitamin d in the body, its excess rasionida be kalsiyni
B. excess energy produced during milk feeding period and very oqsilli kalsiyli-energy feeding, the failure of vitamin d in the body, his failure rasional kalsiyni
D. excess energy, and oqsilli kalsiyli feeding, feeding with nutrients from milk produced during the period of low energy, the failure of vitamin d in the body, its excess rasionida be kalsiyni
E. excess energy, and oqsilli kalsiyli feeding, during the period of lactation extremely-energy feeding, the failure of vitamin d in the body, its excess kalsiyni be rasionida

137.Half the postpartum stroke disease ..... death were observed due to accidentally?
A .falajlanishi of the respiratory center
B. aspirasion bronxopnevmoniya
D. out of the vagina muscles, necrosis, endometrit
Extreme E. of the respiratory center qo'zqalishi

138.Disease in the postpartum paralysis of half the number of pulse, breathing, and body temperature changes is how?
.1 130 times A minute, the tone is heard bug'iq, accelerated breathing at first and, later, siyraklashib and superficial Body temperature of 35°c. the decrease
130 b. 1 times in minutes, bug'iq the tone is heard, siyraklashib breath at first, and later, up and superficial Body temperature of 35°c. the decrease
D. 130 times in 1 minute, the tone is heard bug'iq, breathing will not be hechqanday uzgarish, the body temperature of 35°c. the decrease
E. 130 times in 1 minute, the tone is heard bug'iq, accelerated breathing at first and, later, siyraklashib and superficial body temperature to 38°c rises

139.The diagnosis and treatment of postpartum paralysis of half of the simplest methods?
A .Evers and hardware to send or orexovlarning the air with belyaev
Bekker, b. evers and kyu is to send the air or with the hardware of the s
Kayzer D. Bekker or with the hardware of the s and kyu is to send the air

E. all answers are correct

140.Half the postpartum stroke disease ..... ?
A . third-fifth the incidence of high yielding cows born within a week after birth
B. third-fifth the incidence of high yielding cows within two weeks after birth, born in
D. the incidence of high yielding cows and more beshi tug'within a week after birth
E. the net no answer

141.Postpartum paralysis of half the begi disease?
A . the skin, muscles and tendons, eyes qorachiq oil, and loss of sensitivity qindan anal hole
B. skin, muscles and tendons, eyes qorachiq oil anal hole and qindan the loss of sensitivity, many be separated urine
D. larynx paralysis or paralysis of half of the act of swallowing by the loss, the severity of sulak leakage of the mouth, the tongue hanging out. Before and intensify the movement of the intestine Oshqonzon
E. all answers are correct

142.Disease in the postpartum paralysis of half the number of pulse, breathing, and body temperature changes is how?
A . pulse 130 times in 1 minute, the tone is heard bug'iq, accelerated breathing at first and, later, siyraklashib and superficial. The body temperature of 35°c. the decrease
B. pulse 110 times in 1 minute, the tone is heard bug'iq, accelerated breathing at first and, later, siyraklashib and superficial. The body temperature of 35°c. the decrease
D. pulse 130 times in 1 minute, the tone is heard bug'iq, breathing siyraklashib and superficial. The body temperature of 35°c. the decrease
E. pulse 130 times in 1 minute, bug'iq the tone is heard, at first is superficial and breathing is accelerated. The body temperature of 35°c. the decrease

143.Postpartum paralysis of half the night atypical of the disease, when the number of pulse, breathing, and body temperature changes is how?
A . norms can be on the boundary of
B. pulse 130 times in 1 minute, the tone is heard bug'iq, accelerated breathing at first and, later, siyraklashib and superficial. The body temperature of 35°c. the decrease
D. pulse 130 times in 1 minute, the tone is heard bug'iq, breathing siyraklashib and superficial. The body temperature of 35°c. the decrease
E. pulse 130 times in 1 minute, bug'iq the tone is heard, at first is superficial and breathing is accelerated. The body temperature of 35°c. the decrease

144.We're part of the act, as recommended in the method swallowing when it appears through the mouth.....?

A .200-300 g of sodium sulfate or magnesium salt, is mixed with water and 10-15 l 10-15 ml were drinking 2-3 g ixtiol chemerisa nastoykasi
B. 200-300 g of sodium sulfate or magnesium salt is mixed with water and 10-20 g l 2-5 10-15 ml were drinking ixtiol chemerisa nastoykasi
D. 200-300 g sodium or magnesium sulphate, the salt is mixed with water and were drinking 2-3 10-15 20-30 ml l g ixtiol chemerisa nastoykasi
E. 400-500 g of sodium sulfate or magnesium salt, is mixed with water and 10-15 l 10-15 ml were drinking 2-3 g ixtiol chemerisa nastoykasi

145.In what order the cow frequently, but less than the amount recommended to yield?
A . kalsiyni that we take from the blood, reduce its uv content
B. reduce the uv content of the drug substance from the blood that we take
D. the drug substance is not produced from the years of blood mastetni
E. all answers are correct

146.Sugar produced from the milk of cows fed in full in the period of rasional valuable protein, the ratio of the amount of fiber in dry matter should establish how?
A . sugar-protein ratio of 0.8:1.2 to around the amount of dry matter fiber rasiondagi 15-20% of
B. the ratio of protein to sugar 1,0:2,0 around, the amount of dry matter fiber rasiondagi 25-30% of
D. sugar protein ratio of 0.8:2,2 around, the amount of fiber in dry matter rasiondagi 25-40%
E. sugar to protein ratio 1.8:3,2 around, the amount of dry matter fiber rasiondagi 20-25% of

147.The animal does not recover, yelin will be sent again to the air again after a few hours?
A .8 hours
B. 6 hours
D. 1 hour
E. 10 hours

148.The treatment of the disease is mainly in the blood ....., the concentration in their blood is drawn from the computer's me'yorlashtirish?
A . failure to lose calcium and magnesium
B. lowering the amount of calcium and magnesium
D. all answers are correct
E. lose calcium and magnesium

149.What with the way into the body for parenteral calcium, vitamin d and magnesium salts of the drug will be sent?
A . failure to lose calcium and magnesium

B. lowering the amount of calcium and magnesium
D. all answers are correct
E. lose calcium and magnesium

150.The milk sample was taken on the day when you checked in?
A .Checked in the day the sample was taken. The next day, when stored in cold temperatures checked.
B. sample was taken on the day checked in here
Two days later after the receipt of milk samples from D.
E. all answers are correct

151.What is the color of milk according to the type of mastitis?
A .Color milk pink, red, beige, gray
B. milk color, pink, red, beige, ko'kimtir
D. milk color, pink, red, beige, blue
E. milk color pink, red, beige, pink

152.How konsistensiyasi of mastitis in milk?
A .Suvsimon, whey, whey-purulent
B. Suvsimon, whey-severe purulent
Suvsimon D., whey, hard
E. all answers are correct

153.Bromtimol ko'ki 65%-li spirtda few % -li solution is used?
A .0,2%
B. 0,3%
D. 0.5%
E. Is Not Working

154.Basically a few of the tests is determined by the type of mastitis?
A .9 units
B. 6
D. 7
E. a and c answer

155.Mastitis tests in which the correct answer is shown in leykositlar?
A .From the bottom of the narrowing of this experience is held in special probirka. Probirka to 2 thousand sentrifuga circulation and is filled with milk belgisigacha 10/minute for 5 minutes at a speed of it is put. Udder quarter milk from healthy little deposition derived from 1 character is infected with mastitis in the udder quarter milk derived from deposition of 1belgisi and higher. The grease prepared from the precipitate, grams are painted on and under the microscope is seen. Mastitis microorganisms in the composition of the precipitate in a lot of leykositlar, pus, and other tayoqcha

Check with mastidinlar dimastin and b. in this case, the positive results obtained in the check udder quarter milk is used. Probirka to 10 ml of milk from the cow yields and yield at the end of fermentation or to put it xolodilnik for 16-18 hours in a cool place. On the second day, forgive sight samples and the result will be known. In the evaluation of the precipitate-there are lack of milk and the amount of qaymog character, and you need to pay attention to the color of the milk
D. check the milk from the plate for the conduct of tests with Dimastin drunk or (MKP-1, MKP-2) are used. MKP-1 plastinkasining yarimoysimon 4 units of combs, at the bottom of them black-and-white color will be halqasimon of combs. The size of these combs was muljallab 1 and 2.5 ml for milk. The bottom of combs white-qorani buyalganligi arlashmasini facilitates the detection ivimalar in milk and blood. MKP-1 from mkp-2, which is the difference in the form of cylindrical and has a volume of 1 ml of the combs, the combs between the excess strap from tukish to send 1 ml of milk are available. Tukish removes excess milk to the instrument with qiyshaytirib 60-650
Does not show the correct answer is E.

156.Mastitis is mainly determined by multiple methods?
.8 A
B. 6
D. 5
E. all answers are correct

157.Tests that may of gasoline. These tests are used to determine what is in milk?
A .Milk pigment
B. Yelin quarter milk is used in the check
D. 2%-solution to prepare drunk li
E. a and b answer on

158.Be stopped due to the growth of microorganisms in milk with the measurement of the diameter of the ring, which is formed lizosim titr, will determine where the diameter is smaller than a few mm cease to grow - this is infected with mastitis cow's milk?
A .14 mm
B. 16 mm
D. 18 mm
E. 12 mm

159.2%-tests is prepared with a solution of li drunk...?
A .100 ml of 10% solution of 400 ml li distilled or boiled, cooled water were mixed was
B. 100 ml, sulfanol - 30 g, tripolifosfat - 5, bromtimol ko'ki - 0,02 g, roz acid 1%-li 0.5 ml of the solution to check the milk yield and milk taken from or folding at the end of

D. 65%-li spirtda of the 0.2%-li solution is used. Bulak from 2-5 drops of each to a honeycomb plate udder milk yield, and to him were mixed reactive 2-5 drops
E. these tests are used to detect the presence of blood pigment in the milk. Probirka to 5 ml of 3% hydrogen condense the saturated solution and 2 ml of frozen vinegar li perekis benzidinning kislotasida

160.Check with mastidinlar dimastin tindirish of tests and in this case, the positive results obtained in the check udder quarter milk is used. Probirka to 10 ml of milk from the cow yields and yield at the end of fermentation for a few hours or put it in a cool place to xolodilnik?
A .16-18 hours
B. 18-20 hours
D. 15-18 hours
E. 16-17 hours

161.Remain to hold the fetus and mate (Retentio plactntae) that.....?
A . the fetus in the uterus of the term had saved more of the veil
B. the term of the fetus preserved in toug'ish curtain q'olishiga more
The term of the eggs of d. saved to more in the way of the fetus curtain
Qindan many more will be saved from the period of the fetus e. curtain

162.Hold of the fetus occurs in many animals mate and which remain?
A . kavshovchi cows and animals
B. kavshovchi qo'ylarda and animals
Biya and animals in kavshovchi D.
Biya and animals in e. go'shtxo'r

163.How about cow in the fetus after birth of the fetus, the satellite will fall at the normal time?
A .6-8 hours
B. after 2 hours
D. after 5 hours
3 hours after an e.

164.Satellite of the fetus dog, cat and rabbit will fall at the normal time about how in the fetus after birth?
Hours after A .3
B. after 2 hours
D. after 5 hours
E. after 6-8 hours

165.Few satellite of the fetus remain the same?
A . full and partial noto'liq
B. full and partial
Noto'liq and partial D.

E. full and half

166.The integral satellite of affairs at the time of ..... the reason for this?
A . all the answers are correct
B. qisqarmasligi enough in the uterus (pregnant cows in twin), excessive accumulation of fluids between the curtains of the fetus, the fetus is too large to be due to the reason of the uterus is going to be lengthened
D. weak and mate after her divorce kuchanib to'lg'oq also will remain. Oziqlantirmaslik enough animals to remain after the breakup of the satellite,
E. be very animals to obesity, caused by his atoniyasi masionning might not be enough, the animal caused by the inflammatory process in the uterus during the period of which appear bo'g'ozlik also be observed

167.Satellite noto'liq of the fetus to be saved?
A . if he gets hold of the king in one of the satellite uterus
B. the dangling part of their joints even stand on the ground sometimes fall far jump satellite
D. all of the satellite is standing in the way of the veil sexual chorus of the uterus in both the king is adjacent karunkulalarga
E. all answers are correct

168.Troubled animals, often giving excellent kuchanib is often as a result of the review kuchanib out of the uterus. Of the veil of the fetus does not distinguish for 12-24 hours, usually the body temperature rises, the liquid is flowing from the way qo'lansa dark brown sexual smell. The death of the animal, which animal will be observed and septisemiya kich is in these signs?
A .biya in
In b. cow
D. in sheep and goats
In the cow, and E. biya

169.The conservative method is focused on what are they?
A . muscles of the uterus, is aimed at preventing the development of microorganisms and increase tonusini
B. muscles of the uterus and is aimed at preventing the development of microorganisms to decrease tonusini
D. hanging the standing part, the external members of the sex of the animal with a disinfectant solution for 2-3 times every day to wash the tail
Among microorganisms of the uterus through the vagina to fish oil or vaseline against E. (150-200 ml) mixed without antibiotics, treatment and other means to give the desired amount sulfanilamidlar

170.Miotonik effects?
A . muscles of the uterus, reduction of the floor

B. abdominal muscles call tulg'oqni
D. the opening to the neck of the uterus provide
E. increase the contraction of the vagina

171.Later in the calf of the left and right part of the heart and functional leads to ensure the independence of morphological how the time is going?
A .15-20 days
B. 10-15 days
D. 20-25 days
E. a few minutes

172.His thick left ventricular wall thickness, right ventricular ratio of new-born animals?
.1 A:1 or 2:3
B. 1:2 or 2:4
D. 1:1 or 2:4
E. 1:2 or 2:3

173.Asfiksiya of new-born animals?
A . the new born child the mother is understood to be overwhelmed or out of breath interrupted when the animal from the snow
B. the mother or the new born child when the animal is understood to be overwhelmed of breath interrupted the snow
D. the mother of the new born child maternity or interrupted breathing animal is understood to be overwhelmed in a way
There is no correct answer E.

174.Asfiksiya diseases of new-born animals causes them to appear?
A . all the answers are correct
B. long continues, and the click of the satellite being to'lg'oq stand being back frequently remain
D. a violation of the metabolism of gas
E. click on the edge of the bottom wall of the pelvis and the previous space in a violation of blood circulation in the chamber

175.Pigs are the children of the symptoms of the disease?
A . all the answers are correct
B. xirillab, uneven breathing stands, short-short and is coughing up slimy remains accumulate in the oral cavity
B. swelling of the rest of the language is a little ko'kimtir stands out from the mouth. Heart stagnant and often throws
D. pale mucous membranes, often the first hole back chiqaruv droppings (mekong a) is contaminated. Sometimes the blood come out from kindigi

E. the level of the heart does not feel the symptoms of does not say in the living sezilarsiz no heartbeat, suspicious of the effects of the disease often develops aspiratsion bronxopnevmoniya

176.In severe cases the symptoms of the disease to the children of the pigs?
A . the level of the heart in the heartbeat of the living sezilarsiz does not say no symptoms does not feel suspicious of the effects of the disease often develops aspiratsion bronxopnevmoniya
B. xirillab, uneven breathing stands, short-short and is coughing up slimy remains accumulate in the oral cavity
D. swelling of the rest of the language is a little ko'kimtir stands out from the mouth. Heart stagnant and often throws
E. pale mucous membranes, often the first hole back chiqaruv droppings (mekong a) is contaminated. Sometimes the blood come out from kindigi

177.Toksikoz uv - .....?
A .the night of the new born animals which sharp disease, characterized by diarrhea and general toksikoz
New born B. sharp of the night animals, the disease, which is characterized by general toksikoz
D. new born animals of the sharp night which disease is characterized by diarrhea
There is no correct answer E.

178.Toksikoz in uv fermentopatiya to track what is the reason?
A . by digestion of the enzyme system of toxins zaiflantirilishi
B. digestion by the enzyme system of uvuzdagi mekrorganizmlar zaiflantirilishi
D. digestion by the enzyme system of uvuzdagi dorimoddalar zaiflantirilishi
There is no correct answer E.

179.Antinatal gipotrofiya it?
A . from the physiological aspects of young animals born without to'laqimmatli to be very small or excessively large, the weight of such animals, the member is completely underdeveloped aspects of systems and morfofunksional
New born B. sharp night animals which disease is characterized by diarrhea and general toksikoz. New born calf and the other less often at the level of the animals belonging to the type in the initial days of the life of the incidence of
D. the new born child the mother is understood to be overwhelmed or out of breath interrupted when the animal from the snow
E. all answers are correct

180.Antinatal gipotrofiya causes?
A . mother feeding animals oziqlantirmaslik bo'g'oz excess or not enough, and storage is tiqing gipodinamiya
B. long continues, and the click of the satellite being to'lg'oq stand being back frequently remain

D. a violation of the metabolism of gas
E. click on the edge of the bottom wall of the pelvis and the previous space in a violation of blood circulation in the chamber

181.The first new-born animals droppings often occurs in many animals, which remain after divorce?
A . the first droppings (mekong a) often stop in the toy mold, can cause toxicity and even death
B. the first droppings (mekong a) often bo'zoqlarda stop mold, can cause toxicity and even death
D. the first droppings (a mekong) in children often stop dog mold, can cause intoxication and even death
E. the first droppings (mekong a) often stop in the lamb mold, can cause toxicity and even death

182.The new born animals to remain first after the divorce droppings signs?
A . this is the start of disturbance, swelling of the abdomen, kuchanib often tezaklash poses to accept the way, look to the abdomen, legs and back that had hit the snow with sweating, general holsizlanish
B. is the start of disturbance, swelling of the abdomen, kuchanib to look to the abdomen, and back legs to kick the ground with sweating, general holsizlanish
D. is the start of disturbance, swelling of the abdomen, to lay a lot of often, the way to accept tezaklash poses, look to the abdomen, legs and back that had hit the snow with sweating, general holsizlanish
E. the disturbance is the start of the abdomen, swelling of kuchanib often tezaklash poses to accept the way to the abdomen, to look, the rising of body temperature and sweating, general holsizlanish

183.Cause and treatment of blood flow to the groin?
A .all the answers are correct
New born B. occurs in animals of all types. Pulsasiyalanmasdan weak in venous blood flow blood flow, arterial blood flow with a strong flow and while in stand pulsasiyalanib will squirt out. the lower end of the umbilical cord to two centimeters from the left margins on all sides, put in sterile ligatura
D. the effects of the disease can be bad in a lot of bleeding, umbilical cord, or put back up to the tip of the second ligatura. If the umbilical cord was cut off too short to'g'nag'ich held one or two to the navel, over the need to weld in packaging with silk thread.
Track asfiksiya e. if new-born animals, and if it is necessary to shaving artificial respiration immediately. When mother poured the blood from the animal is bleeding a lot to the veins or blood vessels 0,9%-500 ml sodium chloride from the solution will be sent to li

184.Of the umbilical cord infection (omphalitis) in this?

A . the animal life of the new born child during the first days of microorganisms from the external environment around the remaining part of the descent of the umbilical cord and soft connective tissue in the development of the umbilical cord vessels can also be tizmachasining
B. new animals in the first days of life of children born around the umbilical cord from the external environment, and only the remaining part of the outpouring of soft connective tissue in the development of microorganisms can be
D. new animals born of the children of the umbilical cord in the first days of life remaining part of the outpouring of microorganisms from the external environment around the navel and just in vascular development can be tizmachasining
There is no correct answer E.

185.The rear surface of what is called yelin?
A .Milk in mirror
B. devoir Milk
D. there is no correct answer
Milk pool B.

186.Active influence in the development of the glandular tissue in the period bo'g'ozlik nimaning do you start?
A .Yellow effects in the body
B. elections of the way of the development of active Milk
D. show the effect of corticosteroids after another me
Secondary sexual characters of E.

