# The Oestrus Cycle

## Heat Detection and Dealing with Problems

The cow has a 21 day oestrus cycle but this can vary between 18 and 24 days. Heifers will begin cycling at the onset of puberty and will continue to cycle until they are in calf. The onset of puberty can be affected by various factors such as breed, nutrition, growth rate and disease. After calving cows will begin to cycle after 20 to 30 days. This may be extended in high yielding cows or those affected by disease post calving.

The oestrus cycle is governed by the complex interactions of various hormones that are produced in the brain and ovaries; progesterone and oestrogen being two of these. The follicle (egg) grows throughout the cycle and ovulation (the release of the egg) occurs when the progesterone levels drop and the oestrogen rises. A structure called the corpus luteum then forms on the ovary, which then produces progesterone.

Your vet should check cows showing no apparent signs of cycling.

### MISSED HEATS

Detection of oestrus involves being able to observe and record behaviour. The most reliable sign is observing a standing response when ridden.

There are various reasons why heats are missed; usually because cows are not showing heat strongly or staff are not observing cows when they are in heat. The main causes of this are:

- Increased herd size leading to more cows per member of staff
- Failure to recognise oestrus due to inadequate staff training
- Looking at the wrong time of day
- Poor environment: Slippery floors and overcrowding will reduce the chance of cows exhibiting normal oestrus behaviour
- Short weak oestrus: The average cow is in oestrus for a shorter period than she was 25 years ago. This has partly been blamed on increasing milk yields

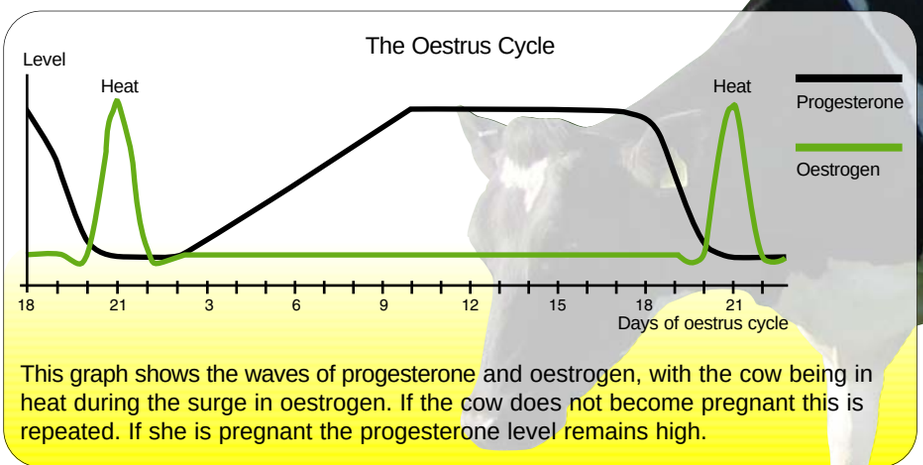
## Oestrus Detection

Oestrus is defined as the period of maximal sexual activity. The average duration is thought to be only 8 hours for the modern dairy cow, however it can range from 2 - 30 hours.

There are various signs and different animals will express these to varying degrees.

**Oestrus signs include:**

- Increased restlessness and activity
- Decreased feed intake and milk yield
- Bellowing when isolated
- Slight increase (0.1°C) in body temperature
- Clear vulval mucus (‘bulling string’)
- Rub marks/sores over the tail head
- Mounting other cows, particularly mounting the cow from head on
- Standing to be mounted




This graph shows the waves of progesterone and oestrogen, with the cow being in heat during the surge in oestrogen. If the cow does not become pregnant this is repeated. If she is pregnant the progesterone level remains high.

# XLVets **The Oestrus Cycle**

## Improving Heat Detection

For good heat detection there must be:

- Clear identification of cows by freeze branding or easy to read ear tags
- Adequate light to ensure cows can be seen in heat and identified
- Regular oestrus observation. Try and set aside three periods of 20 - 30 minutes throughout the day that are not associated with feeding or milking, for heat detection. Most mounting activity will take place between 6pm and 6am so it is important to observe cows during this period
- A good recording system, either computerised or manual, with all heats recorded including those before the service period
- Adequate loafing areas with non-slip floors to allow cows to exhibit normal oestrus behaviour

## Heat detection may be further improved by:

- **Heat mount detectors.** These are stuck on the cows' backs on the tail head and are triggered by the pressure of another cow mounting them, leading to a colour change. Examples of these are Kamars™, Bovine Beacons™ or Estrotect™
- **Tail paint.** This works by a similar principle to above with paint rubbed off by mounting behaviour. This needs to be reapplied when it becomes dry and cracked
- **Motion detectors/pedometers.** These are attached to either the neck or leg bands respectively and any increases in walking activity are remotely detected and recorded on a computer. These can be very useful but care must be used in interpreting them as there may be other reasons for increased activity
- **Regular milk progesterone assays**. Regular assays detect the fall in milk progesterone prior to oestrus. These are available as on farm kits but will only become practical on a large scale when in-line detectors become available
- **Hormone Treatment.** Groups of cows can be synchronised with hormone treatment to allow fixed time AI

## COST OF DISEASE

There are various figures quoted for the costs of an extended calving to conception interval. The relative cost per day increases the longer the interval. This cost is calculated using extra feed costs, loss of milk yield and increased veterinary costs.

The cost rises from £2.47 per day with a one month delay, to £6.52 per day for a 5 month delay. (DAISY Research Report No.5).

Examples of problems could be short cycles or prolonged bulling behaviour. Prompt and regular examination by a vet will lead to identification of anoestrus ovaries, ovarian cysts and other abnormalities. This will in turn shorten the time until she is next at peak yield.

Rub marks/ sores around the tail head

**Hormone Treatments**

There are various hormone treatments available for both cows with ovarian cysts and those that are anoestrus ('not cycling'). In some herds it may be appropriate to use hormone regimes to allow fixed time AI or to allow compacted periods of heat detection. An example of this is the Intercept™ regime which involves the use of injections of prostaglandin and GnRH. Another option is the use of PRIDs™ or CIDRs.™

There are several options and the most appropriate one for your herd can be discussed with your vet.

For further information contact your local XLVets practice: