LAB 2 LAND

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Nurturing brains...
It is the process of collecting semen from the male animal and manually depositing it into the female reproductive tract at proper time of estrus with the help of artificial insemination (AI) gun.

Advantage of AI over natural service/mating practices

1. The chief advantage of AI is that the breeding efficiency of elite bulls can be increased to produce elite offspring.
2. In natural service, one bull can breed to 50-60 cow in a year, whereas in artificial insemination one bull can breed up to 10,000 cow in a year. This will take 200 years in natural service for the bull.
3. There is no need to rear bulls for breeding purpose in the farm.
4. There is no requirement of purchasing new bull to resist inbreeding into the herd.
5. At the time of insemination, the rate of reproductive disorder can be reduced by following hygienic practices.
6. With the help of AI, the semen from exotic bulls can be used to breed the indigenous animals.
7. There will not be disturbance in breeding of animals due to size and weight of the bulls.
8. The conception rate can be increased.
9. In AI, old and injured bulls can be used for breeding purpose.
10. Record keeping will be easier.

Symptoms of heat (Estrus period)

To achieve timed AI appropriate estrus detection is of utmost importance. In Indian agro-climatic zones, most of the animals show silent heat; following signs should be consider to detect heat in animals:

1. The estrus animals can be detected with the help of teaser bulls.
2. During the heat period, there will be tremendous changes in the behavior of the cow. The cow exhibits signs like nudging, bellowing, running etc.
3. The cow become restless and alert, and stands apart from the herd.
4. The feed intake of the cow also reduced.
5. The milk yield of lactating cow also get reduced.
6. Initially, the cow in heat mounts over other animals.
7. This period is characterized by secretion of thick mucus discharge from the vulva and it is the best period to inseminate the animal.
8. The outer surface of the vulva become red and swollen.

Equipment’s required for artificial insemination

The following equipment’s required to perform artificial insemination; Semen straw, Cryocan, AI gun, Sheath, Thawing tray, Water bath, Thermos-flask, Thermometer, Tissue paper/ clean cloth, Forceps, Straw cutter/ scissor, Apron, Gloves and Gum-boot for the AI technician.

Artificial insemination procedure

1. Temperature of hot water in water bath should be check and adjust to 37º C before thawing.
2. The water should be taken in a thermos-flask so that the temperature is maintained throughout the process.
3. During taking out the straw from the cryocan, the canister should be raised high enough – not above the frost line to prevent the sperms from thermal injury.
4. After taking out the straw, the cryocan should be closed properly.
5. Straw should be thawed in hot water having temperature of 37º C for 40-45 seconds.

6. The gun used for AI should be clean and sterilized properly.

7. The straw should be wiped properly with the help of tissue paper.

8. After wiping, it should be loaded in the AI gun.

9. A clean cut should be made at right angle with straw cutter/sharp scissor just below the laboratory seal end.

10. The sheath should be taken out by holding the bottom of the sheath packet and placed over the gun and locked over it using 'O' ring.

11. The gloved hand should be put gently into the rectum and rectum should be cleaned by removing fecal material.

12. The vulva should be washed with water or cleaned with tissue paper.

13. Ask the other person to help in spreading the vulvar lips and the gun should be inserted at 30º angle till it reaches to the fornix vagina to avoid entry into urethral opening.

14. The cervix should be held firmly through rectum and the gun should be passed gently through the vagina to cervix and through cervical canal till the tip of gun reaches at internal os.

15. Then the piston of gun should be pushed with thumb slowly to deposit the semen into uterine body.

16. After deposition of semen, the gun should be removed gently from the cervical canal.

17. The data regarding AI done should be recorded regularly in AI register.

**Important points considered during AI**

1. The AI should be done during proper heat period i.e. during the standing heat. This will enhances the conception rate in the animals.

2. After insemination, the clitoris should be massaged properly, it will adequately increases the conception rate.

3. As soon as the animals found in heat, inseminate the animal and repeat the AI after 8-12 hours interval.

4. The animal should be given sufficient rest after artificial insemination

5. Follow up of AI should be done in regular interval

6. Especially after 21 days the animal should be checked for any kind of estrus behavior.

7. If any abnormal signs is visible then proper treatment should be given in time.

8. The reproductive efficiency of the animals can be increased by performing proper AI.