187.The growth and development of the mammary gland in the body and plays an important role in what?
A .nervous system
B. blood system
D. changes in internal body to the night
E. thyroid gland

188.How to milk glands of various animals differ from each other?
A .Number, form, and large-small, depending on the
B. large-small, depending on the
D. number, to the shape of large-and small affairs, depending on the topography
E. check the method in milk bezini osmotr

189.Serpusht (pig, dog, rabbit and other) nechanchi performs the work of the milk glands in animals?
A .10 – 16
B. 8 – 15
D. 10 -12
E. 10 -14

190.The walls of the cavity basin with what is covered?
A .The two-storey cylindrical epiteliy
B. two-storey epiteliy
D. two or more silindirsimon epiteliy
E. two-tier mining epiteliy

191.Females sex with animals the blood vessels expanding a bit of an adult, the milk of the way somewhat grow, and how changes will appear in the udder again?
A .The development of alveola
B. cells grow Epiteliy
D. other changes will not be
E. remain clearly separated from the surrounding tissue

192.Bo'g'oz are any changes in animals with animal be?
A .Yelin size increases quickly, all of his development to a greater degree than will reach.
B. no, it will not be o'garish
D. Yelin size increases rapidly, and the animal reached a level of his development will change from large garmanal
E. alveola of the hole is very small

193.Bo'g'ozlik increases the size of the effects of ovarian hormones at the time of the mammary gland what does it do?
A .Estrogen and progesterone
B. Estrogen
D. Progesterone
In combination with E.

194.Methods the clinical yelin how to check?
A .Sick animals fiksasiya machine, then the body temperature, heartbeat and breathing in the number of 1 minute, 2 minutes, a reduction in the larger of the abdomen is determined.
B. sick animals fiksasiya machine is the large abdomen of 2 minutes a reduction in the number of heartbeat and breathing are determined.
D. sick animals fiksasiya machine is the number of heartbeat and breathing, body temperature and breathing, the number is determined.
There is no correct answer E.

195.In this case the check of mastitis in cows, basically, is pay attention to what?
A .The physiological condition, especially born out of milk and close to the rest of the period should be taken into account.
B. close to physiological status and birth in the rest of the period should be taken into account.
D. the physiological condition, physiological changes and the birth of remaining close to davirda should be taken into account.

E. Organezimning tiroksin production tracking

196.Along with also the general condition of the cow in obstetrics to determine why dispanserlash given the importance of the mammary gland?
A .During this period show clinical signs of mastitis is weak.
B. during this period will not show clinical signs of mastitis.
D. show clinical signs of mastitis is strong during this period.
Does not show the correct answer is E.

197.Eli was born in g'unojinlarning mastitis and milk to the analysis of the performance check when and how much?
A .Two months.
B. three months.
D. two weeks.
E. a month

198.Clinical mastitis mastitis is mainly to fight against who appeared in accordance with the recommendation which is conducted at the time of check in?
A . Every day at the time of milking.
B. at each feeding.
In d. every two days one time.
E. once every 24 hours.

199.How much time should be spent in hidden mastitis in.?
A . Once per month.
B. two times a week.
D. each week.
Iran missed on

200.Pay attention to what is before taking milk samples for laboratory check in?
A . Wash with warm water and wipe with a clean towel of cow's yelin is. Yelin teat then 70%-li spirtda is rubbed with gauze soaked in septoplasty. Milk yield is after being washed hands thoroughly.
Wash with warm water and wipe with a clean towel of cow's b. yelin is. Yelin is thoroughly washed and then wipe with soap farm yaxshgilab teat. Milk yield is after being washed hands thoroughly.
Wash with warm water and wipe with a clean towel of cow's d. yelin is. Milk yield is after being washed hands thoroughly.
Wash with warm water and wipe with a clean towel of yelin e. the cow is. Milk yield is then

Test questions for YaB (500 units)

1.The hormone-producing cells in the testes of male animals which you have ley?
A .testesteron

B. progesterone
Oksitosin D.
E. estrofan

2.Sexual excitement in male animals, which is finished with refleks?
A .eyakulyasiya
B. ereksiya
D. quchoqlashib
E. approach

3.Refleks with sexual excitement in male animals, which do you start?
A .approach
B. ereksiya
D. quchoqlashib
E. eyakulyasiya

4.Male sexual weakness in animals is called what?
A .impotensiya
B. aspermiya
B. orxit
B. balanopostit

5.The male sex gland which is the animal?
A .testes
B. sexual member
D. yorg'oq
E. the way of seed

6.The founder of the method of artificial insemination of animals?
A .I.Ivanov
B. K. Milovanov
D. F. Rumors May Be Able To
E. V. Smirnov

7.The development of egg cells in which a member of the animal?
A .In the ovaries
B. Klitor
D. the king in the uterus
E. in the body of the uterus

8.The allantois up to the amount of fluid in the monthly bo'g'oz 11-12 biya is how?
A .10-20 liters
B. 4-6 liters
D. 6-8 liters
E. 8-9 liters

9.Repeat the rhythm of a sexual cycle a few times during the year on the basis of how the animals are called animals, and the cycle stand?
A .policy
B. monosiklik
D. disiklik
E. trisiklik

10.The temperature in the artificial vagina at the time of obtaining sperm from male animals should be?
A .40-42
B. 37-38
D. 39-40
E. 43-44

11.Testesteron cells, which produces the hormone of the testes?
A .ley you
Sertoli B.
D. leykositlar
E. microcirculation

12.Diluted sperm of bull +can run up to a few hours when stored at a temperature of 4 degrees?
A .72
B. 15
D. 30
E. 80

13.Animals male sex hormone is called?
A .testosterone
B. estrogen
D. progesterone
E. oksitosin

14.The animal in which the infertile addiction wouldn't it be cured?
A .congenital
B. gained
D. alimentar
Symptomatic E.

15.The temperature of the testes of male animals from bag, body temperature, how low?
A .2-3
4-5 B.
D. 6-7

E. 8 - 9

16.Which hormone would reach tuxtatib will follikul technique?
A .progesterone
B. estrogen
Fs d. get
E. LG

17.Taking common method of sperm in the present day?
A .using suniy vagina
B. elektroyeyakulyasiya
D. using the surgical method
Massage method E.

18.Animals sex hormone hormone which females?
A .estrogen
B. testesteron
Oksitosin D.
Adrenaline E.

19.Continue to the average of a sexual cycle cow in few days?
A .18-21
B. 14-15
D. 10-12
E. 28-30

20.Sperm to move against the flow of fluid what is the feature?
A .reotaksis
B. action ilgarilanma
D. against the flow
E. compatibility

21.Hormones which is produced by the ovaries?
A .estrogen and progesterone relaksin
B. progesterone, oksitosin
Eterogenlar D., follikulastimullovchi
E. oksitosin, prozerin

22.Females cycle after which the animals should monitor the phenomenon of sex urug'lantirilishi?
A .sexual batter
B. general reaction
D. leaks
Ovulyasiya E.

23.The main stage was the night of the testes which is part of Spermatogenezni?
A .burama channel
B. right channel
Curtains in oqsilli D.
Channel sperm-producing E.

24.Its part of which is located in the core of sperm?
A .the main part
B. neck
D. in the tail
E. in the part of the body

25.Be the first who created a method of the depth of freezing sperm?
A .I. V. Smirnov
K. B. I. Milovanov
Ivanov D. SH.I.
E. M. Mirzaev

26.Quzg'alishni called sexual hormones?
A .estrogen
Progesterone is B.
D. relaksin
Adrenaline E.

27.Neyrosekretlar stimulating the sexual cycle (liberinlar) which is produced in the body?
A .Gipatalamusda
In The Pituitary Of B.
In Ovarian D.
E. in the mammary gland

28.Allantois which type of animal is surrounded by the veil of the fetus in all the way?
A .biya in
In b. cow
Pigs in D.
E. the sheep-goat

29.Few days more than the tail part otalantirish sperm in testes has the ability to save?
A .10-20
B. 30-40
D. 60-70
E. 80-90

30.The most basic method of artificial insemination and the murtak kuchib purpose?
A .speed up work seleksya
B. prevention of diseases
D. increase serpushtlikni
E. increasing the number of animals

31.Formed in testes where sperm is saved?
A .testes than in
B. cells liy
D. produce on the channel
E. on the right channel

32.Sperm density, the movement of dead-pathological method of the form in which the living and the percent concentration and assessed?
A .microscopic
Makroskopik B.
D. organoleptik
E. Laboratory

33.What should be the density of the bull sperm in moderation?
A .dense, dense average
B. average dense, sparse
D. sparse average
E. sparse

34.The development of the sperm suyultirgichlarga mikroorganimlarni tuxtatib added to what?
A .antibiotics and sulfanilamidlar
B. glucose
D. sodium sitrat
E. egg yolk

35.The stage which is finished with Otalanish?
A .get access to sitoplazma
Shred the veil illuminating the crown B.
Get into spots a shiny D.
To attack iran

36.Otalanish the first stage of what is called?
A .attack
B. access to the cells
Access to the spots a shiny D.
E. ovogenez

37.Azotdan liquid to a few degrees is freezing sperm?
A .-196
B. -183
D. -79
E. -150

38.Nampyon is how the birth process?
A .from the opening of the cervix
The satellite separated from B.
D. the fetus out from
E. kindigi plucked from the fetus

39.Which part of the egg cell, will hinder spermiylariga other types of animals?
A .shiny curtains
B. in the crown illuminating aconite
D. correspondence curtains
Yellow cavity E.

40.Glycerin is added to the sperm suyultirgichlarga for what purpose?
A .ice crystals appear not to
B. bring the sperm to move
D. to be vetrifikasiya
To convert the ice to par E.

41.Is not of a sexual cycle?
A .anafrodiziya
B. asinxron
D. allantois
E. amnion

42.A long time back in a sexual cycle every 2-5 days and continue to be, a strong demonstration of what is to be the character of sexual excitement?
A .nimfomaniya
B. atrofiya
D. distrofiya
Ovulyasiya E.

43.Sperm is added sodium sitrat suyultirgichlarga for what purpose?
A .media (pH) to keep it the same
B. a source of energy
D. from cold storage
Increase the size of iran

44.Glucose is added to the sperm suyultirgichlarga what purpose?
A .energy source

B. increase the size
D. from cold storage
Save from heat, E.

45.A member of Otalanish which is realized?
A .on the way to the egg
In ovarian B.
D. the king in the uterus
E. in the uterus buyni

46.Inflammation of the ovaries is called what?
A .hunt
B. service
D. vak
E. endometrit

47.The growth of egg cells in the ovaries and to reach what is called?
A .Ovogenez
Ovulyasiya B.
D. Filogenez
Ontogenez E.

48.Referred to reduction of muscles of the abdominal wall how?
A .to kuchanib
B. tulg'oq
The beginning to the birth of D.
E. strain

49.Sperm in animals, which is qaymoqsimon konsistensiyasi?
A .in qo'chqorlar
B. in horses
D. dogs
E. chuchqalarda

50.Otalangan will fall to the king of the uterus a few days after egg cells?
A .7-10
B. 3
D. 4
E. 12

51.Inflammation of the prostate gland in male animals is called what?
A .prostatitis
B. salpingit
Fimoz D.
E. orxit

52.The volume of sperm a few ml in pigs is the average male in the norms?
.400 A-600
B. 410-800
D. 150-200
E. 50-100

53.Which method is used in the insemination of animals from fraksion?
A .pork
Sheep B.
D. goat
E. biya

54.Many follikul rupture what is it?
A .poliovulyasiya
Ovulyasiya B.
D. ovogenez
Spermatogenez E.

55.It is said that oligospermiya why?
A .be less than the amount norms sperm
B. in general might not be sperm
D. nekrospermiya
E. pathological sperm be of the form

56.Which animal most of the sperm of liquid (sparse) will be?
A .pork
B. ayg'ir
D. bull
E. qo'chqor

57.The volume of sperm a few ml is average in qo'chqorlar norms?
A .1-1.5 a
B. 3,5-4,0
D. 5-5,5
E. 4-4,5

58.Ovulyasiya at which stage of the reproductive cycle in the cow is observed?
A .1
B. 2
D. 3
E. 4

59.Select which part of the egg cell sperm transfer capability has?
A .the veil of shiny

B. core
Sitoplazma d.
Crown light E.

60.Sexual Anestral what is a cycle?
A .to be flowing
B. mating is not
D. the general reaction might not be
Ovulyasiya is not E.

61.The cow is in a few of the uterine wall from the floor?
A .3
B. 2
D. 1
E. 4

62.What is the type of fertilization in pigs and biya?
A .the uterus in the type of
B. eggs way
The neck of the uterus D.
E. through the vagina

63.25-30 days for more than so'rilmagan yellow Bo'g'oz in the animal body is called what?
A .persistent yellow body
B. real yellow body
D. ovarian kistasi
E. yellow body

64.Virgin, the sexual tendency which is, does it happen in the phenomenon of the effects of the hormone?
A .estrogen
Progesterone is B.
D. relyaksin
E. oksitosin

65.Multiple stage ovogenez did in the night?
A .3
B. 2
D. 4
E. 5

66.Several stages of the sexual cycle in females at animals?
At a stage .3
B. in stage 2

D. phase 4
E. phase 5

67.Sexual Anovulyator what is a cycle?
A .ovulyasiya is not
B. to be flowing
Mating is not D.
E. the general reaction might not be

68.Male sperm develops in the organs of animals which?
A .testes
Testes than in B.
D. in the uterus
Ovarian iran

69.In four animals in which there is the veil of the fetus?
A .camel
Sheep B.
D. cow
E. Dog

70.The ripening of egg cells from the ovaries what is the output?
A .ovulyasiya
B. ovogenez
D. spermiogenez
E. follikul

71.Sperm spermiylarning in what is called?
A .aspermiya
B. nekrospermiya
D. changed the color of sperm
E. is the smell of sperm

72.What is called the depth of diluted sperm freezing?
A .kriokonservasiya
B. ekvilibrasiya
D. start muzdan
E. auskultasiya

73.The deep freezing of semen diluted in what is used for?
A .liquid nitrogen
B. alcohol
Liquid oxygen D.
E. liquid hydrogen

74.How much is the average size of the bull sperm?
A .4-5
B. 7-10
D. 10-15
E. 20-25

75.The veil of the water of the fetus that is what is called the language of science?
A .amnion
B. allantois
D. chorus
E. allantoxorion

76.The decrease of the abdominal wall at the time of birth is called what?
A .to kuchanib
B. strain
D. to'lg'oq
E. disturbance

77.Serum inflammation of the uterus, called the floor is how?
A .lipid parameters
B. the perimeter of lipid
D. endometrit
E. miometrit

78.Name the hormone which is produced by the yellow body?
A .progesterone
B. combination
D. sinestrol
E. estrol

79.Cow, sheep, goat and what is the type of fertilization in bug'ular?
A .vagina type
B. type in the uterus
D. the way of eggs
The neck of the uterus E.

80.What is called the language of science in the urinary curtains of the fetus?
A .allantois
B. amnion
D. allantoxorion
Chorus E.

81.Spermiyalarni testes growth and to reach what is called?
A .spermiogenez
B. ovogenez

Ontogenez D.
E. filogenez

82.The method from which sperm is taken with cock?
A .massage method
B. elektroeyakulyator
D. using machalka
E. artificial vagina

83.Makroskopik indicators in assessing the quality of sperm which did you identify it?
A .size, color, smell and konsistentsiyasi
B. size, color, smell, and density
D. size, color, smell and movement
E. size, color, smell and shape

84.In the few months of an adult sexual biya?
A .10-12
B. 16-18
D. 18-24
E. 24-28

85.Continue to the average of pigs bo'g'ozlik in few days?
A .114
124 B.
224 D.
214 e.

86.The reproductive cycle lasts an average of the cow in few days?
A .18-21
B. 28-30
D. 10-12
E. 14-15

87.Understand about what is the service?
A .inflammation of the neck of the uterus
B. inflammation of the vagina
D. inflammation of urinary tract
E. inflammation of the uterus

88.To what is observed in the effects of sperm is cold?
A .shokin temperature
B. action ilgarilanma
D. gemoliz
E. kaogulyasiya

89.A drug that would strengthen the contraction of the muscles of the wall of the uterus?
A .Oksitosin
B. no-focused
D. Tetracycline
Analgin E.

90.Inflammation of the mucous membrane of the uterus is called the inner what?
A .endometrit
B. the perimeter of lipid
D. miometrit
Vulvit E.

91.What should be the density of the bull sperm in moderation?
A .dense, dense average
B. average dense, sparse
D. sparse average
E. sparse

92.The stage which is finished with Otalanish?
A .get access to sitoplazma
Shred the veil illuminating the crown B.
Get into spots a shiny D.
To attack iran

93.According to the location of the teat, in the fetus in animals go'shtxur any type of mate?
A .every-in every place
B. bulk
D. disksimon
E. ball-the ball is located

94.The amount of fluid in the amnion bo'g'ozlik 1 biya is how much?
A .40-50 ml
B. 15-20 ml
D. 60-80 ml
E. 100-200 ml

95.Biya in bo'g'ozlik of 11-how much is the amount of fluid in the amnion?
A .10-around 20 l
Around 1-2 b. l
Around 4-6 l D.
Around 40-50 e. l

96.Bo'g'ozlik 2 in the cow-the amount of fluid in the amnion is how much?
A .150-450 ml
B. 100-120 ml
D. 500-650 ml
E. 800-850 ml

97.The cow at the end of the period in the amount of the curtain suyuqliq bo'g'ozlik allantois is how much?
.4 A-8 liter
B. 1-2 liters
D. ml 500-660
E. 700-880 ml

98.Number bo'g'ozlik up and come to the end of a few pieces in the cow plasentomalar how great is it?
A .average 80-100 far up and duck eggs at large
B. average 40-50 far up and duck eggs at large
D. 200-300 at large, and far up the average chicken eggs
E. average 100-120 far up and duck eggs at large

99.The fetus in the uterus of the cow with the part of the satellite part of the fetus is in any type of interaction?
A .desmoxorial
B. epitelioxorial
D. gemoxorial
E. axorial (without teat)

100.With the part of the fetus in the uterus of a fetus satellite biya part in any type of interaction?
A .epitelioxorial
B. desmoxorial
D. gemoxorial
E. axorial (without teat)

101.When the length of the fetus in the birth kindigi stay close to the cow, how?
A .30-40 cm
B. 10-20 cm
D. 80-85 cm
E. to 1 meter

102.Bo'g'ozlik with the fetus, which in many animals can be at night?
A .pork
Sheep B.
D. cow
E. biya

103.Bo'g'oz animals which appear in the uterus at karunkulalar?
A .cow, sheep, goat
B. the dog and cat, pig
D. camel, biya, pork
E. dog, rabbit, cat

104.Bo'g'ozlik term lasts an average of qo'ylarda few days?
A .150
B. 114
D. 285
305 E.

105.Thomas the children give in and qo'ylarda goat occurs in a few percent?
A .10-15 5-7
B. 2-3, and 4-6
22-25 and 20-30 D.
E. and 50-70 60-80

106.Bo'g'ozlik usually takes a few days in the cow?
A .285-305 days
B. 250-260 days
D. day 320-340
E. 170-190 days

107.Murtak Trofoblast stage pass into the uterus will start with how fed?
A .mucous membranes of the uterus, producing a “uterine milk”
B. the blood vessels coming through nutritional substances
D. nutritional substances coming through the lymph vessels
E. cervical mucous membranes of sperm to stick to the rest

108.On the day of bo'g'ozlik bo'g'ozlik yellow cow, which is the maximum level of development in the body?
A .bo'g'ozlik's 90-day
B. bo'g'ozlik 60-day
D. bo'g'ozlik of the 120-day
On the 13th day of bo'g'ozlik E.

