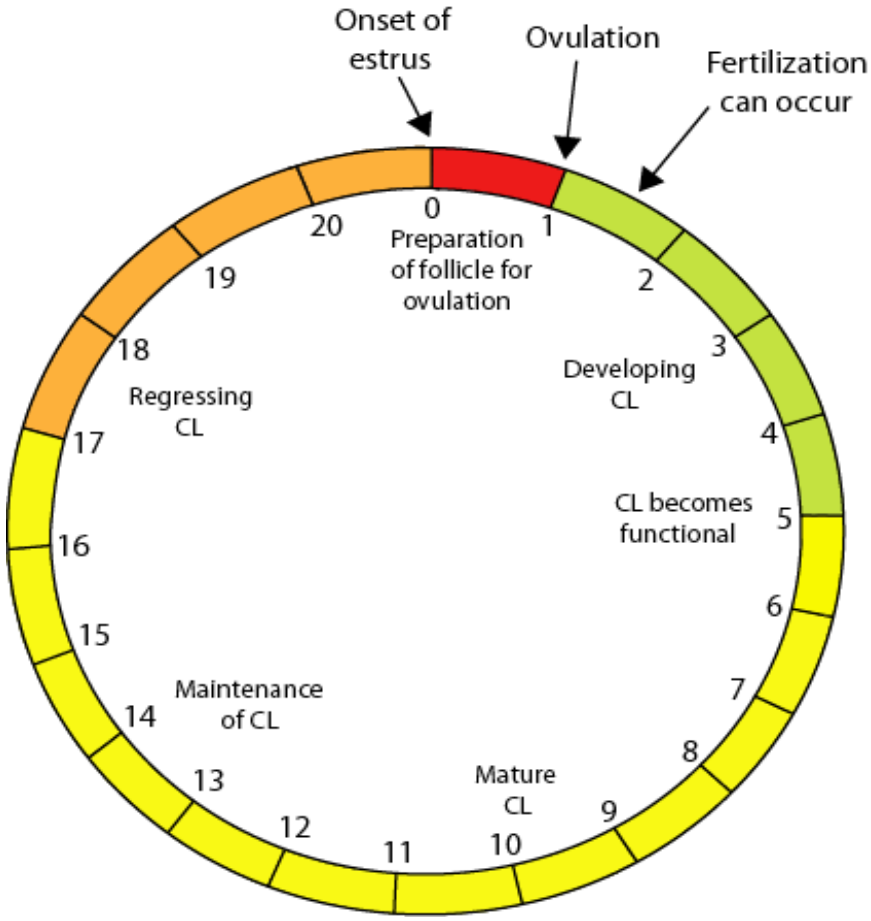
Estrous Detection



Estrus: The period of sexual excitement (Standing Heat) where the female is receptive to the male and will stand for mating

Estrous Cycle: The reproductive cycle of domestic animals. It is measured from the beginning of one estrus to the beginning of the next (ie. 21 days)

Factors effect to estrus cycle

- 1-nutrition (inactive ovaries)
- 2-season(long day and short day breeder)
- 3- lactation
- 4- age of animals
- 5-Disease uterine and cervix (endometritis , pyometra …….)
- 6- endocrine glands disorder (cystic ovary)
- 7- Temperature
- 8- animals transport
- 9- type of animals work
- 10 – general disease
- 11- breed of animals

- **Season –** Most studies have reported a depression in estrus expression during extreme temperatures, either hot or cold. The inability to have a period of recovery from high temperatures during the day has also been reported to negatively affect estrus behavior. Heavy rain, strong wind, and high humidity also reduce or suppress estrus behavior.
- **Nutrition –** Loss of body reserves (negative energy balance) can negatively affect estrus expression. The presence of mycotoxins, especially vomitoxin and zearalenone, reduce or suppress estrus expression.

