Course: LARGE ANIMAL REPRODUCTION DISORDERS, OBSTETRICS
Semester: 7
Lectures: 15 hrs
Practical training: 30 hrs
Lecturer(s): Prof.dr hab. Edward Malinowski
Prof. dr hab. Zdzislaw Boryczko
Dr hab. Zdzislaw Gajewski, Prof. SGGW

Description:
A. Physiology of reproduction
2. Hormonal regulation of the estrous cycle - methods of estrus and ovulation detection.
4. Physiology of parturition and of the postpartum period.

B. Veterinary obstetrics
6. Physiology and pathology of parturition. Endocrine profile of the last days of pregnancy and parturition in domestic animals. Species differences that may change the type of therapy during this period. Overview of the progesterone block theory and adrenergic participation in the course of parturition. Effect of stimulation and blocking of alpha and beta-receptors of this system and clinical aspects of drug's action on the adrenergic system in clinical practice. Pharmacological actions to prevent preterm birth. The most frequent delivery obstacles from the mother, fetus, fetal membranes and umbilical cord. Pathophysiology and therapy of reproductive system’s damage during parturition. Principles of surgical and pharmacological treatment of these problems.
7. Pathology of the postpartum period. Changes in the endocrine profile during the post-natal period. Mechanism, process and abnormal involution of the uterus in the post-natal period. Observation of changes occurring in the ovaries in the course of post-natal period as one of the methods to assess endocrine changes. Methods of prevention and metaphylaxis used in domestic animals. Clinical evaluation of changes occurring during the post-natal period. Determination of mating period.
C. Gynecology
9. Fertility disorders in cows (abnormal reproductive function), uterus, ovaries and fallopian tube diseases
10. Rhythm and intensity disorders of the estrous cycle.
12. Infectious causes of infertility. Effect of nutrition on fertility of farm animals.

D. Mammary gland disorders in domestic animals

Practicals
A. Propedeutic and Physiology of Reproduction
1. Morphological assessment of the reproductive organs in the non-pregnant and pregnant female.
2. Techniques of clinical examination of the reproductive organs in farm animals, e.g. rectal palpation, vaginal examination.
5. Laboratory, e.g. biological, chemical, enzyme-immuno-assay, radio-immunological methods of pregnancy diagnosis.
6. Possibilities of ultrasound diagnostic in veterinary gynecology and obstetrics. Demonstration of ultrasound of the cow’s reproductive system and archival ultrasonography images.
7. Practical examination of reproductive organs in farm animals. Isolated reproductive organs.
8. Assessment of the uterine and ovarian status, pregnancy diagnosis (farm, slaughterhouse).
9. Practical courses in clinical examination of reproductive organs in farm animals. Complementary diagnostic techniques to assess the reproductive system, sample collection for bacteriological examination, uterus biopsy, hysteroscopy.

B. Veterinary Obstetrics

11. Progress of physiological parturition, i.e. delivery phases, the intra-uterine location of the fetus. General principles of labour assistance in farm animals. Obstetric maneuvers, retropulsion, extension, traction, rotation.

12. Indications for anesthesia in obstetrics. Types of anesthesia, anesthetic agents and their dosage. The practical implementation of selected types of anesthesia.

13. Indications for cesarean section in cattle and small ruminants. Overview of the different surgical techniques in these species.


15. Assistance in labor with irregular attitude of bovine fetal and assistance in labor with increased force i.e. dystocia in cattle and delivery obstacle from the mother. Exercises on phantoms.


18. Practical clinical study of the reproductive system in livestock and perform basic medical treatments: identifying estrous cycle phases, pregnancy diagnosis, catheterization, levage the uterine contents, intra-uterine infusions (at the farm and slaughterhouse).


C. Veterinary gynecology

20. Etiology, diagnosis and treatment of vaginal and uterine diseases in cows and small ruminants. Identification of developmental disorders of the vagina and uterus in these species.

21. Etiology, diagnosis and treatment of ovarian and oviduct diseases in cows and small ruminants.

22. Surgical treatment of perineal lacerations and rectovaginal fistula formation

23. Clinical examination and basic gynecological procedures performed on animals (on isolated reproductive organs).

24. Heritable disorders of development. Environmental impact assessment and the interaction between genotype and environment. Discussion of the most common developmental disorders and reproductive system function in female domestic animals.

25. Diagnosis and treatment of disorders in the livestock postpartum period.

26. Clinical examination and basic gynecological procedures performed in animals and on isolated reproductive organs.
27. Surveillance methods on herd reproduction - computer software used in clinical practice, analysis of fertility in herd based selected indicators, work organization of a veterinarian involved in herd reproduction.

D. **Mammary gland diseases and herd health program**


29. Clinical examination of the cow’s mammary gland, clinical diagnosis of mammary gland disorders in cows i.e. general and detailed examination of the mammary gland, clinical tests. Milking demonstration (practical courses in the cowshed and milking parlor - Farm Cowshed - Goździe)

30. Selected issues from the construction and function of mechanical milking machines. Mechanical milking and teat damage and mammary gland diseases.

31. Laboratory diagnosis of udder infections and inflammations (milk samples, their storage and transmission, engineering and identification of microbial cultures and determination of their sensitivity to antibiotics). Usefulness of diagnostic kits in clinical practice. Laboratory diagnosis of udder inflammation (passive indicators of inflammation including the method of determining the number of somatic cells, the pH of milk, serum albumin, lactose, chloride, electric conductivity, activity of N-acetyl-beta-D-glukosaminidase).

32. Selected udder surgery in cattle and small ruminants - the technique of surgical procedures on the udder, udder amputation, surgical treatments of teats.

33. Methods and techniques for the treatment of mastitis in cows and heifers during the perinatal period.

34. Ultrasound and endoscopy in the diagnosis of disorders of the udder and reproductive system on a farm.