109.Which animal bo'g'oz hormone in the hypothalamic-growth follikul gipofizar through the system and pauses that?
A .progesterone
B. gonadotropin
Folikula stimullovchi D.
E. oksitosin

110.In the neck of the uterus in the cow bo'g'ozlik slimy liquid which can hang from tirqishga suyuqlashishi sex?
A .5-6
B. 3-4
D. 7-8
E. 8-9

111.The cow in ca and p, which can give the development of the disease etrlicha of salt in the food?
A .bo'g'oz osteomalyatsiyasi animals
B. remove the child bo'g'oz animals
D. bo'g'oz gipovitaminoz animals
E. bo'g'oz gipotoniya animals

112.Cow, sheep, starting from the second half of progesterone in the body biya bo'g'ozlik from where it is produced, in addition to yellow again?
A .on mucous membranes of the uterus
In the pituitary of b.
D. in the hypothalamus
E. ut slug‘ in the way

113.In bo'g'ozlik will increase several times the weight of the uterus during biya?
A .4-5 times
B. 1-2 times
D. 6-8 times
E. 6-10 times

114.Produced from the milk of the cow bo'g ipsos should establish an average of the period of few days?
.60 a day
B. 40 days
D. 90 days
E. 120-160 days

115.Which methods the clinical and infertile animals bo'g'ozlik interaction detection method?
A .refleksologik method; paypaslab to it through the rectum, through the vagina
B. refleksologik method; paypaslab to the rectum, through the blood check
D. x-ray using; to paypaslab, through the rectum, through the vagina
E. refleksologik method; ultrasound check, through the rectum

116.Sex and animals by natural or artificial methods urug'lantirilgandan kuyikishning kuzatilmasligi for 3-4 weeks after the batter what?
A .initial mark bo'g'ozlikhihg
B. 3 month mark bo'g'ozlikhihg

Bo'g'oz not the mark of D.
Mark E. initial kasallikhihg

117.The animals bo'g'ozlik ULTRASOUND (ultra sound check) detected using insemination (gestasiyaning) 20-day embryo round-dumboqcha will be how?
A .3 mm (small rice at large)
6-8 mm B. (small of peas at large)
D. 20-30 mm nuts (at large)
E. 2-3 cm (quail eggs at large)

118.Scanning, starting in the days of the embryo can be observed that the reduction of the heart muscle, which bug'ozlikning?
A .bug'ozlikning 26-29 days
B. bug'ozlikning 36-39 days
D. 66-70 bug'ozlikning days
E. bug'ozlikning 120-160 days

119.The method is called through the rectum bo'g'ozlik how to check?
A .rectal check
B. save with hit bull
D. check vaginal
E. check for foreign

120.Which is the accumulation of fluid in the uterus 150-450 ml bo'g'oz cow?
A .2
B. 3
D. 5
E. 4

121.Biya bo'g'ozlik in the ultrasound (ultra-sound check using which you can determine the sex of the fetus in the days bug'ozlikning detected in?
A .55 in 90 days...
100 B. 120 days...
D. 110 to 160 in the day...
154 E. 180 days...

122.The method is called in through the rectum and camel biya bo'g'ozlik how to check?
A .rectal check
B. save with hit bull
D. check vaginal
E. check for foreign

123.In check in through the rectum from the medium in which biya bo'g'ozlik bo'g'oz the vibrations of the arteries of the uterus begins to feel weak?

.4 A
B. 6
D. 7
E. 8

124.Bo'g'ozlik lasts an average of 9 months in which animals?
A .cow
B. horse
D. provisional president
E. goat

125.Bo'g'oz from which karunkulalar paypaslanadi cow?
.4 A
B. 2
D. 1
E. 3

126.Paralysis how these diseases are more common born from the next half of the cows?
A .many birth, extremely fat, many milky
B. arriq, less milky
D. young animals
Animals in the e. qar

127.Novocaine for the conduction of anesthesia in the cow jump from how much solution is required?
A .2% solution in 10-20 ml li
B. 0.2-0.5% li eritmasidan20-30 ml
D. 2% solution 2-3 ml li
E. 3% solution from 5-10 ml li

128.Bo'g'oz soften the bones of animals is called anday disease remain with quotation?
A .osteomalyatsiya
B. gipovitaminoz
D. gipotoniya
Osteoxondroz E.

129.At the time of mating and sexual diapediz bleeding from the uterus caused by rupture of blood vessels can be observed in a few percent of the cow and the bodies?
A .3-5%
B. 6-8%
D. 10-15%
E. 30-50%

130. Tear of the abdominal wall muscles in animals bo'g'oz be caused by the child in her bag grija be in the form of disease called the descent of the uterus is how?
A .the uterus grijasi
B. bashadon atoniyasi
D. the uterus subunvolyutsiyasi
E. bashadon of istisqo

131.Besides bo'g'ozlik to be developed to the developing fetus in the womb during how another is called murtak?
A .additional bo'g'ozlik
Bug'ozlik B. false
D. used bo'g'ozlik
Hidden bo'g'ozlik E.

132.The milk from cows which are removed from bo'g'oz?
A .7 months
B. 5 months
D. 3 months
E. 8 months

133.Inflammation of the mucous membrane of the uterus is called the inner what?
A .endometrit
B. the perimeter of lipid
D. miometrit
Vulvit E.

134.Inflammation of the middle floor of the muscles of the uterus is called what?
A .miometrit
B. the perimeter of lipid
D. endometrit
Vulvit E.

135.For the production of milk from the mammary gland of a cow should pass several liters to 1 liter of blood?
A .500
B. 200
D. 300
400 E.

136.A.P.Classification according to Studensov there are several types of abortion?
A .infectious infectious and parazitar
B. infectious and infectious alimentar
D. infectious and infectious idiopatik
E. are infectious, and parazitar idiopatik

137.What is mumifikasiyasi of the fetus?
A .the fetus mumiyolanishi
B. shib going to be seen in the fetus
D. the fetus out of the uterus
E. the birth of the fetus be dead

138.What is petrifikasiyasi of the fetus?
A .the cover of the calcium salt of the fetus
B. the embryo out of the womb
D. remain the embryo built
The embryo remain to soften E.

139.The reduction of the uterus, what is it?
A .to'lg'oq
B. to kuchanib
The beginning to the birth of D.
E. zuriqish

140.The dead fetus and bone divorce place to stay in the united suyilib what did he say?
A .masiratsiya
B. induratsiya
D. petrifikatsiya
E. osteomalyatsiya

141.The veil of which is formed from the primary ichagi murtak of the fetus, the umbilical cord is bulging out from the bag?
A .allantois
B. amnion
D. chorus
E. white curtains

142.Which type of abortion of the fetus in the uterus at the time of the fetus in the uterus, the rest can die and one or more tug'lishi normal?
A .incomplete abortion
B. complete abortion
D. abortion used
E. early abortion

143.Yelin in the cow teat canal narrow to be treated how?
A .surgery method
B. make massage
D. physiotherapy
E. antibiotikoterapiya

144.Cover the surface of the calcium salt of the dead fetus, the rest qattiqlashib what did you say to her?
A .petrifikatsiyasi of the fetus
B. matsiratsiyasi of the fetus
D. the fetus mumyolanishi
E. gangrenasi of the fetus

145.The egg cells from the ovaries what is the output?
A .ovulyasiya
B. ovogenez
D. spermiogenez
E. follikulogenez

146.What do I need to start to show the new born animals to help?
A .the mouth and nose of bushlig'ini tozlashdan
B. the umbilical cord is tied from
D. the solution sent from the caffeine
From e. lactating

147.The reduction of their position in the uterus to come what did you say?
A .involyusiya
B. invaginasiya
D. subinvolyusiya
E. implantasiya

148.A drug that would strengthen the contraction of the muscles of the wall of the uterus?
A .oksitosin
B. noshpa
D. tetracycline
Analgin E.

149.The cow in the birthing process continue to be the average time (hours)?
A .5-6
B. 3-4
D. 2
E. 7-8

150.Cows with the birthing process, what ends?
A .the separation of the fetus yuldash
B. the fetus be out of
Be out of the uterus D.
E. mating sex

151.The neck of the uterus during childbirth large cutting end with what can be ripped?
A .be out of the uterus
B. remain the yuldash ushlsnub
D. endometrit
E. complications parezi

152.The decrease of the abdominal wall at the time of birth is called what?
A .to kuchanib
B. zuriqish
D. tulg'oq
E. disturbance

153.Tuf during what is called a reduction of the wall of the uterus?
A .to'lg'oq
B. to kuchanib
The beginning to the birth of D.
E. zuriqish

154.The birthing process is divided into multiple periods?
A .3
B. 2
D. 4
E. 5

155.Vitamin and mineral substances in the form in which it should be applied to infertile?
A .alimentar
B. Simtomatik
D. congenital
E. gained

156.How integral is called the hold time and the rest in the cow hoimila mate?
A .24 hours
B. up to 6 hours
D. up to 28 hours
E. up to 32 hours

157.The surface of the vagina and the narrow pelvis, the fetus is excessively large if the method in which tug'diriladi?
A .Kesarev method
B. fitotomiya
D. the uterus amputatsiyasi
E. vazektamiya

158.How to cut dead fetus in the uterus is called the method to separate the parts?
A .fitotomiya
B. method kesarev
D. amputatsiya
E. transplantation

159.New breeding the cow back and still be on the low side of the disease, which is the separation of the fetus than a satellite can be observed?
A .be out of the uterus
B. be out of the vagina
D. the uterus atoniyasi
E. the uterus subinvalyutsiyasi

160.Kesarev dissection method is recommended when abdominal wall and the uterus in the cow?
A .Tosninig fits with the size of the fetus when the size of the surface
B. in order to remove the rest of the fetus to die Bachdonda
D. the uterus inflamed in buyni
Iran tug'ayotgan cows for the first time

161.Kesarev the abdomen and uterus in the cow dissection method in place of the abdominal wall is made of several layers of cut in animals?
A .2-floor 3
B. floor 4-5
D. 1 floor
E. kamiga floor 4

162.Method of dissection surgery abdominal wall and the uterus in the cow Kesarev few days later, the animals fed the diet is usually transferred to?
A .8-9 days
B. 1-2 days
D. 15-20 days
E. 1-1,5 months

163.How to remove operation is called bachdonda the rest of the fetus to die?
A .fetotomiya
B. method to cut in the abdominal wall kesarev
D. vazektomiya
E. ovariotomiya

164.The closed method is used in the cutting tool fetotomiyaning how?
A .under the skin of the fetus
B. on the skin of the fetus
D. under the veil of cervical mucous
E. the fetus in the abdominal cavity

165.Cut with the body of the fetus fetotomiyada the instrument to be introduced into the cavity between the wall of the uterus is called how?
A .open method
B. closed method
D. method qonsiz
E. cold method

166.Which is used a lot in the practice of obstetrics fetotomlar?
A .Besxlebnov and Phlyans fetotomi
Fetotomi B. Afanasev
Phlyans fetotomi and d. korobov
E. a fetotomlar times

167.Fetotomiya in the intestine of the fetus-how to remove chovoqlarini is called?
A .eventerasiya
B. pertubatsiya
D. eksikatsiya
E. keratinizatsiya

168.The proper conditions of agricultural animals in parvarishlanganda how much time was at the end of the period from birth to the next?
A .3 weeks, not later than 1 month
B. 6 weeks of treatment and 2 months
D. 2-2,5 months
E. in 7-8 days

169.How cows from birth to the edge of narrowing of the uterus in the next 3 days?
A .4 cm
B. 2 cm
D. 12 cm
E. 20 cm

170.In the next days in the cow from birth to'lg'icha of uterine cervix, which are closed?
A .15-day 17
B. in 10-12 days
D. 25-27 days
E. 45-65 days

171.Return the position of the cow in their reproductive members (invalyutsiya) to the next day which is born from to'g'rikeladi?
A .20-25 days
B. 30-35 days
D. 40-50 days

E. 60-65 days

172.The next period from birth completes with what?
A .the beginning of a complete sexual cycle
B. the beginning of a cycle of sexual incomplete
D. the uterus involyusiyasi
E. the uterus qisqarmasligi

173.The process of returning the character position of the uterus after birth of infertility cows with delayed how the disease is called?
A .the uterus subinvolyutsiyasi
B. the uterus atoniyasi
D. inflammation of the uterus
E. ovarian subinvolyutsiyasi

174.From birth to the next kataral sharp-how is separated from the way xususuyatli ekssudat purulent endometrit during sex?
A .whey-purulent
B. whey-bloody
D. a fibrin-a hemorrhagic
E. ixoroz-kataral

175.The next night, which should be differentiated from similar disease which at endometritni kataral from birth?
A .the uterus invalyusiyasi
B. kataral miometrit
D. the service with fibrin
E. traumatic retikulit

176.Animals from birth, then make tissue inflammation of the uterus or the vagina before that night with how wide the disease is called?
A .Lipid parameters from birth to the next
B. the perimeter of czechoslovakia from birth to the next
D. from birth to the next miometrit
From birth the next endometrit E.

177.Local microorganisms and their toxins in the blood as the complications of the inflammatory process of the general condition of the animal at that night with a very sick og'irlashib how the disease is called?
A .septisemiya
B. piemiya
D. lipid parameters
E. endometrit

178.Frimartinizm form in which to enter infertile?

A .congenital
B. symptomatic
D. alimentar
E. ekspluatasion

179.Serum inflammation of the uterus, called the floor is how?
A .lipid parameters
B. the perimeter of lipid
D. endometrit
E. miometrit

180.Which wouldn't be cured of the animal in the form of infertile?
A .congenital
B. symptomatic
D. alimentar
E. ekspluatasion

181.Several different according to the clinical manifestation of mastitis was yesterday?
A .clinical, subklinik
B. acute, chronic
D. sharp, subklinik
E. hidden, chronic

182.Germofroditizm form in which to enter infertile?
A .congenital
B. symptomatic
D. alimentar
E. ekspluatasion

183.The appearance of which in the form of infertility is caused by diseases?
A .symptomatic
B. ekspluatasion
D. alimentar
E. congenital

184.What is infertility?
A .lack of the fetus in the uterus
B. economic indicators
D. pregnancy
E. congenital

185.A warm compress is not recommended in the treatment of mastitis in which form?
A .hemorrhagic

B. purulent
Whey D.
E. kataral

186.The physiological aspects of birth new born animals from which to'laqimmatli without a disease?
A .antinatal gipotrofiya
Toksikoz uv-B.
D. asfiksiya
E. omphalorrhagia

187.New born calf is in the heart a few times in may reap minutes in 1 minute?
.148 times
B. 162 times
D. 170 times
E. 180 times

188.New born in the first hours of life in animals, which is absorbed into the blood through the wall of the intestine and immune globulin will take?
A .24-in 36 hours
B. in the hour of 40-66
D. 72-76 hours
E. in only 6 hours

189.Bo'g'oz infected with fungi and a new birth to cow hay, silage, which is his reason hayonlarning sick newborn senaj of nutrients like to be given?
A .toksikoz uv
B. asfiksiya
D. gipotrofiya
E. gastroenterit

190.Asfiksiya in new-born animals (steam stay) to start what do you need help?
A .slimy breathing of the way of cleaning fluid
B. the production of the body ishqab
Suniy to breathe shaving D.
E. glucose blood vessels to send

191.In which form should be used in the prevention of addiction on the animal infertile?
A .ekspluatasion
B. alimentar
D. simtomatik
E. congenital

192.What is called the new-born animal to breathe the difficult matters?

A .asfiksiya
B. hansirash
D. gipotrofiya
E. gipovitaminoz

193.When the blood went from new-born animals is how kindigi cures?
A .the umbilical cord is tied
B. antibiotic is applied
D. ointment is driven
E. is washed with water

194.New born that night how the disease with diarrhea in animals is called?
A .toksikoz uv
B. antinatal gipotrofiya
D. asfiksiya
E. omphalorrhagia

195.What is inflammation of the mammary gland?
A .mastitis
B. vak
D. rhinitis
Arthritis E.

196.Ty of the blood into the milk lines, which can be mixed inflammatory yelin?
A .hemorrhagic
B. purulent
D. kataral
E. inflammation of the skin of the udder

197.According to the clinical manifestation of several different mastitis in cows was yesterday?
A .clinical, subklinik
B. acute, chronic
D. sharp, subklinik
E. hidden, chronic

198.Mastitis, which is banned in the form yelin o'qalash?
A .purulent
Whey B.
D. hemorrhagic (bloody)
E. kataral-whey

199.A warm compress is not recommended in the treatment of mastitis in which form?
A .hemorrhagic

B. purulent
Whey D.
E. kataral

200.The narrowing of the channel in which the teat of the cow yli its jarohatlanganda set it to remain what you did?
A .milk catheter
B. qisgich
D. frequent milking
E. nothing

201.In the acute form of mastitis the night with the rising of body temperature, which belong to the group of the drug should be used?
A .antibiotics and sulfanilamidlar
B. the temperature falls and laxative drugs which
D. the temperature dropped and heart which glikozidi
E. antigelmintiklar and sulfanilamidlar

202.Chiqaruv of the mammary gland is formed from the addition of lydda as what?
A .milk channel
B. milk tank
D. yelin of the teat
E. foreign artery shame

203.Yelin types of inflammatory change in the milk, which wouldn't be?
A .yelin inflammation of the skin
B. hemorrhagic
D. purulent
E. kataral

204.The rupture of the skin of the teat Yelin because of the lack of vitamin in the body, which is observed?
A .B2 vitamin
Vitamin B.
D. vitamin d3
E. c and vitamin k

205.Gave birth for the first time, the possibility of productivity is great, but eli can be the origin of the small defect in which the cow?
A .self-suction
B. remain achib milk
D. laktorreya
Yelin E. induratsiyasi

206.What does this teach science andrologiya?

A .diseases of male animals
B. male animals use to
Methods to get seeds D.
E. obstetrician-gynecological dispanserlash

207.Andrologik despansirizasiyada are studied what ?
A .erkaklik defects and diseases of sexual organs
B. defects and diseases of the sexual organs urg'ochilik
D. born to help make
E. animals be born

208.Inflammation of the prostate gland in male animals is called what?
A .prostatitis
B. Salpingit
Fimoz D.
E. Orxit

209.Spermiyalarni testes growth and to reach what is called?
A .spermiogenez
B. ovogenez
Ontogenez D.
E. filogenez

210.How much is the average size of the bull sperm?
A .4-5
5-8 B.
D. 10-15
E. 40-50

211.How chiqarilmasligi cperma work in male animals is called?
A .aspermiya
B. nekrospermiya
D. changed the color of sperm
E. is the smell of sperm

212.A member of what is called inflammation of the head part of sexual male animals?
A .bala
B. vezikulit
D. prostate
E. orxit

213.The level of fertilization the sperm of the bull that is high in the structure of living up to the amount of sperm is how?
A .80-95%

B. 60-70%
D. 50-60%
E. 30-40%

214.Hit the bull who keep the cows every day in the morning and in the evening a few hours to put zagonlarga sent?
A .1,5-2 hours
B. 2.5-3 hours
D. 3,5-4 hours
Iran, 4.5-6 hours

215.Pufakchasimon gland inflammation (vezikulit), which often occurs in type animals.
A .bull and male pigs
In b. taurus and male dogs
D. ayg'ir and male pigs
In e. quchqor and taka

216.Yelin signs of inflammation in the disease of which the local temperature may be raised to be painful and is not observed, milk yield was reduced with the passage of time will go?
A .yelin's indurasiyasi
B. yelin's flegmonasi
D. yelin inflammation of kataral
E. yelin's atoniyasi

217.Yelin yelin chirituvchi to be caused by tissue necrosis and litter fall of microorganisms with quotation how the disease is called?
A .yelin gangrenasi
B. yelin's indurasiyasi
D. yelin's atoniyasi
E. yelin's flegmonasi

218.The development of egg cells in which a member of the animal?
A .in the ovaries
B. klitor
D. the king in the uterus
E. in the body of the uterus

219.The ripening of egg cells from the ovaries what is the output?
A .ovulyasiya
B. ovogenez
D. spermiogenez
E. follikulogenez

220.Vitamin and mineral substances in the form in which it should be applied to infertile?
A .alimentar
B. simtomatik
D. congenital
E. gained

221.Frimartinizm form in which to enter infertile?
A .congenital
B. symptomatic
D. alimentar
E. ekspluatasion

222.Which wouldn't be cured of the animal in the form of infertile?
A .congenital
B. symptomatic
D. alimentar
E. ekspluatasion

223.Several different according to the clinical manifestation of mastitis was yesterday?
A .clinical, subklinik
B. acute, chronic
D. sharp, subklinik
E. hidden, chronic

224.Germofroditizm form in which to enter infertile?
A .congenital
B. symptomatic
D. alimentar
E. ekspluatasion

225.The appearance of which in the form of infertility is caused by diseases?
A .symptomatic
B. ekspluatasion
D. alimentar
E. congenital

226.What is infertility?
A .loss of sexual ability
B. economic indicators
D. the term of pregnancy
E. congenital

227.A warm compress is not recommended in the treatment of mastitis in which form?
A .all the answers are correct
B. purulent
D. kataral
Hemorrhagic E.

