Dairy production Level

NTQF Level -II

Learning Guide 46

Unit of Competence: Assist dairy animal breeding procedure

Module Title: Assisting dairy animal breeding procedure

LG Code: **AGR DRP2 M12 L04 LG 46**
TTLM Code: **AGR APR2 TTLM 0919v1**

LO 4: Observe for heat detection

Instruction Sheet	Learning Guide 46

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- Carrying out estrus inducement and detection procedures.
- OHS requirements to minimize stress and discomfort during mating

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to –

- Carry out estruse inducement and detection procedures.
- OHS requirements to minimize stress and discomfort during mating

Learning Instructions:

1. Read the specific objectives of this Learning Guide 46.
2. Follow the instructions described in number 1 to 5.
3. Read the information written in the “Information Sheet (**1and 3**) in page **2 and 8** respectively
4. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
5. Accomplish the **“Self-check 1 and Self-check 2”** in page**, 7 and 11** respectively.

Information Sheet-1	Carrying out heat detection based on signs

Heat detection based on signs

Heat (Estrus) is a fairly well-defined period that occurs in non pregnant cows once each 19 to 23 days, in other words estrus is the time during which the female will accept the male for copulation or breeding.

Heat period: A time when the animal shows estrous signs or when shows the need to be served by bull or artificially.

Methods Heat detection

Estrus must be detected accurately because it signals the time of ovulation and determines the proper time of insemination. The proper time of insemination should occur 6-8 hours prior to ovulation because sperm requires 2-6 hours in the female tract before they are fully capable of fertilization. The cows found in estrus in the morning are usually inseminated that evening, and cows in heat in the evening are inseminated the following morning. Because ovulation occurs 24-30 hours after the onset of heat, insemination should occur near the end of estrus.

- **Visual observation**

Detection usually depends up on observation of standing response when ridden. Thus for good detection for large size herd there must be;

- Clear identification of individual animals with ear tags or other
- Adequate lighting to aid accurate identification
- A permanent recorded of the cow`s identify made at the time of observation
- Regular observation for 20-30 min three times per day other than milking or feeding observation
- Adequate area with enough space and a good floor surface to enables the cows to expresses torus behavior.
- A record of all estrus periods even before the earliest service date

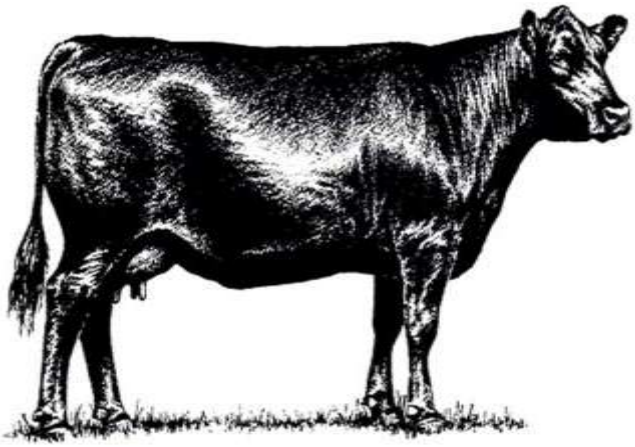
The most commonly used method of heat detection is visual heat detection

- In most cases animal observed during normal activity or as they move to and from housing, feeding or pasture area.
- In diary operations caws can also observed as they are moved to and from the milking parlor but the animal must be observed Regular for 20-30 min three times per day to detection Heat.
- Timing is extremely important when observing for estrus activity.
- Behavioral heat activity is usually seen in the early morning between 2:00 and 6:00.

Estrus detection aid

It is tremendous task to detect estrus in dairy animal herd or flock. Common estrus detecting aids are

- ☞ Marker animal or teaser bull: is castrated male animal used to detect estrus
- ☞ Tail marking: is an inexpensive method. Chalk or paint is placed in a band along the animal's tail head from hooks to pins (Fig 5). When an animal stands to be mounted, the chalk or paint is rubbed off by the animal doing the mounting.

