





Health Services Vocational Collage

Basic Parameters and Spermatological Values for Evaluating Reproductive Potential in Farm Animals

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Abstract

Periodic and accurate analysis is essential for successful reproductive performance. By interpreting the obtained data, an effective management system related to reproductive performance can be designed. In particular, the determination of spermatological parameters in terms of male effect is also important regarding fertility.

Keywords: Farm animals, spermatological parameters, reproduction

Introduction

Reproductive Parameters

- Insemination index (1)
- Pregnancy rate at first insemination (1)
- Interval between calving and first insemination (2)
- Age of use in breeding (3)
- First calving age (3)
- Insemination time (4)
- Ratio per insemination (6)
- First insemination age (8)
- Insemination rate per cow (12)
- Incidence of metabolic disease (13)

The Factors Affecting Reproductive Efficiency

- Season (5)
- Pregnancy loss (7)
- Body condition (9)
- Nutrition (10)
- Race (10)
- Metabolic diseases (13)
- Body condition loss and negative energy balance (13)
- Estrus detection errors (13)
- Uterine pathology (13)
- Genetic factors (13)

Interpretation of basic spermatological tests in terms of fertilization success

Macroscopic Examinations

Semen volume: Having the semen volume within the normal limits is always a sought-after feature, which shows that the semen of the male breeders we use is at a normal level. However, even if a normal amount of ejaculation is obtained from a male breeder with a very low spermatozoa density, semen cannot be used in artificial insemination applications.

Semen color: While normal semen is cream-colored depending on the breed and species of the different animal, its color can vary from light cream to dark cream. If it is pink, dirty yellow, brown or greenish, the cause should be investigated. Such cases usually indicate that there is an abnormal condition or that a substance is mixed with the semen.

Semen viscosity: As a result of the examination, low viscosity indicates low semen density, and high viscosity indicates high semen density.

Apparent fusion movement in the semen: The macroscopic visualization of the fusion movement in the semen is an indication of the high density and motility rate of a large number of spermatozoa in the semen.

Semen smell: The semen taken from fertile animals has a distinctive odor reminiscent of egg yolk.

Macroscopic Examination

Mass movement: Sperm motility at the time of collection is used as a measure to assess the fertilizing capacity of the semen. It shows both sperm concentration and viability. All motile sperm are alive, but all immobile sperm are not dead. Contamination by excessive heat, chemicals and uncleaned equipment reduces motility.

Determination of spermatozoa density: The rapid decrease in spermatozoa concentration after consecutive ejaculates is indicative of poor spermatozoa reserve.

Determination of abnormal spermatozoon ratio: There is wide variation in the case of different values of sperm abnormalities. However, more than 30-35% of total abnormalities are not suitable for achieving good fertility. Most studies agree that semen from fertile bulls should be no more than 4% head abnormalities, 4-10% midpiece abnormalities, 5% tail abnormalities, 6% free heads, and no more than 20% of total sperm abnormalities.

Determination of spermatozoon motility: It is the evaluation of the movement types of sperm cells and their rates. Thus, the rate of semen collection and movement types or the presence of immobile sperm are determined.

Determination of the ratio of damaged and undamaged sperm cells: The high rate of spermatozoa with membrane damage negatively affects fertility. With the staining method used, the damaging status of the spermatozoa heads that have lost their membrane integrity can be detected (10,11).

Conclusion

There are many external and internal factors related to sustainability reproductive activities in farm animals. In terms of reproductive management, researchers should focus on improvement of the farm conditions and routine examination of reproductive parameters.

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