228.In which form should be used in the prevention of addiction on the animal infertile?
A .ekspluatasion
B. alimentar
D. simtomatik
E. congenital

229.The animal in the form of feeding in which the infertile will improve in the treatment of addiction?
A .alimentar
B. symptomatic
B. congenital
B. ekspluatasion

230.Estrogen and progesterone hormone, which is produced relaksin a member of?
A .ovaries
B. testes
D. yellow body
E. are follikul

231.Inflammation of the ovaries is called what?
A .hunt
B. service
D. vak
E. endometrit

232.What are the complications of mastitis?
A .indurasiyasi the udder, udder gangrenasi
B. aktinamikozi the udder, purulent mastitis
D. tuberculosis of the udder, mastitis whey
Udder indurasiyasi E., purulent mastitis

233.The eggs of the way in which the method is used to determine bekilib stay?
A .pertubatsiya
B. kateterlash
D. to paypaslab
E. perputsiya

234.Peace in the position of the uterus after childbirth when the state re-development is how slowing disease called?
A .subinvalyusiyasi of the uterus
B. the uterus atoniyasi
D. the uterus amputatsiyasi
Hyperplasia of the uterus E.

235.Which type of mastitis in 80% cases the milk is determined using laboratory inspections?
A .subklinik mastitis
B. hemorrhagic mastitis
Mastitis is a fibrin D.
E. kataral-purulent mastitis

236.Cow in old age (klimakterik few) infertility at the age of do you start?
A .15-20
B. 20-23
D. 10-15
E. 20-25

237.Sex in inflammation of the vagina and cleanse the lips of the other how to get ekssudat basically use a tool?
A . disinfectant solution (1:5000 potassium permanganate ratio, 1:5000 ratio furasilin solution) and washed with antiseptic solution in one (5%-li ixtiol, 3%-li tetracycline solution), washed with napkins dry, and the ointment (ointment levomekol) and is driven by.
B. disinfectant solution (1:4000 ratio of potassium permanganate, 1:5000 ratio furasilin solution) and washed with antiseptic solution in one (5%-li ixtiol, 3%-li tetracycline solution), washed with napkins dry, and the ointment (ointment levomekol) and is driven by.
D. disinfectant solution (1:4000 ratio of potassium permanganate, 1:4000 furasilin ratio in solution) and washed with antiseptic solution in one (5%-li ixtiol, 5%-li tetracycline solution), washed with napkins dry, and the ointment (ointment levomekol) and is driven by.
E. there is no correct answer.

238.Vulvit and how the use of means in the treatment of medicinal vestibulitni?
A . 1:5000 potassium permanganate ratio, 1:5000 ratio furasilin solution, 5%-li ixtiol, 3%-li tetracycline solution, dry with a napkin, and the ointment (ointment levomekol) and is driven by.
B. 1:4000 ratio of potassium permanganate, 1:4000 solution furasilin ratio, 3%-li ixtiol, 2%-li solution is washed with tetracycline.
D. 1:5000 potassium permanganate ratio, 1:5000 ratio furasilin solution, 4%-li ixtiol, 2%-li solution is washed with tetracycline.

E. 1:5000 potassium permanganate ratio, 1:5000 ratio furasilin solution, 3%-li ixtiol, 1%-li tetracycline solution, dry with a napkin, and the ointment (ointment levomekol) and is driven by.

239.The vagina is carried out in the treatment of vaginitni katetirlash how?
A .katet their 30-40º at an angle of 15-20 cm is sent to
B. katet their 30-40º at an angle of 25-30 cm is sent.
D. katet their 25-15-20 cm at an angle of 30º is sent.
E. katet their 30-35º at an angle of 15-20 cm is sent to

240.Method in which the heating of liquid medicines before sending through the vagina?
A .still in the water, 37-40°C
B. when you boil.
D. isotiladi alcohol lamps.
E. qurut is heated in the oven to

241.How to ensure an appropriate distribution of medicines after medicines has been sent?
A . put on disposable gloves to catch the rectum through the vagina with massage provides slow on the distribution of medicines.
B. put on disposable gloves to catch the vagina to vagina slowly on the distribution of medicines with the same kirgizilib uqalaniladi provides.
D. yurg'uziladi animal for 10-15 minutes.
The oldest and largest animal after the condition is left of iran

242.When the disease was severe and what is the use of vestibulit vak?
A . rinsing with antibiotics and are a solution of potassium permanganate.
B. antibiotics and are rinsing with warm water.
Rinsing with antibiotics and are vadarod d. perikl solution.
E. are frequent rinsing with warm water

243.Vak vestibulit disease with medicines and mouthwash qindahlizi vagina and how much time?
A . 2 times a day
B. 3 times a day.
D. every 4 hours per day in 1 times.
Iran 1 times per day

244.What is inflammation of the cervix called the language of science?
A . Servisitis
B. Service.
D. Sevisitis.
E. Servisitiss

245.Inflammation of the cervix as a result of how the animals exposed to the disease, would you?
A .animal remains qisir
B. in the animal out pishop will be changed.
D. the animal the child has been removed.
There is no correct answer E.

246.In cases of inflammatory disease of the cervix is often what develops?
A . tug'uruq shikastlanishdan in time
B. the animal suniy urug'lantirayotganda.
B. the natural fertilization of the animal.
B. no independent folding of the disease is not associated in servitsit

247.Inflammation of the cervix mucous membranes in nature, how is it?
A .shades ko'kimtir
B. in reddish shades.
D. in ochre.
E. in natural color

248.What is in being covered with mucous membrane inflammation of the cervix?
A . purulent or purulent ekssudat is being covered with a coating
B. purulent ekssudat is being covered with a coating or natural.
D. purulent or is being covered with a coating shilimshiqsimon ekssudat
E. answers a and c are correct

249.The canal of the cervix of the uterus is usually the case, how?
A .half open
B. open.
D. does not open.
There is no correct answer E.

250.Meter - inflammation of the uterus, what are you featured?
A . nospesefik
B. spesefik
D. endometrik
E. all answers are correct

251.Inflammation of the muscles of the floor of the uterus - ?
A . miometrit
B. the perimeter of lipid
D. endometrit
E. metritis

252.Serum inflammation of the uterus, the floor of it?
A . the perimeter czechoslovakia

B. endometrit
D. miometritlar.
E. metritis

253.From birth to the next kataral sharp-endometrit clinical signs of purulent kassalligining when it would show up after the birth?
A .8-10, 6-7 days bazan
B. 6-8, 10-11 bazan days.
8-10 D., bazan 4-6 days.
8-10 E., bazan in 3-4 days

254.Kistasi yellow body with what it usually was the night?
A . is not of a sexual cycle
B. the top of a sexual cycle.
D. the lack of a sexual cycle.
There is no correct answer E.

255.When the size of what can be put kistalarining ovarian disease diagnosis?
A .different
B. large.
D. small.
E. average

256.When a few tiny bubbles in the ovaries, which is in the position of its surface?
A .this g'adir
B. smooth.
D. does not feel.
E. all answers are correct

257.Animals, which will be held in check by the repeated bo'g'ozlik more?
A . biya in
B. in the cow.
D. in sheep and goats
E. all answers are correct

258.In order to improve blood circulation in the ovaries and how ovarian each time for the nutrition massage?
A .3-5 minutes
B. 3-7 minutes.
D. 5-7 minutes.
E. 2-3 minutes

259.How to apply the methods in the treatment of persistent yellow body?
A . symptomatic and operational
B. symptomatic.

D. operative.
There is no correct answer E.

260.The yellow body in the treatment of Persistent of any drug are recommended?
A . Estrogen and vagotrop
B. Estrogen Are.
D. vagotrop.
E. other drugs is not recommended

261.Let it qisir?
A .females hayvonlarda fireayear n davomida wasalashtirilgabol naI have to takeaslik will
B. inflammation of sexual way
D. females urug'lanmasligi uz at the time of the animal
E. animal fertilization of females is 30%

262.Professor a. p. t Studensovasnifi ona sabablarigwith a viewa few pushtsizlikning type mavjud?
.7 A
B. 6.
D. 5.
E. 8

263.Females hav yvonningaqtincha qisir a lifetime, or becomea what is this sabab can be?
A . taunfavorable environment shqiat ya’secret
B. a violation of the diet.
D. matsionning is not good.
E. as a result of the effects of mechanics

264.Hayvonlar fell pushtsizlikka how can that be?
A .had fbavomidan encounter v bea congenitala
B. as a result of mechanical effects.
D. medicines as a result of the character to be sent.
There is no correct answer E.

265.Halaya increasean sabablarga viewof a few different germ pessimismarga isadi?
.8 A
B. 7.
D. 6.
E. 9

266.Alimonyis agerm of pessimism r how many come out?
A . hawrong yvonni oziqliatuf ntirishayli come outadi.

B. females otliah rniaddan tashqaishl settings for manyatooth, sentenceadan lydda as‘a va biya at the breed chopqirarini without interruption aravaga often adda, sex is a’zolafunction of the sus rav flush remaina qisira sababadi. Females of d. va authorityak hayvonlarning the majority of kasalaflow settingaupa qisir let fallacan be built in the us.
E. hayvonlaclimate jih raupasharp n fathe other ingredients toadigiaplace n aan the second place, a move makeanidaa hundredaga comeadi this isa hayvonlanew yash rash sharoitlariga fit atacity,a cannot beaydi.

267.Qasettingsa , aloq, afew cows and pessimism has one germ at age do you start?
A .15-age 20a
B. the 12-17 agea.
D. 16-20 years old.
E. 18-20yoshda

268.Qasettingsa aloqagerm v and pessimism has one sheep, a goat, arda few at the age of do you start?
A .8-9 to the age ofa
B. 6-7 years old.
D. 8-10 years old.
E. 7-9 years old

269.Qasettingsa aloqagerm pork and pessimism has onealarda few at the age of do you start?
A .6-8 the age of thea
Age 6-9 B.a.
D. age 7-8a.
Age 8-10 E.a

270.Qasettingsa aloqabiya and pessimism has one germ atarda few at the age of do you start?
A .20-25 agea
B. the aged 16-18a.
D. the age of 16-20a.
E. 17-18yoshda

271.Females va authorityak hasex yvon a’zolafull rningelanguage Iay or h remainaseeded yvonayoung ntirisha reachanidaa sexual cycleaslia what ayt fail to keepadi?
A . Infantilizm
B. I gerafroditizm.
Fri, d. Iartinizm.
There is no correct answer E.

272.Congenitala qisir is divided into several types?

A .3
B. 4
D. 2
E. 5

.273.Bittois a an individual who ata females va authority ofasexual click a’zolahave undergone rini her?
A . I gerafroditizm
Fri, b. Iartinizm
D. Infantilizm
E. all answers are correct

274.Pushtsizlikka sabab ifadigiagynecological n kasalar orasidis a penis a’zolardacondition on katta salmoqqa eggto a?
A .yallig'lashoots a jararecruitedasettings
B. mechanical effects
D. physiological effects
E. biological effects

275.Haon yvon ifad onast atahk ma’lumot ataball at the rniashdaa nima veterinarian toariya yordiami kerais kav the next nli tug'uruqaqt va xarakteri hayvonning kuyuk, stand by, night kuyikishning va jadall is hafew yvonnia manetworka va qachon highlights atantirilgathe nli, forgive, letan kasalasettings asrav sha parv, abrowsing atash sharoitlasettings aniqlanadi. Check how this method?
A . Anacheck mnez
B. Clinical check
D. general check
E. internal check

276.Clinical examinationafew type r to be checked?
A .3
B. 2
D. 4
E. 1

277.Artificial seededanew ntirishan sperma few ball should be?
.8 A
B. 6
D. 7
E. 9

278.Artificial seededantirish ice atalanguage takeafew seed at least most of the n ball geta eggwith a ker beak?
.4 A

B. 6
D. 5
E. 3

279.The basis of the cavity of the pelvis due to the loss of connective tissue and the walls tonusi?
A .to get the penis out of the vagina comes through the cracks
B. the process of production becomes more difficult and urine tezaklash
D. mucous membranes of the vagina and the wound is deep
E. review kuchanib appear strong

280.The vagina is that it is out of the sleeve.....?
A .Dorzal is reflected from the side walls of the vagina in the sexual crack.
B. the vagina, uterus, and bladder neck to be out of the sexual crack
D. the sexual crack of the neck of the uterus be out of
The sexual crack of the neck of the vagina and uterus to be out of the e.

281.It is to be fully out of the vagina.....?
A .Be out of the sexual crack of the neck of the uterus and the vagina
B. the vagina, uterus, and bladder neck to be out of the sexual crack
D. the sexual crack of the neck of the uterus be out of
E. is reflected from the side walls of the vagina dorzal the sexual crack.

282.The mucous membranes of the walls of the vagina ..... tumors appear?
A .The slowing of blood circulation due to
Due to constantly be impressed with urine and droppings B.
D. review is due to be frequently repeated kuchanib
E. deep vagina mucous membranes of the injuries, due to inflammation of the abdominal curtains and uremiya

283.Bo'g'oz remain the lies of animals (Osteomalyasiya, Osteomalatio, Paraplegia gravidarum).....?
A .In animals, calcium-phosphorus metabolism and bone caused by violation of the impact of vitamins remain (dekalsinasiya) and their fragility is characterized by swelling
B. the fragility of the bone caused by a disorder of the metabolism of vitamins in animals is characterized by swelling
D. bug'in swelling of Foot, feet, and displacement of the lower jaw bone quymich of animals, characterized remain have had to stand up or lay
The animal oriqlaydi E. strong, muscles tissue that are characterized atrofiyaga

284.Abortion (the abortion) when you say –?
A .The effects of disruption from an earlier time bo'g'ozlik

B. the body, microorganisms, viruses, or however the effects of the outpouring zamburug
D. the fetus or the effects of the direct effects of its members pharmacists spesifik disease risk factors
E. diseases or complications of improper storage and feeding native animals of them

285.Kuchanib to'lg'oq ahead of time and the normal birth of animals from which the aspects is the difference?
A .All the answers are correct
B. check the results of Internal
D. fertilization journal data to the account
Birth sign of the absence of E.

286.Born to cows that keep the time and stay a few weeks previously from when kuchanib to'lg'oq can be recorded?
A .3-4 weeks
B. 1-5 weeks
D. 1-3 weeks
E. 2-5 weeks

287.From the time the symptoms that may keep to'lg'oq kuchanib and previously?
A .Disturbance, sometimes the body temperature to be raised up with the heartbeat and the breathing appears to be the number of
B. Disturbance, appears to be up with the number of heartbeat and breathing
D. Disturbance, sometimes the descent of the body temperature, heartbeat and breathing appears to be up with the number of
E. Disturbance, sometimes the body temperature to be raised up the number of the heartbeat and the breathing quickly appears with sweat

288.And the cow and the time from the previously kuchanib be keeping in to'lg'oq biya how long can you last?
A .Biya 2 hours from 12 hours up to 2-3 days in the cow pm
B. biya in 16 hours from 1 hour up to 2-4 days in the cow pm
Up to 14 hours D. 5 hours from biya, the cow pm in 1-2 days
E. biya in 5 hours up to 14 hours, 1-4 days in the cow pm

289.Yuqorigi positioned lengthwise in the fetus position and obstetrics instruments cow, which, when positioned with the side of the head and back, it gives a good effect?
A .Obstetrics ekstraktorlari
B. feed the rope and Obstetrics, Obstetrics and ilmoq qisgichlari
D. Bekker and Kyu ayri of Obstetrics ayri of st. vitus qis
E. mwf respective Lingorst and rope (the strip)

290.Fetotomiya tools for .....?
A .Uzuksimon knife, hidden blade, Obstetrics qachovi, Pflyans fetotomi
B. Uzuksimon knife, hidden blade, Gear qisqichlar, Pflyans fetotomi
D. Uzuksimon knife, hidden blade, Pflyans fetotomi
E. Uzuksimon knife, hidden blade, Obstetrics and ilmoq qisgichlari, Pflyans fetotomi

291.New breeding animals to a bucket of warm water (35-37°C) 100-150 500-600 g g salt and sugar is given to how and at what time?
A .40-60 minutes after you drink. This ensures the reduction of the excretion of the uterus and a good partner
B. 40-60 minutes after the drink. This ensures the excretion of a good partner
D. 40-60 minutes after the drink. This provides a reduction of the uterus
E. 30-60 minutes then drink it. This ensures the reduction of the excretion of the uterus and a good partner

292.Obstetrics thickness and length of rope, how much?
A .the thickness of 0.5-0.7 cm and length of 1.5-3 m
B. thickness 0,6-0,9 cm in length and 1.5-4 m
D. the thickness of 0.4-0.8 cm in length and 1.5-3 m
E. thickness 0.4-0.7 cm and length of 1.5-3 m

293.The birth of tools which help in making pigs will give the best results?
A .St. vitus qis
B. feed the rope and Obstetrics, Obstetrics and ilmoq qisgichlari
D. Bekker and Kyu ayri of Obstetrics ayri of
E. mwf respective Lingorst and rope (the strip)

294.Fetotomiya it?
A .Get the grate dead fetus
B. the birth of the animal to help make the dead fetus
Using hand tools to get out of the dead fetus and D.
E. dead dead fetus, or the birth of the fetus to the animal to help you get the grate

295.What is the drawback of obstetrics and saws?
A .Quickly o'tmaslashib remain
B. cut in his only uzin
D. Obstetrics qushimcha the need in the use of power saws
E. all answers are correct

296.How to sterilize all the tools used help to show obstetrics animal?
A .1%-liz lee added 2% to at least 30 minutes in soda solution qaynaynatiladi li
B. 3%-added liz lee 2%-li soda boil in the solution for at least 20 minutes
D. using the soap with hot water, washed thoroughly
E. 3%-added carbon li-2% of li in the solution for at least 20 minutes boil soda

297.The fetus is used to send push tools?
A .Ayri of obstetrics, ayri of Kayzer, and kyu ayri of the Bekker
St. vitus B. qis, obstetrics ayri
Ayri of Kayzer D., Bekker and ayrilariva Kyu Qisgichlar
E. all answers are correct

298.Properly placed in the uterus of a fetus?
A .Previous to the leg and pelvis without putting the head with the side of the side of the head to lay to lay with
B. before the feet without putting the head in the transverse position of the back and lay with the side of the head
D. the previous head and lay with the side of the head with the back without putting the feet in standing
There is no correct answer E.

299.At the time of the birth of the mother animal which are related to pathological reasons?
A .to'lg'oq and kuchaniq weak or strong, of the way to the birth of etar at a level not open, the narrow pelvis of the ministry and others
B. to'lg'oq kuchaniq and strong, the way to the birth of etar at a level not open, the narrow pelvis of the ministry and others
To'lg'oq kuchaniq and D. weak or strong, of the way to the birth of ethe tar level in the opening of the ministry of the pelvis narrow, animal and others of obesity
E. to'lg'oq and kuchaniq weak or strong, of the way to the birth of etar at a level not open, the ministry of the pelvis narrow, animal tuyimli oziqlantirilmaganligi with nutrients and others

300.The primary to'lg'oq kuchaniq and weak?
A .At the start of the birth process and weak to'lg'oq kuchaniq
B. normal birth in the process at the start of the birth process and weak to'lg'oq kuchaniq
D. darmonsizlanishi arising caused by animals
E. weak Muscles and a decrease prolonged pause between them as a result of the departure of boxes

301.To'lg'oq kuchaniq secondary and weak?
A .darmonsizlanishi arising caused by the animal
B. weak Muscles and a decrease prolonged pause between them as a result of the departure of boxes
D. at the start of the birth process and weak to'lg'oq kuchaniq
There is no correct answer E.

302.The primary causes weak and to'lg'oq kuchaniqni to come out?