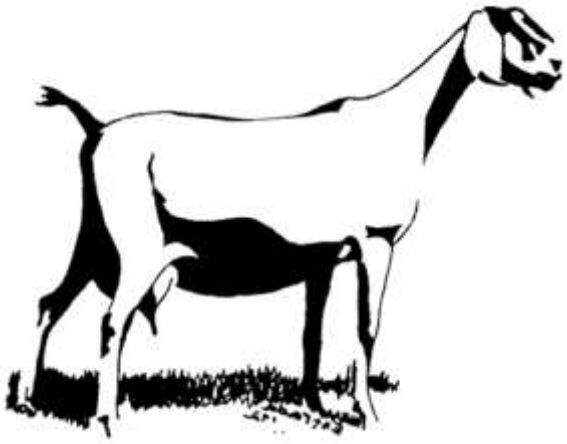


Sign of heat in cattle

- ➢ mounting other cow
- ➢ Mucus discharge from vulva
- ➢ Swelling and reddening of vulva
- ➢ Standing to be mounted
- ➢ Frequent urination, tail rising and shaking
- ➢ Sniffing genital
- ➢ Decrease feed intake and milk yield
- ➢ Frequent bellowing, restlessness and trailing

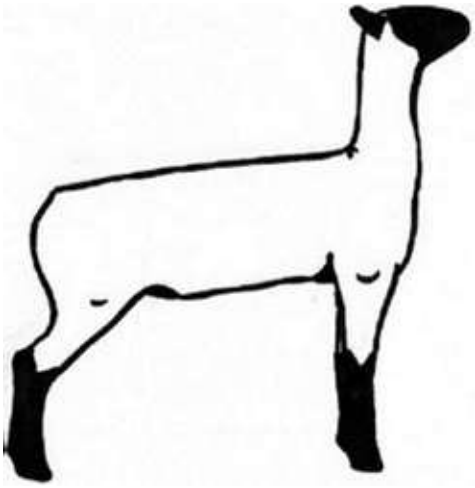
Cows will show heat for 14-20 hours and 10- 16 hours after the last sign of heat she'll ovulate, how- ever sperm should already be present in the female tract.

Signs of Estrus in Goats



- Standing to be mounted by
- herd mates
- Flagging (rapid tail wagging)
- Attempting to mount other goats
- Excited behavior, walking fences
- Clear, mucous discharge from vulva
- A swollen, red or wet vulva

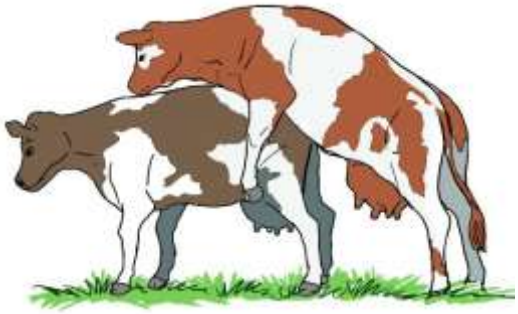
The estrus duration is 12-36 hours in goat. Goats should be inseminated 12 to 18 hours after the onset of heat. Ovulation occurs from 12 to 36 hours after the first signs of heat.

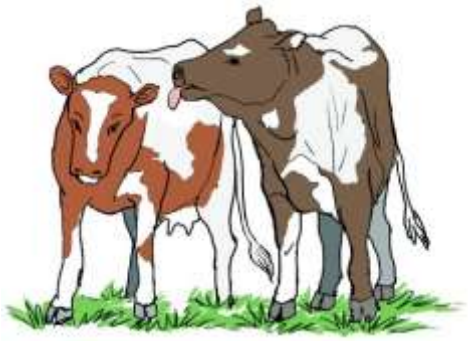


Signs of Estrus in Sheep

- Nervous/excited behavior, walking fences
- Shaking of the tail
- Ruttish" behavior around rams
- will seek rams out, rub necks or bodies against them
- • Slightly swollen vulva

Estrus lasts 20-42 hours, ovulation occur ring in the late period. Sheep are seasonal breeders so may only come into heat at certain times of year (influenced by daylight length).





***(a) Standing to be mounted*: The cows may be in heat**

Positive sign of heat is standing to be mounted. The cow in heat stands to be mounted and does not move away

***(b) Licking:* Both**

***(c) Mounting head to head:* The cow mounting is in heat**

Fig.1 (a) to (c): Behavioral signs of heat in cows

Factors affecting rate of conception:

The fertility chain: from heat detection, semen handling, AI techniques, nutrition, herd health and record. The concept of the chain is that it is only as strong as the weakest link. Therefore all the links in the chain should be strong enough to strengthen the whole chain, as one weak link results in no conception.

Heat detection and time of service

This depends on whether natural service or artificial insemination is used. A cow in 'standing heat' stands for mounting by bull or another cow. In practice, a cow showing heat in the morning should be inseminated in the afternoon, while those showing heat in the evening should be inseminated the next morning.