- **Housing –** The type of floor surface affects estrus behavior. Duration of estrus and number of mounts were longer (13.8 versus 9.4 hours) and greater (7 versus 3.2 times) on dirt than on concrete surfaces. Covering a concrete grooved floor with perforated rubber mats improved the ability of cows to express normal behavior activity.
- **Days in milk –** Silent heat (more correctly, silent ovulation), is common at the first ovulation after calving. Progesterone released from the corpus luteum (CL), formed after the silent ovulation, appears to favor estrus expression during the next cycle.

detection Estrous

Detection of estrus : is one of the most critical components of a successful breeding program. Accurate and consistent detection of estrus is necessary to ensure insemination occurs near the time of ovulation and to identify open females. Errors in detection of estrus reduce reproductive performance and increase herd non-productive days

Opens days : the period stared from parturition to fertilization(90-100 days) Its composed of (uterine involution + estrous cycle)

Uterine involution : return the anatomy and physiology of uterus to after parturition (40-50 days)

Calving intervals : it's the period stared from one parturition to other parturition(360 days) its composed of(open days +pregnant time)

Repeat breeder : repeat the estrous cycle more three times after insemination but without fertilization so require treatment)

- **Postpartum Interval** : The postpartum interval (PPI) for beef females can be defined as the period of time that elapses between parturition (birth of the calf) and the resumption of normal estrous cyclic activity (heat). The PPI is sometimes referred to as the anestrous period. This period of time can vary depending on many different factors. Research has demonstrated that normal estrus functions may resume by approximately 40 days after calving; by 60 days, approximately 90 percent may be cycling normally. However first-calf heifers may have an extended PPI, since they must undergo the stresses of parturition and uterine involution. Stressors such as calving difficulty, poor nutrition and disease can extend the PPI in all breeding females .

Important of estrous detection

- 1 – to decrease number of repeat breeder in cow
- 2 – decrease number service per conception
- 3 – decrease number of open days
- 4 – decrease number of calving intervals
- 5 – decrease number of culling percentage due to reproductive reasons

Estrus detection to

Decrease open days

decrease calving interval •

Estrus detection

- **A - Visual aids**
- 1- herd man (owner)
- 2-video recording
- 3-sheep dogs (wolf dogs)
- 4- Teaser
- A - culled cow (virilism)
- B – bull (vasectomy , penis deviation , penectomy , epidily mectomy)
- 5- Tail paint
- 6- Chin bell
- 7- ovascan

Herd man(owner) to estrous detection

- 1 – skill detection estrous behavior
- 2 - must be three time before milking
- 3 –length time observation must be 30 minute

- **Standing to be mounted** is the only true **primary sign** that a female is in heat. However, a variety of behavioral changes that occurs before and during estrus indicates that a cow or heifer may have normal estrus functions. **Secondary signs of estrus include: swollen vulva**, **mucous discharge**, **nervousness**, riding others in heat, head rubbing and separation from the herd. Scientists report that secondary signs of estrus may begin 4 to 48 hours before primary signs. As the onset of estrus approaches, estrous cyclic cattle will stand still and allow other cows or bulls to mount. Record all cattle in heat and make note of those showing secondary signs of heat. Cattle showing secondary signs of heat may stand to be mounted during the subsequent detection periods.

Video recording to estrus detection

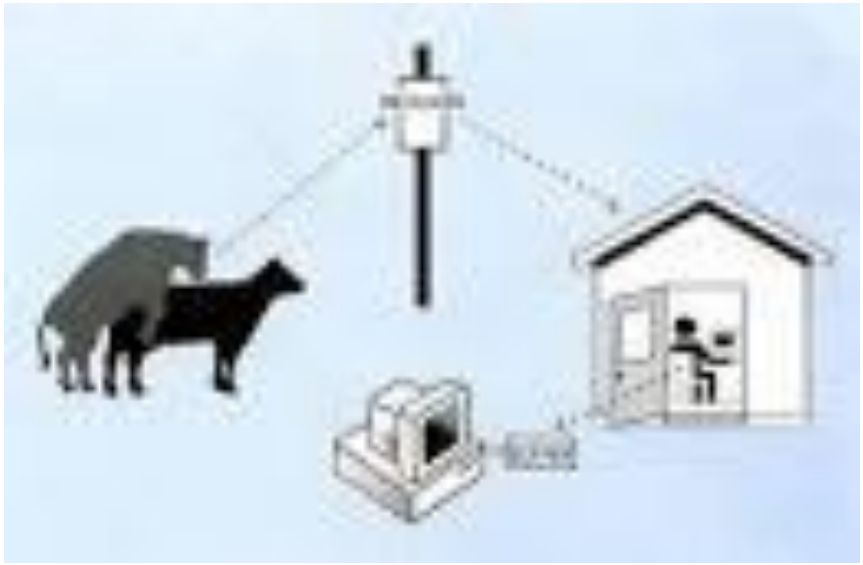


Figure 8. Heat patch with visible color change.