A .low quality nutritious feed and in the period with the nutrients you will bo'g'ozlik etar a move is not going to be excessively lengthened the wall of the uterus of a fetus be very large and twin pregnancy, accumulation of fluid in the abdominal cavity and the abdominal wall grijasi, and left her hanging, and others
Low quality will feed you with the nutrients and nutrient bo'g'ozlik in the period
B. etar a move is not going to be excessively lengthened the wall of the uterus, the uterus and the foetus in the wrong location of the members of twin pregnancy, the accumulation of fluid in the abdominal cavity and the abdominal wall grijasi, and left her hanging, and others
D. the wrong location of the members of the fetus in the uterus, the fetus is not compatible with the size of the width of the pelvis to each other, the birth of the way to be narrow
Low quality will feed you with the nutrients and nutrient E. in the period bo'g'ozlik etar a move is not going to be excessively lengthened the wall of the uterus, the uterus of the members of the fetus in the wrong location, a weak decrease of the muscles and the pause between them and others is going to be prolonged boxes

303.Secondary causes weak and to'lg'oq kuchaniqni to come out?
A .the wrong location of the members of the fetus in the uterus, the fetus is not compatible with the size of the width of the pelvis to each other, the birth of the way to be narrow
Low quality will feed you with the nutrients and nutrient bo'g'ozlik in the period
B. etar a move is not going to be excessively lengthened the wall of the uterus, the uterus and the foetus in the wrong location of the members of twin pregnancy, the accumulation of fluid in the abdominal cavity and the abdominal wall grijasi, and left her hanging, and others
Low quality will feed you with the nutrients and nutrient D. in the period bo'g'ozlik etar a move is not going to be excessively lengthened the wall of the uterus of a fetus be very large and twin pregnancy, accumulation of fluid in the abdominal cavity and the abdominal wall grijasi, and left her hanging, and others
Low quality will feed you with the nutrients and nutrient E. in the period bo'g'ozlik etar a move is not going to be excessively lengthened the wall of the uterus, the uterus of the members of the fetus in the wrong location, a weak decrease of the muscles and the pause between them and others is going to be prolonged boxes

304.Tetanik a reduction of the uterus is that?
A .The loss of the uterus and the pause between boxes and absolutely tulg'oq review kuchanib a continuous decrease over the long term
D. review the pause between the boxes and absolutely tulg'oq kuchanib as a result of loss of muscles darmonsizlanishi
E. review and boxes tulg'oq kuchanib be a long time in the pause between the uterus and a continuous decrease over the long term

Tulg'oq and the strong reduction of the uterus and the pause between the loss review kuchanib absolutely boxes

305.Tulg'oq kuchaniq occurs in many animals and in which strong?
A .biya in
In b. cow
Pigs in D.
E. all answers are correct

306.Tulg'oq kuchaniqlarning strong and what is the reason?
A .The size of the fetus is born with a width of ways-either not come on
B. review and the loss of the uterus and the pause between boxes tulg'oq kuchanib absolutely a continuous decrease over the long term
D. excessively lengthened going to be of the wall of the uterus
E. the increase of fluid in the fetus disease curtain

307.The service is this?
A .Yalig'lanishi of the cervix
B. inflammation of the vagina
D. inflammation of the lip sexual
E. other inflammation of vagina

308.At the time of the birth of the mother animal which are related to pathological reasons?
A .to'lg'oq kuchanib weak or strong, and the birth of the way enough to not open in the narrow pelvis of the ministry and others
B. weak or strong and to'lg'oq kuchanib birth, opening the way to a sufficient level, the ministry will consist of narrow pelvis and others
D. weak or strong and to'lg'oq kuchanib birth, not enough of the way to open the narrow pelvis of the ministry of the fetus and others will consist of location wrong
E. to'lg'oq kuchanib and normal birth, not enough of the way to open the narrow pelvis of the ministry will consist of, and others

309.The length and thickness of ilmoq should be how much?
A .45-50;5
B. 40-50 cm; 6
D. 50-60 cm; 4
E. 45-50 cm; 4 mm

310.Bend your legs and write the rest of what is fetal cattle to send?
A .always the fetus is pushing back
B. enter the uterus from the plaques will hold bruised foot slave
D. sirtmoq to joints shall be bruised foot kaft
E. on all

311.Posed to the members of the fetus positioned wrong when this is possible, which method is used?
A .fetotamiya
B. different method of pull rope
D. method klyuka
There is no correct answer E.

312.First patalogiya which usually occurs in animals?
A .cow, provisional president, goat
B. pigs, animals gushtxur
D. cows, pigs, biya
E. sheep, animals gushtxur

313.The fetus will be reinforced by being in the wrong how?
A .transverse and vertical
B. gorizantal
D. transverse and gorizantal
E. transverse, and vertical gorizantal

314.To'g'rijoylashgan the fetus in the uterus, the fetus of normal sized tulliq opened the way to the birth of utis for its large-small is not enough ..... is called?
A .the ministry of the pelvis narrow
B. the vagina of the tyre
D. ministry of the lip narrow sexual
E. members of the fetus in particular its wrong place

315.For reasons which appear to narrow the ministry of the pelvis?
A .be the usib and breakage due to malformations of the pelvic bone
B. feeding animal feed, mul
D. the fetus to be excessively large
E. yo'qori on all

316.Initially check with the head turned the way the fetus if they can determine how internal yonboshga remain?
A . paypaslanib the previous two legs, two short and one of the legs is determined that this is from the second
B. know the rest of the neck and under the chest of the fetus turned paypaslab
D. previous paypaslanib two legs, it is determined that two of the legs is equal to
E. previous paypaslanib two legs, this is equal to two of the legs under the chest and neck of the fetus is determined and turned paypaslab know the rest

317.The members of the fetus into the uterus of an animal the wrong place clean with soapy water, sesame oil or vaseline on the way to the birth, and is sent to a water solution, what is the reason that lanolein rides?
A .for the good of the fetus sirg'anib

B. to edit the members located to facilitate wrong
D. members of the opening for good sex
E. secondary infections to avoid falling

318.The part of the breast and of the fetus out of the birth of the palace while on the way to the back part of how either if it gets clogged‘ should I keep?
A .previous hold of one of the legs of the fetus, you need to pull qiyalatib by turn
B. eye is on the way out and using it to the birth of ilmog'i out
D. from the foot of the fetus from the beginning and turn-by-turn pulled will get out of it
E. the right foot to the left, the left leg-right you need to pull

319.Jag into the lower of the fetus in cases sirtmoq what is solid?
A .eye of the fetal pelvis pulled to the side of his head holding the cup of the hand when the power does not
B. getting the twists of the fetus cervix
D. the condition of the fetus to the bottom of tug'rilash
With the snow to the side of the fetus positioned transverse to the previous e. tug'rilash

320.With the snow to the side of the fetus occurs in many animals and in which the location of the previous transverse?
A .ko'ndalangiga the fetus lies, gets access to the way to the birth of his four legs. often biya
B. the fetus ko'ndalangiga lay gets into the back of his legs the way they were born to. often biya
D. depending on the way back to the birth of the mother without and the animal is transverse to gavin. often in the cow
E. the legs before looking up his head and stands. often in the cow

321.In cases fetotomiya what method should I use?
A .The head of the fetus and the cervix of the uterus is positioned on the inside or the back of his head to look sirtmoq bog'lag'ichiga stabbed in the absence of the possibility of tapering ilmoq
B. the beginning of the fetus and the uterus located at the bottom of qayga catch it back because it won't touch
D. the fetus around its own axis by 180° to 90° by when you have the opportunity to correct by turning
E. when positioned transverse to the side of the fetus with the snow earlier if possible tug'rilashni

322.Previous placed to the side of the fetus in transverse horses with the snow?
A .of the uterus is observed in the rest of the driving
B. bend of the uterus and left when

D. the king in the uterus before the beginning and one of the legs, the back legs of the second king, the king of the uterus is bent back
E. yo'qori on all

323.In what cases around the body of the fetus from the current integrated held saws, does it get cut?
A .when the bend of the uterus and left
The driving of the uterus is observed in the rest of B.
D. the king in the uterus before the beginning and one of the legs, the back legs of the second king, the king of the uterus is bent back
E. yo'qori on all

324.One tug'adigan animals are born a twin in the two cases bo'g'oz how the fetus at the time?
.1 A-2 from a few hours to the south
Many a night and day B.
D. 4-5 hours from a few kingach
There is no correct answer E.

325.Animals in the two cases one twin tug'adigan bo'g'oz the mother at the birth of the fetus in animal uzgarib how does this monitor review?
A .strong and appear again kuchanib to'lg'oq
B. after the birth of the first one will be neglected compared to him
Members of sex does not open tulliq
D. on all yo'qori

326.It is located near the outside of the back than the front part of the fetus?
A .yo'qori on all
B. the part of the fetus to term by pushing the back of the previous part is trying to pull out
D. the fetus from the uterus before it is exhausted to the outside of the legs and head
E. cut the abdominal wall, and its members is excreted within, or integrated with current integrated current arralangan saws fetotom of the spine, and the fetus will get pulled out into separate pieces

327.With the snow to the side of the fetus in transverse previous in sheep and goats is a way to keep the fetus is correct?
A .yo'qori on all
B. if possible, the hand can be inserted into the uterus before the fetus ascending from the back foot, pushing the side of the cavity of the uterus preceding the legs.
D. sirtmoq feet rope and the rope shall be pulled from from the back of the fetus, and the fetus is taken out of.

E. previous part of the fetus into the cavity of the uterus and enter when you have the opportunity of pushing his legs are cut off the rear portion is pulled out from previous

328.How cases remain out of the uterus ko‘ occurs??
A .after childbirth occurs and appears in two different form
B. occurs after the form appears in three different tug'uruq
D. occurs and before the form appears in two different animal tug'uruq zo'riqqanda
E. after sex

329.Incomplete and out of the uterus?
A .yo'qori on all
B. troubled animals, often kuchanib, is reduced to the muscles of the abdominal press
D. down the back of the animal, the tail is up, kuchanib at the time to keep little while secreted in the urine and droppings
E. holsizlanish is observed in some animals, appetite and return loss kavsh

330.How incomplete is determined to be out of the uterus?
A .internal check is determined with the method. With this hand and rolls out the part of the uterus is found paypaslab
B. is determined through external inspections. Thus, partial stands out of the uterus
D. is determined through external inspections. Thus, the sexual crack of the uterus, hang down from the unit until the jump
E. yo'qori on all

331.The full output of the uterus is determined by how much?
A .is determined through external inspections. Thus, the sexual crack of the uterus falls from the unit until the jump hang
B. is determined with the method of internal check. With this hand and rolls out the part of the uterus is found paypaslab
B. is determined through external inspections. Thus, partial stands out of the uterus
D. is determined through external inspections. Thus, the sexual crack of the uterus falls from the unit until the jump hang
E. yo'qori on all

332.Out of the uterus be incomplete biya, how was your night?
A . colic appear
Hechqanday biya does not follow the characters in B.
D. the flow of liquid is formed on the lips of the tumor biya's sex
E. holsizlanish is observed, return loss and appetite kavsh

333.Kapil is observed in animals in which leakage of blood out of the uterus?
A .biya in
B. in pigs

D. sheep, goat
In e. cow

334.In the uterus the uterus in which animals out of many of the intestine and mucous membranes will be in view of the length of a cross-folds are there can you see that?
A .pigs
B. biya
D. sheep, goat
In e. cow

335.Oksitosin inekiya out is why in the uterus?
A .ineksiyadan then 5 minutes later, the uterus is reduced to 30% of it is correct and who is qattiqlashadi light
B. ineksiyadan then 10-15 minutes later, the uterus is reduced to 50% of it is correct and who is qattiqlashadi light
D. secondary infection and mikroorganizmlargaqarshi
E. yo'qori on all

336.Paralysis of half the postpartum (postpartum gipokalsiemiya) is characterized by what?
A . yo'qori on all
B. if it is accompanied with acute disease, the muscles half of the stroke, the throat, the tongue, paralysis of the intestine
B. the amount of calcium in the blood decrease dramatically at the expense of the condition of coma
D. mainly third-fifth the incidence of high yielding cows born within a week after birth
E. cow disease is recorded when the birth of stay for 1-2 days

337.To come out of the paralysis of half the postpartum causes?
A .excess energy, and oqsilli kalsiyli feeding, the milk produced in the period from very-energy feeding, the failure of vitamin d in the body, its excess rasionida be kalsiyni
B. excess energy produced during milk feeding period and very oqsilli kalsiyli-energy feeding, the failure of vitamin d in the body, his failure rasional kalsiyni
D. excess energy, and oqsilli kalsiyli feeding, feeding with nutrients from milk produced during the period of low energy, the failure of vitamin d in the body, its excess rasionida be kalsiyni
E. excess energy, and oqsilli kalsiyli feeding, during the period of lactation extremely-energy feeding, the failure of vitamin d in the body, its excess kalsiyni be rasionida

338.Half the postpartum stroke disease ..... death were observed due to accidentally?

A .falajlanishi of the respiratory center
B. aspirasion bronxopnevmoniya
D. out of the vagina muscles, necrosis, endometrit
Extreme E. of the respiratory center qo'zqalishi

339.Disease in the postpartum paralysis of half the number of pulse, breathing, and body temperature changes is how?
.1 130 times A minute, the tone is heard bug'iq, accelerated breathing at first and, later, siyraklashib and superficial Body temperature of 35°c. the decrease
130 b. 1 times in minutes, bug'iq the tone is heard, siyraklashib breath at first, and later, up and superficial Body temperature of 35°c. the decrease
D. 130 times in 1 minute, the tone is heard bug'iq, breathing will not be hechqanday uzgarish, the body temperature of 35°c. the decrease
E. 130 times in 1 minute, the tone is heard bug'iq, accelerated breathing at first and, later, siyraklashib and superficial body temperature to 38°c rises

340.The diagnosis and treatment of postpartum paralysis of half of the simplest methods?
A .Evers and hardware to send or orexovlarning the air with belyaev
Bekker, b. evers and kyu is to send the air or with the hardware of the s
Kayzer D. Bekker or with the hardware of the s and kyu is to send the air
E. all answers are correct

341.Half the postpartum stroke disease ..... ?
A . third-fifth the incidence of high yielding cows born within a week after birth
B. third-fifth the incidence of high yielding cows within two weeks after birth, born in
D. the incidence of high yielding cows and more beshi tug'within a week after birth
E. the net no answer

342.Postpartum paralysis of half the begi disease?
A . the skin, muscles and tendons, eyes qorachiq oil, and loss of sensitivity qindan anal hole
B. skin, muscles and tendons, eyes qorachiq oil anal hole and qindan the loss of sensitivity, many be separated urine
D. larynx paralysis or paralysis of half of the act of swallowing by the loss, the severity of sulak leakage of the mouth, the tongue hanging out. Before and intensify the movement of the intestine Oshqonzon
E. all answers are correct

343.Disease in the postpartum paralysis of half the number of pulse, breathing, and body temperature changes is how?
A . pulse 130 times in 1 minute, the tone is heard bug'iq, accelerated breathing at first and, later, siyraklashib and superficial. The body temperature of 35°c. the decrease

B. pulse 110 times in 1 minute, the tone is heard bug'iq, accelerated breathing at first and, later, siyraklashib and superficial. The body temperature of 35°c. the decrease
D. pulse 130 times in 1 minute, the tone is heard bug'iq, breathing siyraklashib and superficial. The body temperature of 35°c. the decrease
E. pulse 130 times in 1 minute, bug'iq the tone is heard, at first is superficial and breathing is accelerated. The body temperature of 35°c. the decrease

344.Postpartum paralysis of half the night atypical of the disease, when the number of pulse, breathing, and body temperature changes is how?
A . norms can be on the boundary of
B. pulse 130 times in 1 minute, the tone is heard bug'iq, accelerated breathing at first and, later, siyraklashib and superficial. The body temperature of 35°c. the decrease
D. pulse 130 times in 1 minute, the tone is heard bug'iq, breathing siyraklashib and superficial. The body temperature of 35°c. the decrease
E. pulse 130 times in 1 minute, bug'iq the tone is heard, at first is superficial and breathing is accelerated. The body temperature of 35°c. the decrease

The method which we recommended in swallowing part 345 of the act when it appears through the mouth.....?
A .200-300 g of sodium sulfate or magnesium salt, is mixed with water and 10-15 l 10-15 ml were drinking 2-3 g ixtiol chemerisa nastoykasi
B. 200-300 g of sodium sulfate or magnesium salt is mixed with water and 10-20 g l 2-5 10-15 ml were drinking ixtiol chemerisa nastoykasi
D. 200-300 g sodium or magnesium sulphate, the salt is mixed with water and were drinking 2-3 10-15 20-30 ml l g ixtiol chemerisa nastoykasi
E. 400-500 g of sodium sulfate or magnesium salt, is mixed with water and 10-15 l 10-15 ml were drinking 2-3 g ixtiol chemerisa nastoykasi

346.In what order the cow frequently, but less than the amount recommended to yield?
A . kalsiyni that we take from the blood, reduce its uv content
B. reduce the uv content of the drug substance from the blood that we take
D. the drug substance is not produced from the years of blood mastetni
E. all answers are correct

347.Sugar produced from the milk of cows fed in full in the period of rasional valuable protein, the ratio of the amount of fiber in dry matter should establish how?
A . sugar-protein ratio of 0.8:1.2 to around the amount of dry matter fiber rasiondagi 15-20% of
B. the ratio of protein to sugar 1,0:2,0 around, the amount of dry matter fiber rasiondagi 25-30% of

D. sugar protein ratio of 0.8:2,2 around, the amount of fiber in dry matter rasiondagi 25-40%
E. sugar to protein ratio 1.8:3,2 around, the amount of dry matter fiber rasiondagi 20-25% of

348.The animal does not recover, yelin will be sent again to the air again after a few hours?
A .8 hours
B. 6 hours
D. 1 hour
E. 10 hours

349.The treatment of the disease is mainly in the blood ....., the concentration in their blood is drawn from the computer's me'yorlashtirish?
A . failure to lose calcium and magnesium
B. lowering the amount of calcium and magnesium
D. all answers are correct
E. lose calcium and magnesium

350.What with the way into the body for parenteral calcium, vitamin d and magnesium salts of the drug will be sent?
A . failure to lose calcium and magnesium
B. lowering the amount of calcium and magnesium
D. all answers are correct
E. lose calcium and magnesium

351.The milk sample was taken on the day when you checked in?
A .Checked in the day the sample was taken. The next day, when stored in cold temperatures checked.
B. sample was taken on the day checked in here
Two days later after the receipt of milk samples from D.
E. all answers are correct

352.What is the color of milk according to the type of mastitis?
A .Color milk pink, red, beige, gray
B. milk color, pink, red, beige, ko'kimtir
D. milk color, pink, red, beige, blue
E. milk color pink, red, beige, pink

353.How konsistensiyasi of mastitis in milk?
A .Suvsimon, whey, whey-purulent
B. Suvsimon, whey-severe purulent
Suvsimon D., whey, hard
E. all answers are correct

354.Bromtimol ko'ki 65%-li spirtda few % -li solution is used?
A .0,2%
B. 0,3%
D. 0.5%
E. Is Not Working

355.Basically a few of the tests is determined by the type of mastitis?
A .9 units
B. 6
D. 7
E. a and c answer

356.Mastitis tests in which the correct answer is shown in leykositlar?
A .From the bottom of the narrowing of this experience is held in special probirka. Probirka to 2 thousand sentrifuga circulation and is filled with milk belgisigacha 10/minute for 5 minutes at a speed of it is put. Udder quarter milk from healthy little deposition derived from 1 character is infected with mastitis in the udder quarter milk derived from deposition of 1belgisi and higher. The grease prepared from the precipitate, grams are painted on and under the microscope is seen. Mastitis microorganisms in the composition of the precipitate in a lot of leykositlar, pus, and other tayoqcha
Check with mastidinlar dimastin and b. in this case, the positive results obtained in the check udder quarter milk is used. Probirka to 10 ml of milk from the cow yields and yield at the end of fermentation or to put it xolodilnik for 16-18 hours in a cool place. On the second day, forgive sight samples and the result will be known. In the evaluation of the precipitate-there are lack of milk and the amount of qaymog character, and you need to pay attention to the color of the milk
D. check the milk from the plate for the conduct of tests with Dimastin drunk or (MKP-1, MKP-2) are used. MKP-1 plastinkasining yarimoysimon 4 units of combs, at the bottom of them black-and-white color will be halqasimon of combs. The size of these combs was muljallab 1 and 2.5 ml for milk. The bottom of combs white-qorani buyalganligi arlashmasini facilitates the detection ivimalar in milk and blood. MKP-1 from mkp-2, which is the difference in the form of cylindrical and has a volume of 1 ml of the combs, the combs between the excess strap from tukish to send 1 ml of milk are available. Tukish removes excess milk to the instrument with qiyshaytirib 60-650
Does not show the correct answer is E.