Semen quality and handling

To maintain a good dairy herd, the farmer must use semen of proven bulls all the time. The semen must be obtained from agents or service providers registered by the veterinary department. AI can spread disease if attention is not paid to the health status of the bull. All bulls at approved AI centers are constantly being screened for any disease to ensure that semen collected from them is safe and disease free. The spermatozoa should be fertile, of good concentration, high motility and of normal morphology (structure).

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write sign of estrus in cow (5 points)
2. Write sign of estrus in sheep (5 points)

Note: **Satisfactory rating - 10points** **Unsatisfactory - below 10 points**
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

1. _____
   _____
   _____
   _____
2. _____
   _____
   _____
   _____

Information Sheet-2	OHS requirements to minimize stress and discomfort during mating

Carry out work following OHS requirements

The most pronounced hazard related to mating is bull handling and the risks associated are also very high. Bulls are more aggressive during the mating season and extremely dangerous when fighting. If it is necessary for dairy bulls to be on the premises, extreme caution should be exercised at all times. The dairy farmer should use special facilities so that a bull can be fed, exercised, watered, and used for breeding without ever having to come into direct contact with him. To avoid fighting, separate into different yards where applicable.

OHS requirements should be kept in a location central to the work being performed and readily available to the work force. Some safe work practices will require specific job procedures, which clearly set out in a chronological order each step in a process. But safe work procedures should be included in the company's "worker orientation" program. In order for communication be effective between those involved in occupational health and safety, the safety profession and other professions, it is important that we use common words such as 'accident, injury, hazard, safety, health and risk' with some consistency. Unless these words are given specific definitions in legislation; some effort must be made to give these words acceptable meanings.

Accident: An unplanned event that may or may not result in damage, loss or injury.

Injury: Damage to the body resulting from a delivery of energy to the body above the capacity of the body to cope with that energy or an interference with the normal function and systems within the body.

Hazard: A source of unwanted or excess energy with the capacity to cause damage, loss or injury.

Safety: an individual's perception of risk. Two alternative definitions are 'safety is a state of mind where by workers are made aware of the possibility of injury at all times' (from ted Davies, a mining safety expert, derived from Osborne, Canada), and 'safety is a state in which the risk of harm (to persons) or damage is limited to an acceptable level' (Australian standard 4801). Some would argue for 'tolerable' not 'acceptable', saying no risk is acceptable.

Health: the degree of physiological and psychological well-being of the individual.

Risk: The combination of the likelihood that a hazard will actually result in an accident and the consequences of that accident, often expressed as the product of the two.

Work safe provided safe tips for cattle handlers, including veterinarians and AI technician in the yards. The Most important thing is to inspect the yards before using them. There should ideally be at least two people working the yards. Training and supervision of inexperienced employees or contractors, including veterinarians, is essential.

Other safety issues veterinarians and cattle producers should be aware of Work safe.

- ✓ Keep cattle and people separate.
- ✓ Keep children away from the cattle yards.
- ✓ Turn off electric fencing off when visitors, including veterinarians are on the property.
- ✓ Employ or generate experienced and trained staff.
- ✓ Sign post areas clearly.
- ✓ Provide adequate lighting.
- ✓ Do not let he pen or crush floor to build up as this reduces the height of the fence.
- ✓ Maintenance is key.
- ✓ Ensure insurance is up to date and appropriate.

- ✓ First aid kits should be readily available.

There are a variety of chemicals used on cattle. Veterinarians should be aware of these and their poisons schedule and be prepared to wear PPE when necessary and also be aware of how the animal will react to the chemical being administered. Cattle may have a chemical administered by a farm employee at the same time as the vet is performing a procedure. If veterinarians are not familiar with the chemical being used, they should read the label on the container. The farmer should also have a material safety data sheet (MSDS) available for the vet to scan. Prior to the vet visit, the vet and farmer should have an agreement that staff will be trained as needed while the vet is there, for example safe handling of cattle; correct administration of chemicals; regularly using new needles and syringes; ensuring the 'gun' used for administering chemicals is cleaned appropriately before starting and it is calibrated; wearing of PPE to minimize chemical exposure; prevention of zoonotic diseases.

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

3. Define what is hazard (5 points)
4. What mean safety (5 points)

Note: **Satisfactory rating - 10points** **Unsatisfactory - below 10 points**
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

1._____

_____

_____

_____

2_____

_____

_____

_____

Reference

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