Sheep dogs (wolf dogs) to estrus detection it smell pheromone from vaginal discharge

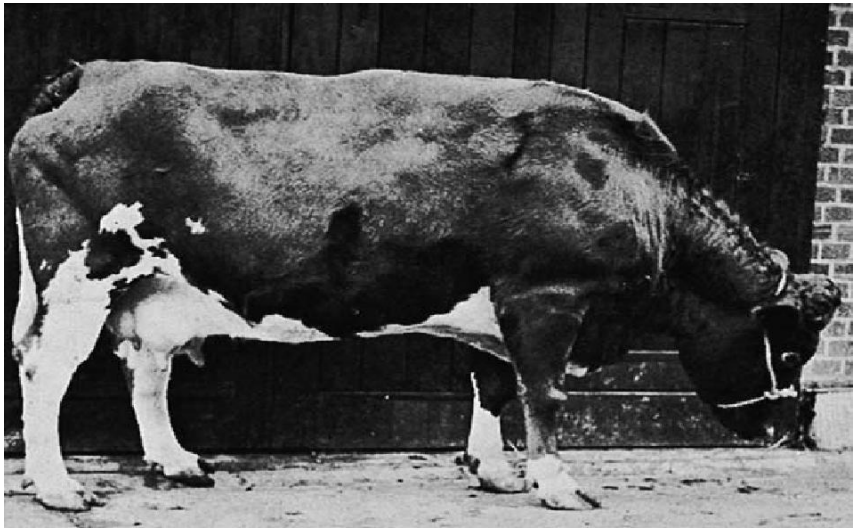
Preparation teaser to estrus detection

Vasectomy

Penis deviation

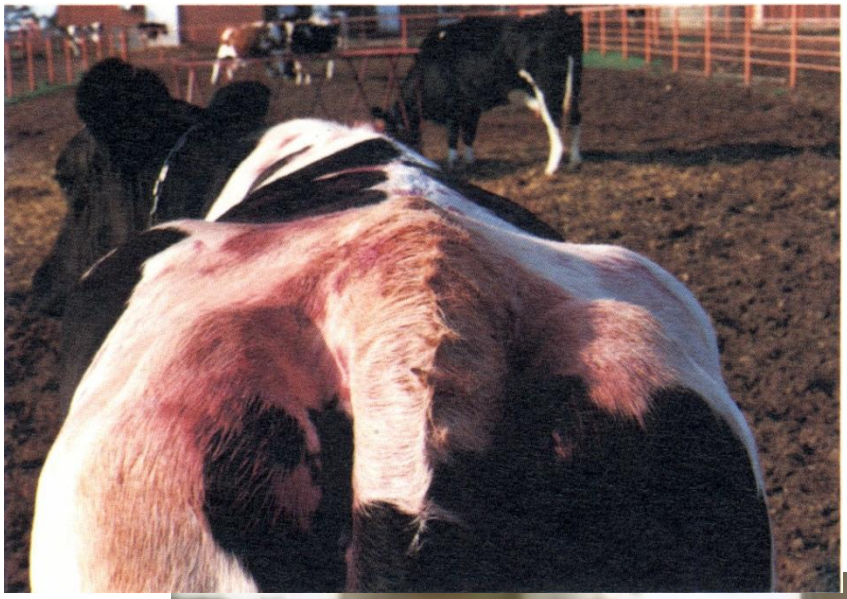
Preparation teaser to estrus detection

Luteal cyst cows (virilism)



Androgenized cows

Tail paint to estrus detection



You simply glue a detector onto the skin covering the tail bone of each cow. Glue is provided with the detectors. When a cow wearing a heatmount is mounted by a herdmate, constant pressure from the brisket of the mounting animal turns the detector red - bright enough to be seen from a distance. Three seconds of constant pressure is needed to release enough dye to turn the detector red identifying a true heat. This leaves a visible indication that th

Chin - Ball to estrus detection

Visual aids to estrus detection

Pedometer to estrus detection

Ovascan to estrus detection

B- non visual aids

1- Cervical vagina mucus

A- Viscosity (decrease)

B- Ferning(ferning pattern –Crystallization -ARBORIZATION)

C -Biochemical change (glucose increase)

2- vaginal change

A- ph decrease

B- Electrical resistance cytology decrease

C- Thermal conductivity increase

D- Vaginal biopsy

3- Hormonal changes in blood and urine (estrogen ,progesterone)

4 -rectal palpation to predict estrus

5 - estrus synchronization

Estrus detection in mare

Estrous detection in ovine

Figure 1. Biological events associated with timing of insemination.