357.Mastitis is mainly determined by multiple methods?
.8 A
B. 6
D. 5
E. all answers are correct

358.Tests that may of gasoline. These tests are used to determine what is in milk?

A .Milk pigment
B. Yelin quarter milk is used in the check
D. 2%-solution to prepare drunk li
E. a and b answer on

359.Be stopped due to the growth of microorganisms in milk with the measurement of the diameter of the ring, which is formed lizosim titr, will determine where the diameter is smaller than a few mm cease to grow - this is infected with mastitis cow's milk?
A .14 mm
B. 16 mm
D. 18 mm
E. 12 mm

360.2%-tests is prepared with a solution of li drunk...?
A .100 ml of 10% solution of 400 ml li distilled or boiled, cooled water were mixed was
B. 100 ml, sulfanol - 30 g, tripolifosfat - 5, bromtimol ko'ki - 0,02 g, roz acid 1%-li 0.5 ml of the solution to check the milk yield and milk taken from or folding at the end of
D. 65%-li spirtda of the 0.2%-li solution is used. Bulak from 2-5 drops of each to a honeycomb plate udder milk yield, and to him were mixed reactive 2-5 drops
E. these tests are used to detect the presence of blood pigment in the milk. Probirka to 5 ml of 3% hydrogen condense the saturated solution and 2 ml of frozen vinegar li perekis benzidinning kislotasida

361.Check with mastidinlar dimastin tindirish of tests and in this case, the positive results obtained in the check udder quarter milk is used. Probirka to 10 ml of milk from the cow yields and yield at the end of fermentation for a few hours or put it in a cool place to xolodilnik?
A .16-18 hours
B. 18-20 hours
D. 15-18 hours
E. 16-17 hours

362.Remain to hold the fetus and mate (Retentio plactntae) that.....?
A . the fetus in the uterus of the term had saved more of the veil
B. the term of the fetus preserved in toug'ish curtain q'olishiga more
The term of the eggs of d. saved to more in the way of the fetus curtain
Qindan many more will be saved from the period of the fetus e. curtain

363.Hold of the fetus occurs in many animals mate and which remain?
A . kavshovchi cows and animals
B. kavshovchi qo'ylarda and animals
Biya and animals in kavshovchi D.

Biya and animals in e. go'shtxo'r

364.How about cow in the fetus after birth of the fetus, the satellite will fall at the normal time?
A .6-8 hours
B. after 2 hours
D. after 5 hours
3 hours after an e.

365.Satellite of the fetus dog, cat and rabbit will fall at the normal time about how in the fetus after birth?
Hours after A .3
B. after 2 hours
D. after 5 hours
E. after 6-8 hours

366.Few satellite of the fetus remain the same?
A . full and partial noto'liq
B. full and partial
Noto'liq and partial D.
E. full and half

367.The integral satellite of affairs at the time of ..... the reason for this?
A . all the answers are correct
B. qisqarmasligi enough in the uterus (pregnant cows in twin), excessive accumulation of fluids between the curtains of the fetus, the fetus is too large to be due to the reason of the uterus is going to be lengthened
D. weak and mate after her divorce kuchanib to'lg'oq also will
remain. Oziqlantirmaslik enough animals to remain after the breakup of the satellite,
E. be very animals to obesity, caused by his atoniyasi masionning might not be enough, the animal caused by the inflammatory process in the uterus during the period of which appear bo'g'ozlik also be observed

368.Satellite noto'liq of the fetus to be saved?
A . if he gets hold of the king in one of the satellite uterus
B. the dangling part of their joints even stand on the ground sometimes fall far jump satellite
D. all of the satellite is standing in the way of the veil sexual chorus of the uterus in both the king is adjacent karunkulalarga
E. all answers are correct

369.Troubled animals, often giving excellent kuchanib is often as a result of the review kuchanib out of the uterus. Of the veil of the fetus does not distinguish for 12-24 hours, usually the body temperature rises, the liquid is flowing from the way

qo'lansa dark brown sexual smell. The death of the animal, which animal will be observed and septisemiya kich is in these signs?
A .biya in
In b. cow
D. in sheep and goats
In the cow, and E. biya

370.The conservative method is focused on what are they?
A . muscles of the uterus, is aimed at preventing the development of microorganisms and increase tonusini
B. muscles of the uterus and is aimed at preventing the development of microorganisms to decrease tonusini
D. hanging the standing part, the external members of the sex of the animal with a disinfectant solution for 2-3 times every day to wash the tail
Among microorganisms of the uterus through the vagina to fish oil or vaseline against E. (150-200 ml) mixed without antibiotics, treatment and other means to give the desired amount sulfanilamidlar

371.Miotonik effects?
A . muscles of the uterus, reduction of the floor
B. abdominal muscles call tulg'oqni
D. the opening to the neck of the uterus provide
E. increase the contraction of the vagina

372.Later in the calf of the left and right part of the heart and functional leads to ensure the independence of morphological how the time is going?
A .15-20 days
B. 10-15 days
D. 20-25 days
E. a few minutes

373.His thick left ventricular wall thickness, right ventricular ratio of new-born animals?
.1 A:1 or 2:3
B. 1:2 or 2:4
D. 1:1 or 2:4
E. 1:2 or 2:3

374.Asfiksiya of new-born animals?
A . the new born child the mother is understood to be overwhelmed or out of breath interrupted when the animal from the snow
B. the mother or the new born child when the animal is understood to be overwhelmed of breath interrupted the snow
D. the mother of the new born child maternity or interrupted breathing animal is understood to be overwhelmed in a way

There is no correct answer E.

375.Asfiksiya diseases of new-born animals causes them to appear?
A . all the answers are correct
B. long continues, and the click of the satellite being to'lg'oq stand being back frequently remain
D. a violation of the metabolism of gas
E. click on the edge of the bottom wall of the pelvis and the previous space in a violation of blood circulation in the chamber

376.Pigs are the children of the symptoms of the disease?
A . all the answers are correct
B. xirillab, uneven breathing stands, short-short and is coughing up slimy remains accumulate in the oral cavity
B. swelling of the rest of the language is a little ko'kimtir stands out from the mouth. Heart stagnant and often throws
D. pale mucous membranes, often the first hole back chiqaruv droppings (mekong a) is contaminated. Sometimes the blood come out from kindigi
E. the level of the heart does not feel the symptoms of does not say in the living sezilarsiz no heartbeat, suspicious of the effects of the disease often develops aspiratsion bronxopnevmoniya

377.In severe cases the symptoms of the disease to the children of the pigs?
A . the level of the heart in the heartbeat of the living sezilarsiz does not say no symptoms does not feel suspicious of the effects of the disease often develops aspiratsion bronxopnevmoniya
B. xirillab, uneven breathing stands, short-short and is coughing up slimy remains accumulate in the oral cavity
D. swelling of the rest of the language is a little ko'kimtir stands out from the mouth. Heart stagnant and often throws
E. pale mucous membranes, often the first hole back chiqaruv droppings (mekong a) is contaminated. Sometimes the blood come out from kindigi

378.Toksikoz uv - .....?
A .the night of the new born animals which sharp disease, characterized by diarrhea and general toksikoz
New born B. sharp of the night animals, the disease, which is characterized by general toksikoz
D. new born animals of the sharp night which disease is characterized by diarrhea
There is no correct answer E.

379.Toksikoz in uv fermentopatiya to track what is the reason?
A . by digestion of the enzyme system of toxins zaiflantirilishi
B. digestion by the enzyme system of uvuzdagi mekrorganizmlar zaiflantirilishi
D. digestion by the enzyme system of uvuzdagi dorimoddalar zaiflantirilishi

There is no correct answer E.

380.Antinatal gipotrofiya it?
A . from the physiological aspects of young animals born without to'laqimmatli to be very small or excessively large, the weight of such animals, the member is completely underdeveloped aspects of systems and morfofunksional
New born B. sharp night animals which disease is characterized by diarrhea and general toksikoz. New born calf and the other less often at the level of the animals belonging to the type in the initial days of the life of the incidence of
D. the new born child the mother is understood to be overwhelmed or out of breath interrupted when the animal from the snow
E. all answers are correct

381.Antinatal gipotrofiya causes?
A . mother feeding animals oziqlantirmaslik bo'g'oz excess or not enough, and storage is tiqing gipodinamiya
B. long continues, and the click of the satellite being to'lg'oq stand being back frequently remain
D. a violation of the metabolism of gas
E. click on the edge of the bottom wall of the pelvis and the previous space in a violation of blood circulation in the chamber

382.The first new-born animals droppings often occurs in many animals, which remain after divorce?
A . the first droppings (mekong a) often stop in the toy mold, can cause toxicity and even death
B. the first droppings (mekong a) often bo'zoqlarda stop mold, can cause toxicity and even death
D. the first droppings (a mekong) in children often stop dog mold, can cause intoxication and even death
E. the first droppings (mekong a) often stop in the lamb mold, can cause toxicity and even death

383.The new born animals to remain first after the divorce droppings signs?
A . this is the start of disturbance, swelling of the abdomen, kuchanib often tezaklash poses to accept the way, look to the abdomen, legs and back that had hit the snow with sweating, general holsizlanish
B. is the start of disturbance, swelling of the abdomen, kuchanib to look to the abdomen, and back legs to kick the ground with sweating, general holsizlanish
D. is the start of disturbance, swelling of the abdomen, to lay a lot of often, the way to accept tezaklash poses, look to the abdomen, legs and back that had hit the snow with sweating, general holsizlanish
E. the disturbance is the start of the abdomen, swelling of kuchanib often tezaklash poses to accept the way to the abdomen, to look, the rising of body temperature and sweating, general holsizlanish

384.Cause and treatment of blood flow to the groin?
A .all the answers are correct
New born B. occurs in animals of all types. Pulsasiyalanmasdan weak in venous blood flow blood flow, arterial blood flow with a strong flow and while in stand pulsasiyalanib will squirt out. the lower end of the umbilical cord to two centimeters from the left margins on all sides, put in sterile ligatura
D. the effects of the disease can be bad in a lot of bleeding, umbilical cord, or put back up to the tip of the second ligatura. If the umbilical cord was cut off too short to'g'nag'ich held one or two to the navel, over the need to weld in packaging with silk thread.
Track asfiksiya e. if new-born animals, and if it is necessary to shaving artificial respiration immediately. When mother poured the blood from the animal is bleeding a lot to the veins or blood vessels 0,9%-500 ml sodium chloride from the solution will be sent to li

385.Of the umbilical cord infection (omphalitis) in this?
A . the animal life of the new born child during the first days of microorganisms from the external environment around the remaining part of the descent of the umbilical cord and soft connective tissue in the development of the umbilical cord vessels can also be tizmachasining
B. new animals in the first days of life of children born around the umbilical cord from the external environment, and only the remaining part of the outpouring of soft connective tissue in the development of microorganisms can be
D. new animals born of the children of the umbilical cord in the first days of life remaining part of the outpouring of microorganisms from the external environment around the navel and just in vascular development can be tizmachasining
There is no correct answer E.

386.The rear surface of what is called yelin?
A .Milk in mirror
B. devoir Milk
D. there is no correct answer
Milk pool B.

387.Active influence in the development of the glandular tissue in the period bo'g'ozlik nimaning do you start?
A .Yellow effects in the body
B. elections of the way of the development of active Milk
D. show the effect of corticosteroids after another me
Secondary sexual characters of E.

388.The growth and development of the mammary gland in the body and plays an important role in what?
A .nervous system

B. blood system
D. changes in internal body to the night
E. thyroid gland

389.How to milk glands of various animals differ from each other?
A .Number, form, and large-small, depending on the
B. large-small, depending on the
D. number, to the shape of large-and small affairs, depending on the topography
E. check the method in milk bezini osmotr

390 years.Serpusht (pig, dog, rabbit and other) nechanchi performs the work of the milk glands in animals?
A .10 – 16
B. 8 – 15
D. 10 -12
E. 10 -14

391.The walls of the cavity basin with what is covered?
A .The two-storey cylindrical epiteliy
B. two-storey epiteliy
D. two or more silindirsimon epiteliy
E. two-tier mining epiteliy

392.Females sex with animals the blood vessels expanding a bit of an adult, the milk of the way somewhat grow, and how changes will appear in the udder again?
A .The development of alveola
B. cells grow Epiteliy
D. other changes will not be
E. remain clearly separated from the surrounding tissue

393.Bo'g'oz are any changes in animals with animal be?
A .Yelin size increases quickly, all of his development to a greater degree than will reach.
B. no, it will not be o'garish
D. Yelin size increases rapidly, and the animal reached a level of his development will change from large garmanal
E. alveola of the hole is very small

394.Bo'g'ozlik increases the size of the effects of ovarian hormones at the time of the mammary gland what does it do?
A .Estrogen and progesterone
B. Estrogen
D. Progesterone
In combination with E.

395.Methods the clinical yelin how to check?
A .Sick animals fiksasiya machine, then the body temperature, heartbeat and breathing in the number of 1 minute, 2 minutes, a reduction in the larger of the abdomen is determined.
B. sick animals fiksasiya machine is the large abdomen of 2 minutes a reduction in the number of heartbeat and breathing are determined.
D. sick animals fiksasiya machine is the number of heartbeat and breathing, body temperature and breathing, the number is determined.
There is no correct answer E.

396.In this case the check of mastitis in cows, basically, is pay attention to what?
A .The physiological condition, especially born out of milk and close to the rest of the period should be taken into account.
B. close to physiological status and birth in the rest of the period should be taken into account.
D. the physiological condition, physiological changes and the birth of remaining close to davirda should be taken into account.
E. Organezimning tiroksin production tracking

397.Along with also the general condition of the cow in obstetrics to determine why dispanserlash given the importance of the mammary gland?
A .During this period show clinical signs of mastitis is weak.
B. during this period will not show clinical signs of mastitis.
D. show clinical signs of mastitis is strong during this period.
Does not show the correct answer is E.

398.Eli was born in g'unojinlarning mastitis and milk to the analysis of the performance check when and how much?
A .Two months.
B. three months.
D. two weeks.
E. a month

399.Clinical mastitis mastitis is mainly to fight against who appeared in accordance with the recommendation which is conducted at the time of check in?
A . Every day at the time of milking.
B. at each feeding.
In d. every two days one time.
E. once every 24 hours.

400.How much time should be spent in hidden mastitis in.?
A . Once per month.
B. two times a week.
D. each week.
Iran missed on

401.Pay attention to what is before taking milk samples for laboratory check in?
A . Wash with warm water and wipe with a clean towel of cow's yelin is. Yelin teat then 70%-li spirtda is rubbed with gauze soaked in septoplasty. Milk yield is after being washed hands thoroughly.
Wash with warm water and wipe with a clean towel of cow's b. yelin is. Yelin is thoroughly washed and then wipe with soap farm yaxshgilab teat. Milk yield is after being washed hands thoroughly.
Wash with warm water and wipe with a clean towel of cow's d. yelin is. Milk yield is after being washed hands thoroughly.
Wash with warm water and wipe with a clean towel of yelin e. the cow is. Milk yield is then

402.How to suspected mastitis samples taken and stored without?
A .The samples were obtained with sterile bottles and stopper probirka closed, and I placed tightly to yashik are wrapped in cotton and wooden. The material is made of cotton for that go to the upper side of yashik and rolls and is put shimilmasligi showing.
B. closed with a stopper and samples taken probirka sterile bottles and cotton and wood are wrapped in tightly to yashik I placed
D. closed with a stopper and samples taken probirka sterile bottles and cotton and wood are wrapped in tightly and giving in to how I placed yashik writing will be sent.
E. all answers are correct

403.Milk samples according to yuboirilayotgan labaratoriya to be given to any comments?
A .How many bottles of milk which milk samples sent to the laboratory to take the case and how the case of packaging, clinical diagnosis of the disease and pass the letter to show what the purpose of the material is made up of many of yuborilayotgan track, and a copy of it is sent to the laboratory.
B. analysis on biochemical indicators of blood serum from a cow is held in the veterinary laboratory animals infected with mastitis and growing upon concluding from this information are used.
D. the correct answer is both.
Does not show the correct answer is E.

404.Several stages of the sexual cycle in females at animals?
At a stage .3
B. in stage 2
D. phase 4
B. in stage 5

405.Biya in the average of a sexual cycle takes a few days?
A .20-21 days

B. 28-31 days
D. 30-40 days
E. 50-60 days

406.The animal in the form of feeding in which the infertile will improve in the treatment of addiction?
A .alimentar
B. symptomatic
D. congenital
E. ekspluatasion

407.Bo'g'oz mucous membranes of the uterus of sheep is up on a few pieces at karunkulalar?
A .88-up to 110
B. 130-140 up
D. 150-184 up
E. 200-210 up

408.Sexual Anovulyator what is a cycle?
A .ovulyasiya is not
B. to be flowing
Mating is not D.
E. the general reaction might not be

409.Other animals which both porous ostidayaxshi two advanced vagina of mucous membranes located in the body?
A .biya and mother pigs
B. sheep and goats
D. cow and sheep
E. biya and camel

410.Related to what is observed in ovulation in camel?
A .as a result of sexual intercourse
B. reflector in
D. hormones ta'sitida
E. the result of the conditional refleks

411.Leaks in hormone which influence sexual will take the place of the batter?
A .estrogen
Progesterone is B.
D. relyaksin
E. oksitosin

412.Name the hormone which is produced by the yellow body?
A .progesterone

B. combination
D. sinestrol
E. oksitosin

413.Sheep, goats and what is the type of fertilization in bug'ular?
A .through the vagina
B. the uterus through
D. the way of eggs
The neck of the uterus E.

414.What is the type of fertilization in pigs and biya?
A .the uterus in the type of
B. eggs way
The neck of the uterus D.
E. through the vagina

415.The founder of the method of artificial insemination of animals?
A .I.Ivanov
B. K. I. Milovanov
D. F. Rumors May Be Able To
E. V. Smirnov

416.Be the first who created a method of the depth of freezing sperm?
A .I. V. Smirnov
K. B. I. Milovanov
Ivanov D. SH.I.
E. M. Mirzaev

417.The most basic method of artificial insemination and mo'rtakni kuchib purpose?
A .speed up work seleksya
B. prevention of diseases
D. increase serpushtlikni
E. increasing the number of animals

418.The temperature in the artificial vagina at the time of obtaining sperm from male animals should be?
A .40-42
B. 37-38
D. 39-40
E. 43-44

419.Taking common method of sperm?
A .using suniy vagina
B. elektroyeyakulyasiya

D. using a gondom
Massage method E.

420.Sperm fluid to move against the flow of what is the feature?
A .reotaksis
B. action ilgarilanma
D. against the flow
E. compatibility

421.Hormones which is produced by the ovaries?
A . estrogen and progesterone relaksin
B. progesterone, oksitosin
Eterogenlar D., follikulastimullovchi
E. oksitosin, prozerin

422.Females cycle after which the animals should monitor the phenomenon of sex urug'lantirilishi?
A .sexual batter
B. general reaction
D. leaks
Ovulyasiya E.

423.Sperm is added sodium sitrat suyultirgichlarga for what purpose?
A . environment (pH) to keep it the same
B. a source of energy
D. from cold storage
Increase the size of iran

424.Glucose is added to the sperm suyultirgichlarga what purpose?
A .energy source
B. increase the size
D. from cold storage
Save from heat, E.

425.Sperm in animals, which is qaymoqsimon konsistensiyasi?
A .in qo'chqorlar
B. in horses
D. dogs
E. chuchqalarda

426.Sperm concentration FEK-M using the detection principle based on what?
A .the solution to loyqaligi
B. the temperature of the solution to
D. the solution to the environment
The solution to the charge of E.

