

Secondary Engagement Programme

Christmas Term

Grade 10

Activity Sheets

Agricultural Science



MINISTRY OF EDUCATION



**MINISTRY OF EDUCATION
SECONDARY ENGAGEMENT PROGRAMME
NOVEMBER 2020
WEEK 11**

LESSON # 2

GRADE :10

**SUBJECT : AGRICULTURAL SCIENCE
TOPIC : LIVESTOCK
SUB TOPIC : Artificial Insemination**

Objectives

To know the methods of artificial insemination.

To state the advantages and disadvantages of artificial insemination.

Artificial Insemination

Artificial insemination is the technique in which semen with living sperms is collected from the male and introduced into female reproductive tract at a proper time with the help of instruments.

This has been found to result in a normal offspring.

In this process, the semen is inseminated into the female by placing a portion of it either in a collected or diluted form into the cervix or uterus by mechanical methods at the proper time and under most hygienic conditions.

Various methods of collection of semen have been devised from time to time. The older unsatisfactory methods have been gradually replaced by the new modern techniques.

There are three common methods.

Use of artificial vagina

By Electro-stimulation method.

By massaging the ampullae of the duct through the rectal wall.

The ideal method of semen collection is the use of artificial vagina which is safe for sire and the collector also.

Cows showing estrus	Should be inseminated	Too late for good results
In morning	Same day	Next day
In afternoon	Morning of next day or early afternoon	After 3 p.m.

ADVANTAGES OF ARTIFICIAL INSEMINATION

There are several advantages of artificial insemination over natural mating or servicing.

There is no need for maintenance of breeding bull for a herd; hence the cost of maintenance for breeding bull is saved.

It prevents the spread of certain diseases and sterility due to genital diseases. Eg: contagious abortion, vibriosis.

Regular examination of semen after collection and frequent checking on fertility make early detection of inferior males and better breeding efficiency is ensured.

The progeny testing can be done at an early age.

The semen of a desired size can be used even after the death of that particular sire.

The semen collected can be taken to the urban areas or rural areas for insemination.

It makes possible the mating of animals with great differences in size without injury to either of the animal.

It is helpful to inseminate the animals that refuse to stand or accept the male at the time of oestrus.

It helps in maintaining the accurate breeding records.

It increases the rate of conception.

It helps in better record keeping.

Old, heavy and injured sires can be used.

DISADVANTAGES OF ARTIFICIAL INSEMINATION

Requires well-trained operations and special equipment.

Requires more time than natural services.

Necessitates the knowledge of the structure and function of reproduction on the part of operator.

Improper cleaning of instruments and insanitary conditions may lead to lower fertility.

If the bull is not properly tested, the spreading of genital diseases will be increased.

Market for bulls will be reduced, while that for superior bull is increased.



Class of livestock	Length of oestrus cycle (days)	Duration of heat or oestrus (hours)	Time of ovulation (hours)
Cattle : Cow	Avg. 21 days, Range 18 - 24	Avg. 19 days, Range 12 - 24	Avg. 12hrs , Range 10-16 after end of oestrus
Sheep : Ewe	Avg. 17 days, Range 18 - 20	Avg. 38 days, Range 24 - 48	Avg. 38hrs , Range 36-40 after beginning of oestrus
Pig : Sow	Avg. 21 days, Range 18 - 24	Avg. 60 days, Range 24 - 96	Avg. 36hrs, Range 36-40 after beginning of oestrus
Goat :	Avg. 20 days, Range 19 - 21	Avg. 39 days, Range 24 - 96	Avg. 36hrs, Range 12-36 after beginning of oestrus

Class of Animal	Duration of Heat	Signs of Heat (Oestrus)	Signs of Giving Birth
Cattle :Cow	12-24 hours	<p>Standing to be mounted.</p> <p>Mounting other cows</p> <p>Mucus discharge, Swelling and reddening of the vulva</p> <p>Bellowing, restlessness and trailing</p> <p>Rubbed tail-head hair and dirty flanks</p> <p>Chin resting and back rubbing</p> <p>Sniffing and licking</p> <p>Head raising and lip curling, Decreased feed intake. Drop in milk yield.</p>	<p>Parturition</p> <p>Signs in the weeks leading up to calving include udder development</p> <p>Relaxation and swelling of the vulva (springing), and a thick mucus discharge from the vulva.</p> <p>Relaxation of the pelvic ligaments and strutting of the teats may be observed in some cows in the 24 hours leading up to labor.</p>
Goat : Doe	24-36 hours	<p>Mucus discharge from the vulva</p> <p>Swollen vulva</p> <p>Bleating</p> <p>Frequent tail wagging</p> <p>Pacing down the fence line</p> <p>Drop in milk yield.</p>	<p>Parturition/Kidding</p> <p>One to two days before labor the teats become enlarged and look full of milk;</p> <p>The does will begin to show signs of nervousness: pawing at the ground</p> <p>Acting restless, and lying down.</p> <p>The doe will also expel a thin mucous discharge from the vulva, which will gradually become thicker as parturition</p>

Class of Animal	Duration of Heat	Signs of Heat (Oestrus)	Signs of Giving Birth
Sheep :Ewe	About 36 hours	<ul style="list-style-type: none"> • Redden of the vulva and discharge from vulva • Tail wagging • Mounting other animal • Seeking male • Frequent bleating, Push her back • Standing for mating (standing reflex) 	<p>Lambing signs</p> <ul style="list-style-type: none"> • The udder becomes engorged, swollen and slightly red. • Ewe lambing signs also include the vulva stretching out and becomes red and swollen. • Often, an ewe will miss a feeding or separate herself from the flock shortly before labor begins.
Pig :Sow	3. days	<ul style="list-style-type: none"> • Swollen, reddened vulva (pro-estrus), Vocalization/ grunting • Mounting pen-mates, Heightened activity level/restlessness • Perked or twitching ears • Sticky, viscous secretion of the vulva • Rigid back and legs; “locked up” 	<ul style="list-style-type: none"> • Farrowing • Takes about 115 days. • Two weeks before farrowing the mammary glands develop. • Teats enlarge. Farrowing lasts for 3-8 hours. Reduced appetite and restlessness • The sow standing up and lying down and if bedding is available chewing and moving this around in her mouth. • If she is loose-housed on straw she will make a bed.

Review Questions

1. Discuss two advantages and two disadvantages of artificial insemination.
2. Define artificial insemination.
3. Distinguish between oestrus cycle and oestrus.
4. Describe three signs of heat shown by a cow.
5. Differentiate between farrowing and parturition.

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