427.Sperm concentration FEK-M sodium detected in bull sperm using sitratning of 3.5%-li in any ratio with diluted solution?
A .1:100 ratio
B. 1:200 ratio
D. 1:400 ratio
E. 1:800 ratio

428.Pigs sperm concentration to determine the optical standard recommended male who has?
A .S. I. Serdyuk
Partushin B. V.
D. E. V. Rumyanseva
E. v. E. and v. Partushin Rumyanseva

429.Spermiylarning pathological sperm in the form of (a defect, a lot of) that exceed the limits allowed going to be the amount of what is called?
A .teratospermiya
B. oligospermiya
D. gipospermiya
E. oksispermiya

430.The method is called through the rectum in camel bo'g'ozlik how to check?
A .rectal check
B. save with hit bull
D. check vaginal
E. check for foreign

431.The reduction of their position in the uterus to come what did you say?
A .involyusiya
B. invaginasiya
D. subinvolyusiya
E. implantasiya

432.Ripped end of the uterus during childbirth large cutting bo'nchasining with what?
A .be out of the uterus
B. remain the yuldash ushlsnub
D. endometrit
E. complications parezi

433.The decrease of the abdominal wall at the time of birth is called what?
A .to kuchanib
B. zuriqish
D. tulg'oq

E. disturbance

434.Contraction of the uterus during birth activity, which is the drug that strengthen the cows?
A .Oksitosin
B. Sinestrol
D. Progesterone
E. Sintomisin

435.Epidural anesthesia is used for which the solution?
A .1%-li novocaine
B. 3%-li novocaine
D. 0.25%-li novocaine
Iran to 3.5%-li novocaine

436.How bo'g'ozlik is the period in dogs?
A .2 months
B. 3 months
D. 4 months
E. 1.5 months

437.Kesarev dissection method is recommended when abdominal wall and the uterus in the cow?
A .Tosninig fits with the size of the fetus when the size of the surface
B. in order to remove the rest of the fetus to die Bachdonda
D. the uterus inflamed in buyni
Iran tug'ayotgan cows for the first time

438.Kesarev in the abdomen and uterus in the cow method of dissection of the abdominal wall in the place I bet few animals cut?
A .2-floor 3
B. floor 4-5
D. 1 floor
E. kamiga floor 4

439.Method of dissection surgery abdominal wall and the uterus in the cow Kesarev few days later, the animals fed the diet is usually transferred to?
A .8-9 days
B. 1-2 days
D. 15-20 days
E. 1-1,5 months

440.How to remove operation is called bachdonda the rest of the fetus to die?
A .fetotomiya
B. method to cut in the abdominal wall kesarev

D. vazektomiya
E. ovariotomiya

441.The closed method is used in the cutting tool fetotomiyaning how?
A .under the skin of the fetus
B. on the skin of the fetus
D. under the veil of cervical mucous
E. the fetus in the abdominal cavity

442.Cut with the body of the fetus fetotomiyada the instrument to be introduced into the cavity between the wall of the uterus is called how?
A .open method
B. closed method
D. method qonsiz
E. cold method

443.Fetotomiya in the intestine of the fetus-how to remove chovoqlarini is called?
A .Eventerasiya
B. Pertubatsiya
D. Eksikatsiya
E. Keratinizatsiya

444.Inflammation of the mucous membrane of the uterus is called the inner what?
A .endometrit
E. perimeter czechoslovakia
D. miometrit
Vulvit E.

445.Inflammation of the middle floor of the muscles of the uterus is called what?
A .miometrit
B. the perimeter of lipid
D. endometrit
Vulvit E.

446.Serum inflammation of the uterus is called the outer floor of what ?
A .perimeterit
B. meterit
D. vak
E. endometirit

447.Animals from birth, then make tissue inflammation of the uterus or the vagina before that night with how wide the disease is called?
A .Lipid parameters from birth to the next
B. the perimeter of czechoslovakia from birth to the next
D. from birth to the next miometrit

From birth the next endometrit E.

448.Local microorganisms and their toxins in the blood as the complications of the inflammatory process of the general condition of the animal at that night with a very sick og'irlashib how the disease is called?
A .Septisemiya
B. Piemiya
D. Lipid Parameters
E. Endometrit

449.Mastitis in milk, which can be mixed biya blood type?
A .hemorrhagic
B. kataral
D. purulent
Yelin E. inflammation of the skin

450.Redness mastitis in animals in which tumors appear to be the local temperature rising, and with characters like pain was the night?
A .in all animals
B. Cow, biya in
In d. biya
E. only qo'ylarda

451.What is inflammation of the mammary gland in animals?
A .mastitis
B. vak
D. rhinitis
Arthritis E.

452.Which types can be mixed in the milk of the blood into inflammatory yelin?
A .hemorrhagic
B. purulent
D. kataral
Whey E.

453.Yelin in the form of sheep mastitis in which the massage is recommended?
A .whey
B. kataral-purulent
D. hemorrhagic (bloody)
E. kataral-a fibrin

454.Mastitis, which is banned in the form yelin o'qalash?
A .purulent
Whey B.
D. hemorrhagic (bloody)

E. kataral-whey

455.A warm compress is recommended in the treatment of mastitis in which form?
A .whey
B. purulent
D. hemorrhagic
E. kataral

456.Which type of mastitis in the treatment of 100-150 ml of 10% calcium chloride solution was added and caffeine in the veins is sent to 2-3 g li?
A .hemorrhagic (bloody)
Whey B.
D. yelin abssess
E. kataral-whey

457.In the acute form of mastitis the night with the rising of body temperature, which belong to the group of the drug should be used?
A .antibiotics and sulfanilamidlar
B. the temperature falls and laxative drugs which
D. the temperature dropped and heart which glikozidi
E. antigelmintiklar and sulfanilamidlar

458.The complications of mastitis in animals?
A .indurasiyasi yelin, yelin gangrenasi
Aktinamikozi B. yelin, purulent mastitis
D. yelin tuberculosis, mastitis whey
Indurasiyasi E. yelin, purulent mastitis

459.The rupture of the skin of the teat Yelin because of the lack of vitamin in the body, which is observed?
A .B2 vitamin
Vitamin B.
D. vitamin d3
E. c and vitamin k

460.The narrowing of the channel in the teat of the cow yelin jarohatlanganda its recommended it to remain what is it?
A .milk catheter set
B. qisgich
D. frequent milking
E. nothing

461.A member of what is called inflammation of the head part of sexual male animals?
A .bala

B. vezikulit
D. prostate
E. orxit

462.Andrologik despanserlashda studied what ?
A .erkaklik defects and diseases of sexual organs
B. defects and diseases of the sexual organs urg'ochilik
D. born to help make
E. animals be born

463.The volume of sperm a few ml in pigs is the average male in the norms?
.400 A-600
B. 410-800
D. 150-200
E. 50-100

464.Inflammation of the prostate gland in male animals is called what?
A .prostatitis
B. Salpingit
Fimoz D.
E. Orxit

465.Spermiyalarni testes growth and to reach what is called?
A .spermiogenez
B. ovogenez
Ontogenez D.
E. filogenez

466.Which of the infertile male animals, wouldn't that be cured?
A .congenital
B. Gained
D. alimentar
Symptomatic E.

467.Most liquid of sperm in which animals (sparse) will be?
A .pork
B. ayg'ir
D. bull
E. qo'chqor

468.The temperature of the testes of male animals from bag, body temperature, how low?
A .2-3
4-5 B.
D. 6-7

E. 8 - 9

469.Refleks cause of acute and chronic inflammation of muscles in male animals will upset how it works?
A .Quchoqlashib and friksion
B. Ereksiya
D. Approach
Ereksiya, and E. Eyakulyasiya

470.What is inflammation of the testes as a result of the break?
A .Spermatogenez
B. Prostate
D. Vezikulit
E. Funikulit

471.Inflammation of the testicles in male animals more than what is called?
A .Funikulit
B. Vezikulit
D. Orxit
E. Prostate

472.What causes the prostate gland to the change of sekreti?
A .Nekrospermiya
B. Aspermiya
D. Orxit
E. Salpingit

473.Aspermiyaning the initial stage of it?
A .Oligospermiya
B. Spermatogenez
D. Impotensiya
E. Ereksiya

474.The amount of a few percent in the structure of living sperm in bull sperm?
.80 A-95
B. 80-90
D. 75-85
E. 75-80

475.At the time of treatment of chronic inflammation of the testes is what is observed?
A .Atrophy of testes
B. Spermatogenez is broken
D. Aspermiya
E. Vezikulit appear

476.The exchange of substances in the animal body leaked Organizimda the lack of food to be stored as a result of a violation of any disease can come out of?
A .Vezikulit
B. Funikulit
D. Orchitis
E. Prostate

477.Chronic vezikulitlarda overhanging how does it occur?
A .Absess or fibrosis
Fimoz or fibrosis B.
D. Orxit
There is no correct answer E.

478.Preputsiya bag on the growth of muscle tissue as a result of a sexual member does not preputsiydan out. This condition is called by nu?
A .Fimoz
B. Orxit
D. Aspermiya
E. Fibrosis

479.Sometimes ..... - nerve disorders, nerve-muscles of the decrease is tonusi simptomi?
A .aspermiya
B. lipid post
D. bala
E. orxit

480.Koitus at the time of the sexual member if you enter what is called back out of preputsiydan?
A .Parafimoz
B. Fimoz
D. Absess
E. Lipid Post

481.Pufaksimon of the gland of the litter as a result, what happens?
A .Qo'lansa will be able to smell sperm
B. it will change the color of sperm
Come out and vibrioz diseases Balanapostit D.
E. formations can be formed Kistasimon

482.Caused by inflammation of the testes re-activity how much time they need to heal?
A .A few months
B. 20 days

D. 2 months
E. 15 days

483.Infantilism is observed in diseases of the endocrine system in animals and how Kriptorxid aspermiya?
A .Congenital
B. Gained
D. Alimentar
Symptomatic E.

484.When the thyroid gland is removed qo'chqorlar young male..... track?
A .Aspermiya
B. Salpingit
D. Eyakulyasiya
E. Impotensiya

485.Biya in bo'g'ozlik of 11-how much is the amount of fluid in the amnion?
A .10-around 20 l
Around 1-2 b. l
Around 4-6 l D.
Around 40-50 e. l

486.Bo'g'ozlik 2 in the cow-the amount of fluid in the amnion is how much?
A .150-450 ml
B. 100-120 ml
D. 500-650 ml
E. 800-850 ml

487.The cow at the end of the period in the amount of the curtain suyuqliq bo'g'ozlik allantois is how much?
.4 A-8 liter
B. 1-2 liters
D. ml 500-660
E. 700-880 ml

488.Number bo'g'ozlik up and come to the end of a few pieces in the cow plasentomalar how great is it?
A .average 80-100 far up and duck eggs at large
B. average 40-50 far up and duck eggs at large
D. 200-300 at large, and far up the average chicken eggs
E. average 100-120 far up and duck eggs at large

489.The fetus in the uterus of the cow with the part of the satellite part of the fetus is in any type of interaction?
A .desmoxorial

B. epitelioxorial
D. gemoxorial
E. axorial (without teat)

490.With the part of the fetus in the uterus of a fetus satellite biya part in any type of interaction?
A .epitelioxorial
B. desmoxorial
D. gemoxorial
E. axorial (without teat)

491.When the length of the fetus in the birth kindigi stay close to the cow, how?
A .30-40 cm
B. 10-20 cm
D. 80-85 cm
E. to 1 meter

492.Bo'g'ozlik with the fetus, which in many animals can be at night?
A .pork
Sheep B.
D. cow
E. biya

493.Bo'g'oz animals which appear in the uterus at karunkulalar?
A .cow, sheep, goat
B. the dog and cat, pig
D. camel, biya, pork
E. dog, rabbit, cat

494.Bo'g'ozlik term lasts an average of qo'ylarda few days?
A .150
B. 114
D. 285
305 E.

495.Thomas the children give in and qo'ylarda goat occurs in a few percent?
A .10-15 5-7
B. 2-3, and 4-6
22-25 and 20-30 D.
E. and 50-70 60-80

496.Bo'g'ozlik usually takes a few days in the cow?
A .285-305 days
B. 250-260 days
D. day 320-340

E. 170-190 days

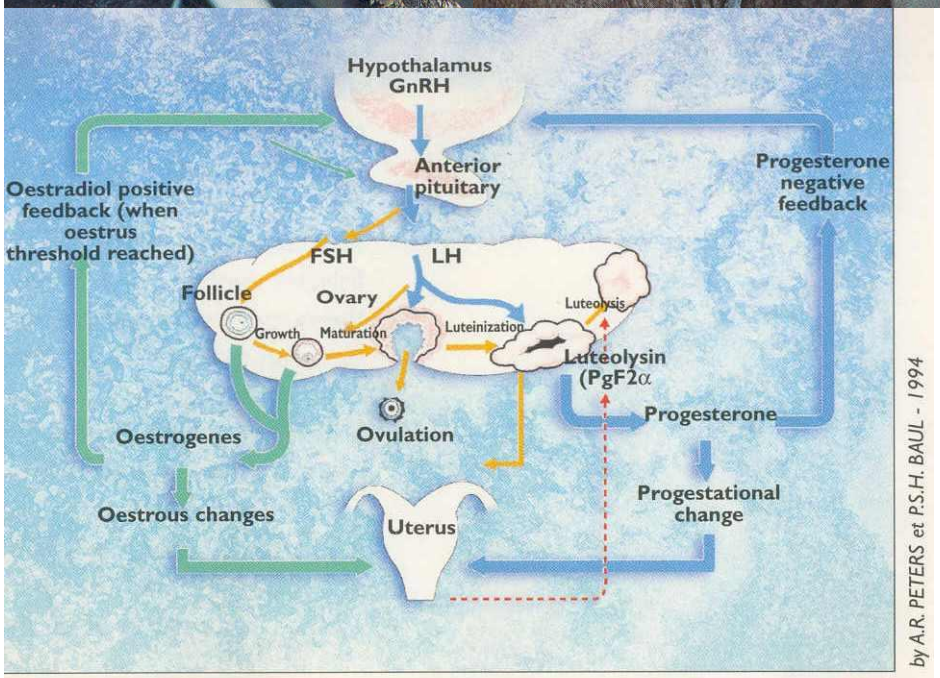
497.Murtak Trofoblast stage pass into the uterus will start with how fed?
A .mucous membranes of the uterus, producing a “uterine milk”
B. the blood vessels coming through nutritional substances
D. nutritional substances coming through the lymph vessels
E. cervical mucous membranes of sperm to stick to the rest

498.On the day of bo'g'ozlik bo'g'ozlik yellow cow, which is the maximum level of development in the body?
A .bo'g'ozlik's 90-day
B. bo'g'ozlik 60-day
D. bo'g'ozlik of the 120-day
On the 13th day of bo'g'ozlik E.

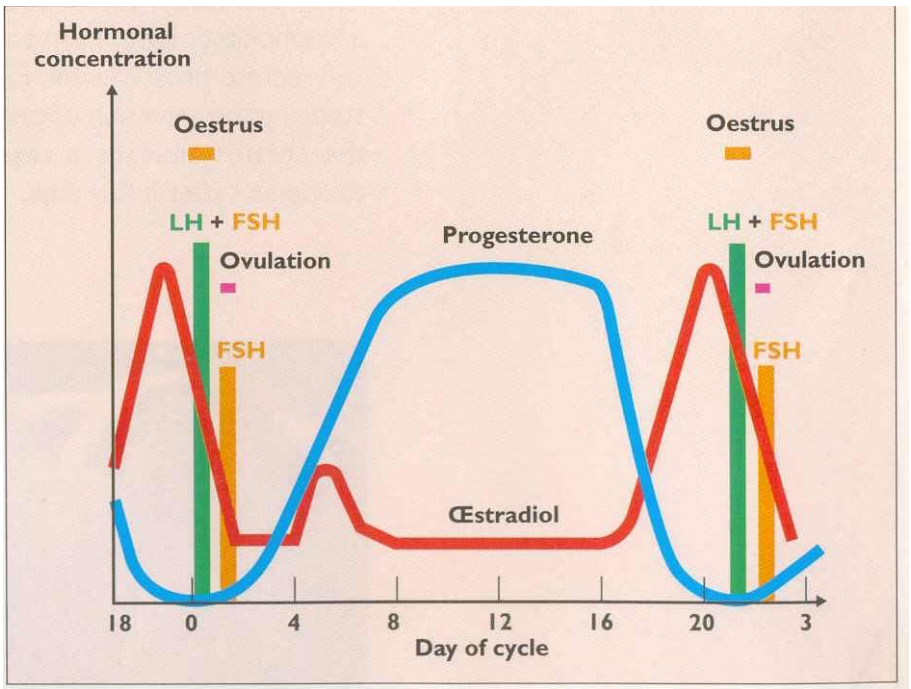
499.Which animal bo'g'oz hormone in the hypothalamic-growth follikul gipofizar through the system and pauses that?
A .progesterone
B. gonadotropin
Folikula stimullovchi D.
E. oksitosin

500.In the neck of the uterus in the cow bo'g'ozlik slimy liquid which can hang from tirqishga suyuqlashishi sex?
A .5-6
B. 3-4
D. 7-8
E. 8-9

DISTRIBUTION MATERIALS

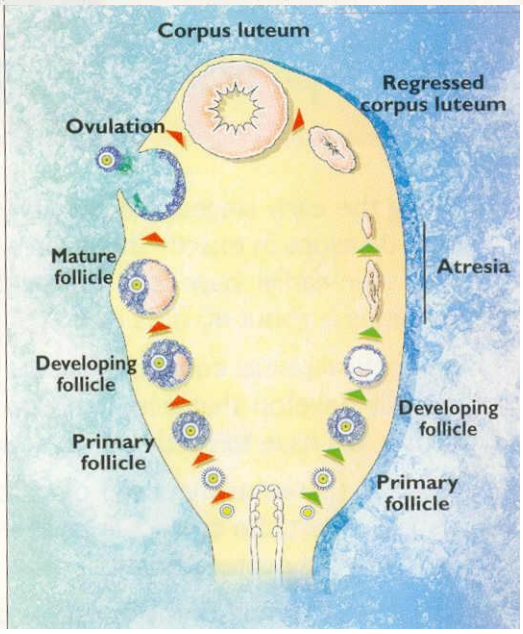


A summary of the hormonal control of the ovarian cycle. *(fig 6)*

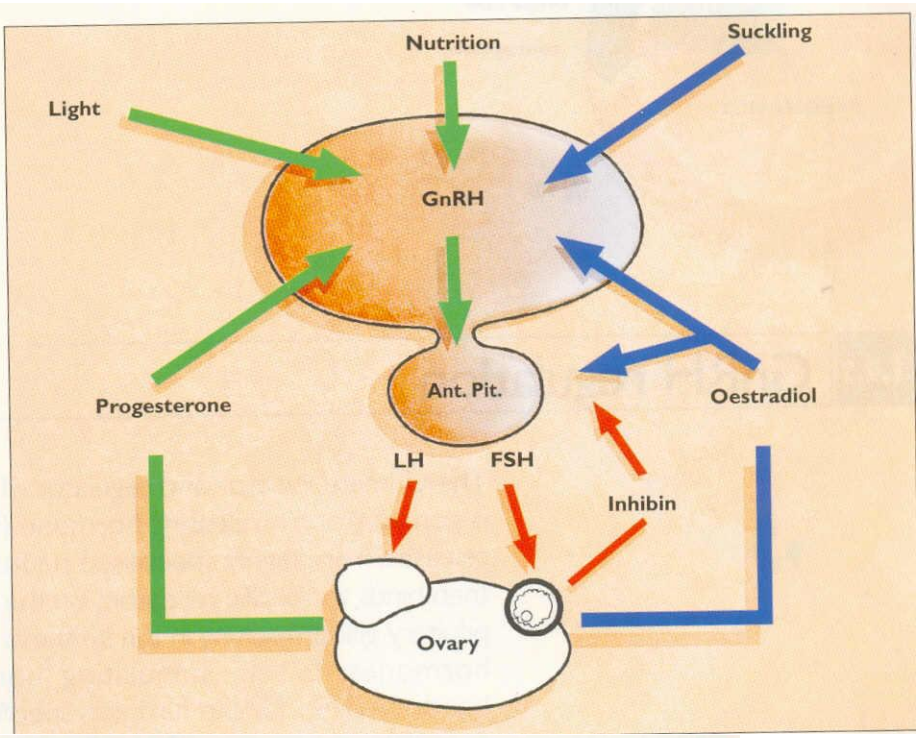


Changes in blood plasma hormone concentrations during the bovine oestrous cycle (schematic): — oestradiol, — progesterone. *(fig 7)*

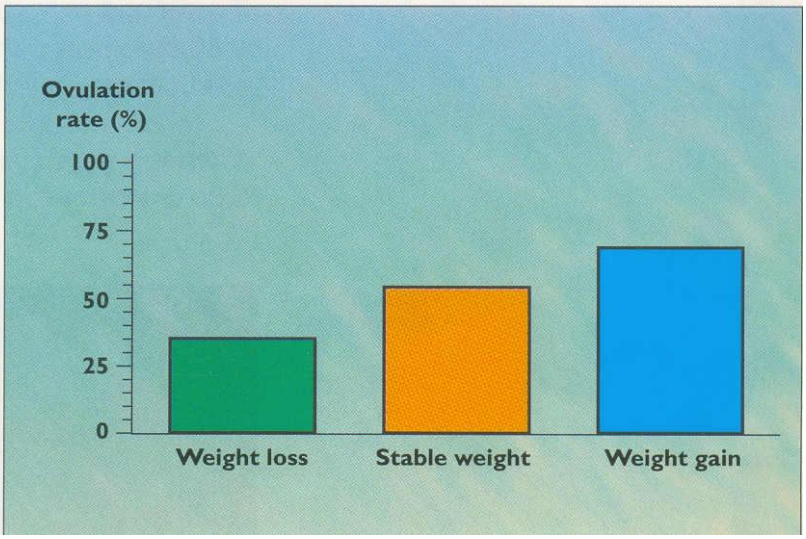
Diagrammatic representation showing the stages in ovarian follicular development, ovulation and luteal function. (AR PETERS and PJH BALL - 1987)



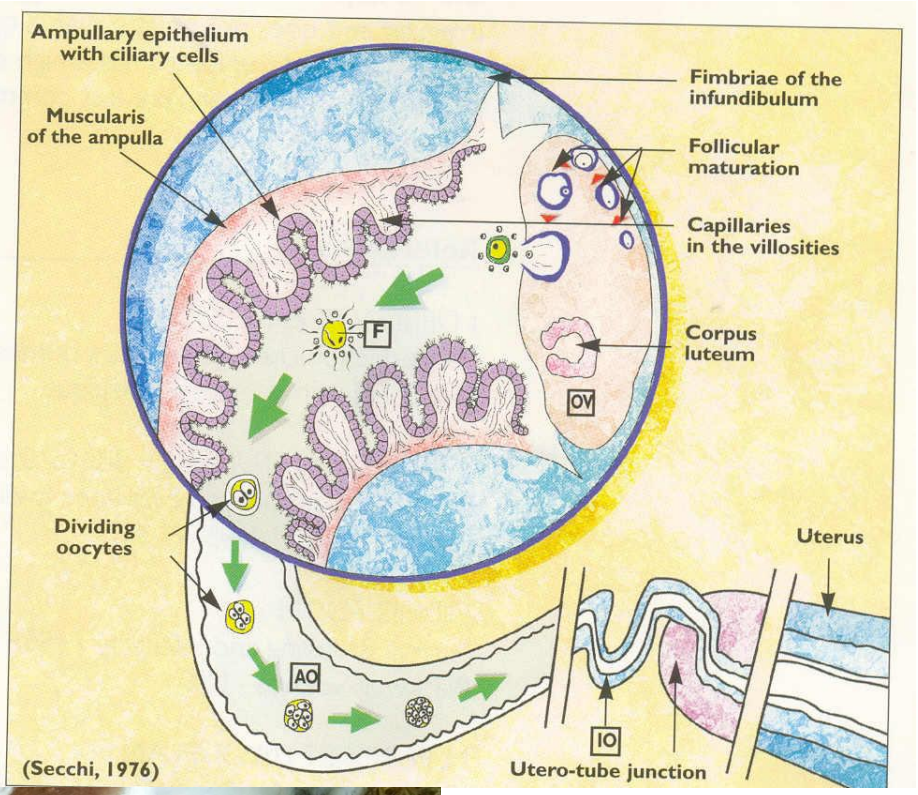
Regulation of GnRH secretion.

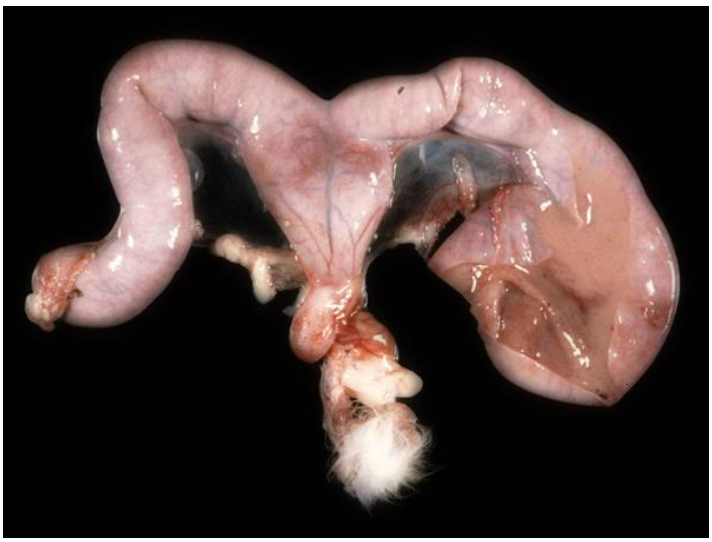


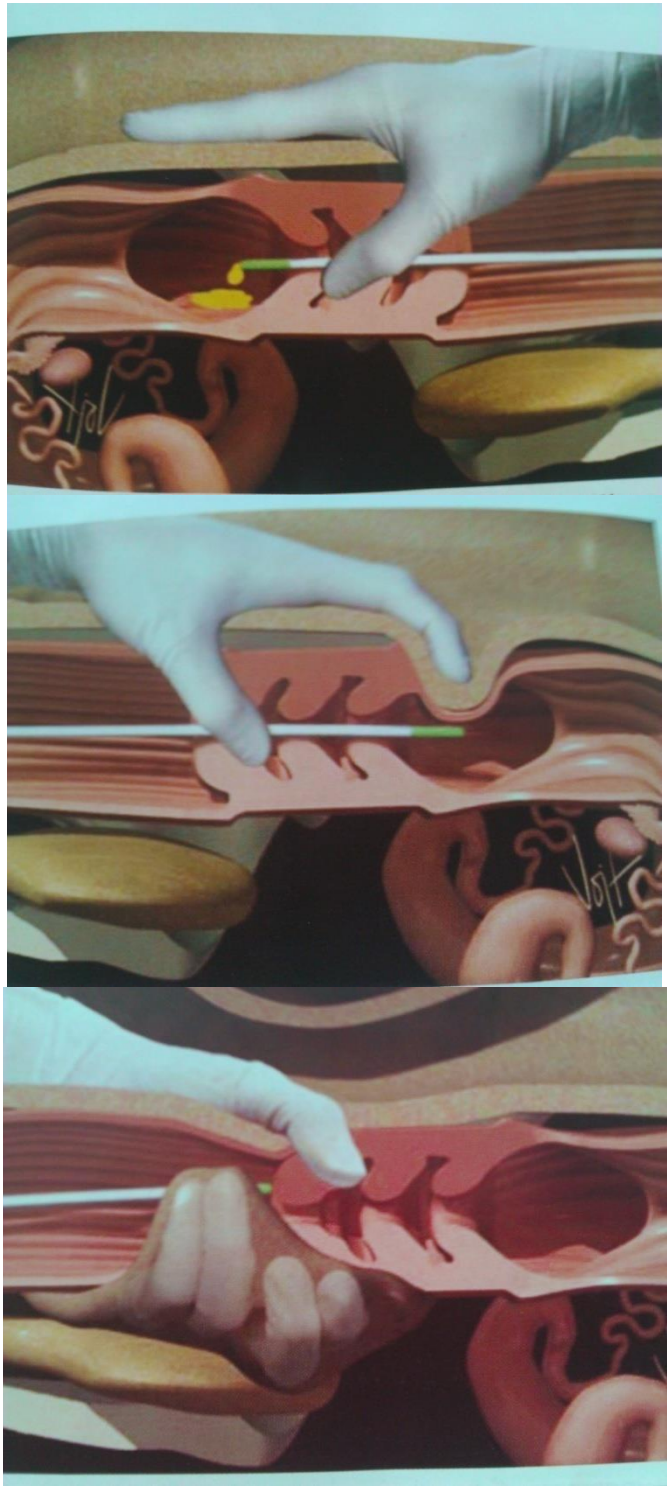
Ovulation rate/ weight variations. *Influence of live weight variations between calving and insertion of PRID on the ovulation rate of first-time calvers in anoestrus before treatment.*

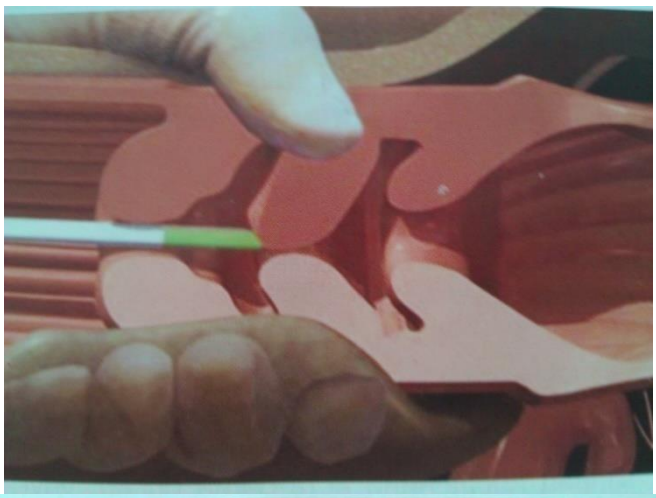


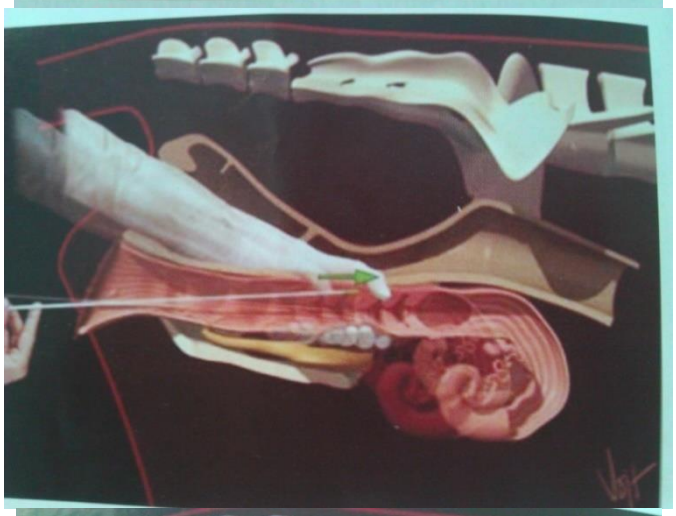
Fertilisation.
The oocyte ejected from the ovary (Ov) arrives via the infundibulum into the ampulla of the oviduct (AO). It is then surrounded by spermatozoa and fertilisation occurs (F). The egg quickly divides and migrates towards the isthmus of the oviduct (IO).

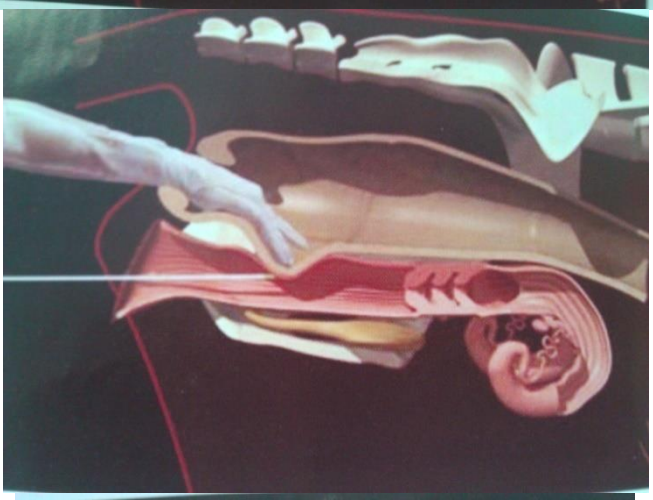


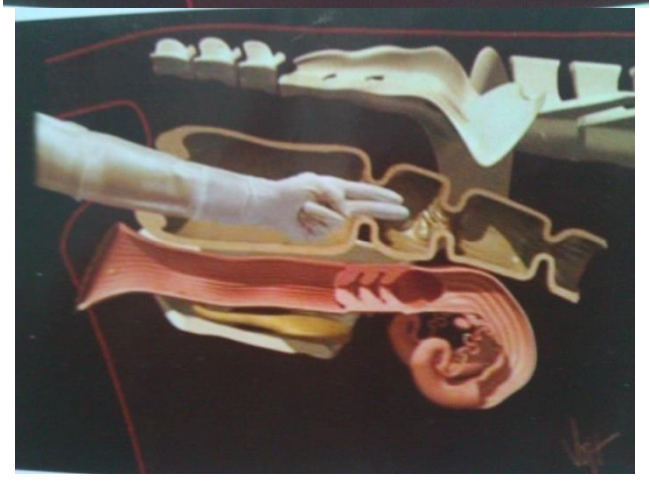


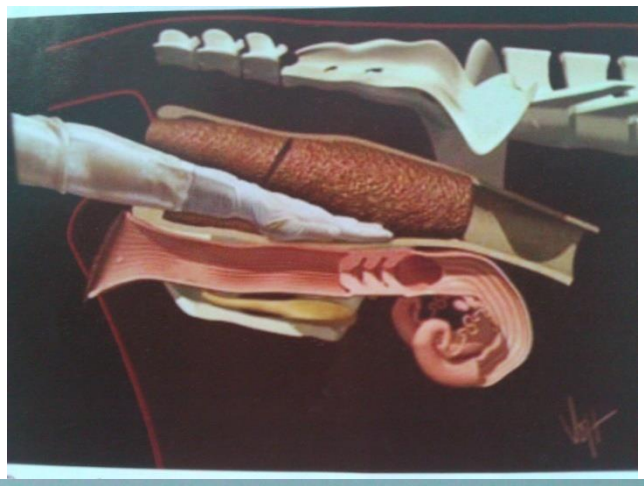


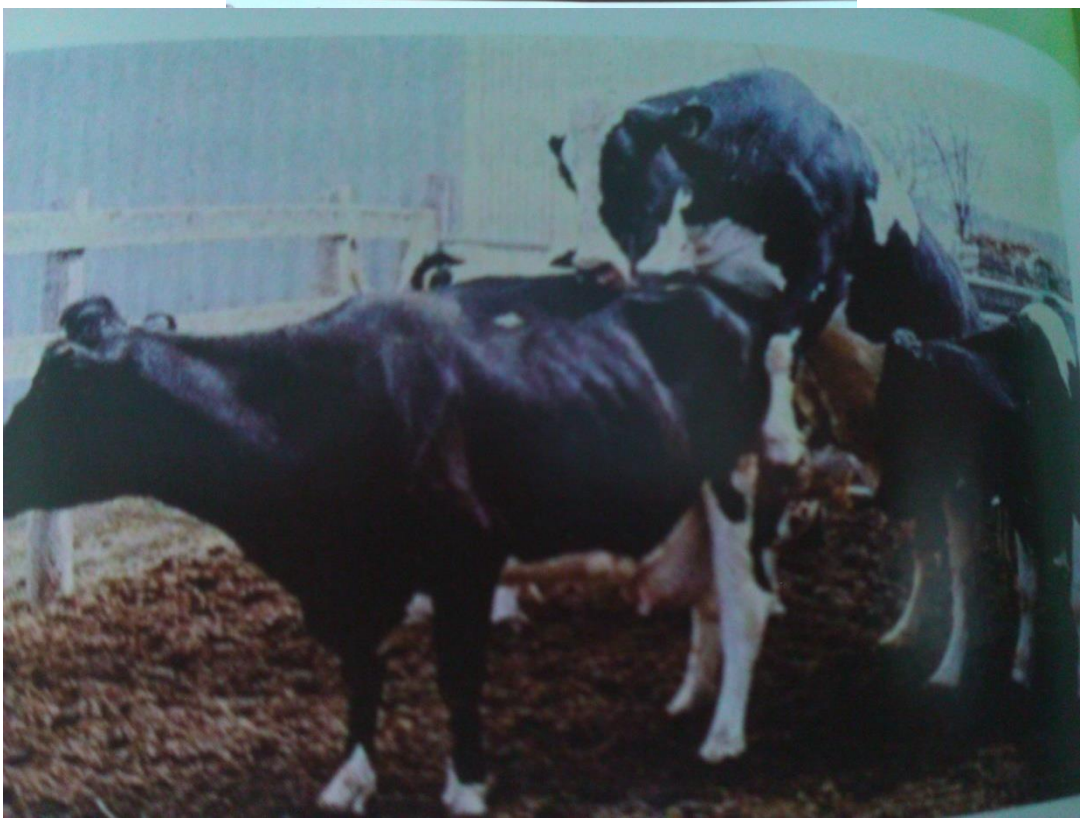












Бўғозликнинг олтинчи ойи

Е-расм. Бўғозликнинг олти ойлигида эмбрион Бигль итидай бўлади.

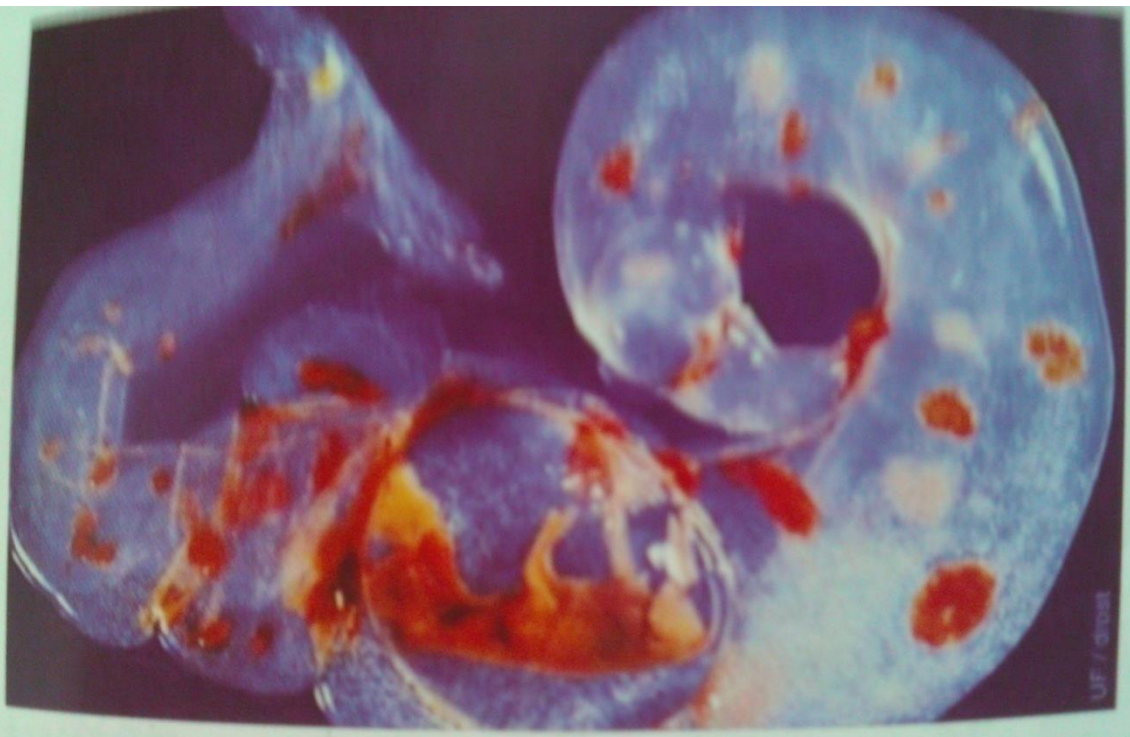
Бўғозликнинг бешинчи ойи

Д-расм. Бўғозликнинг беш ойлигида эмбрион катта мушукдай бўлади.

Бўғозликнинг учинчи ойи

В-расм. 2,5 ойлик қорамол эмбрионинг тасвири.

Эмб
16 см
билан
он ж
сига
катта
ораси
майд
турга
ва ка



Б-расм. Бўғозликнинг 55-кунидаги қорамол эмбриони.