The Oestrus Cycle

Heat detection and dealing with problems

The average oestrus cycle of the cow is 21 days, ranging between 18 – 24 days. Heifers start 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 nutrition, growth rate (poorly grown heifers will take much longer to reach puberty and start cycling), breed, and disease. After calving mature cows usually take a minimum of 35-42 days to start cycling again, whereas heifers usually take up to 10 days longer. This may be extended in high yielding cows or those affected by disease post calving.

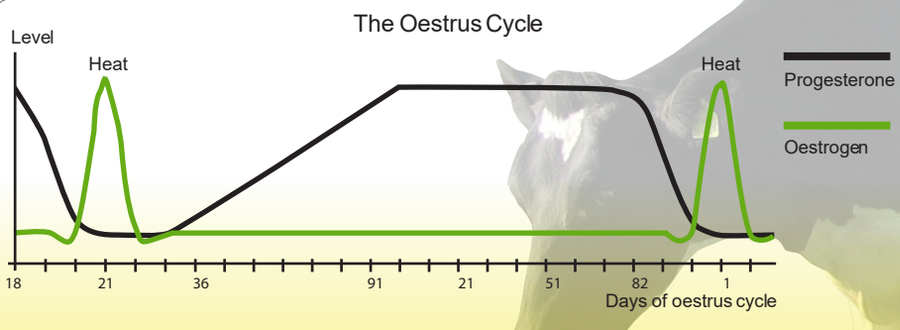
The oestrus cycle is governed by the complex interactions of various hormones that are produced in the brain and ovaries; progesterone and oestrogen being two of these. The follicle (egg) grows throughout the cycle and ovulation (the release of the egg) occurs when the progesterone levels drop and the oestrogen rises. A structure called the corpus luteum then forms on the ovary, which then produces progesterone. Any cows that haven't cycled after 35-42 days should be examined by your vet to check for any abnormalities and to help maximise her chances of early conception.

Oestrus detection

Oestrus is defined as the period of maximal sexual activity. The average duration is thought to be only eight 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 (including bellowing) and activity.
- Decreased feed intake and milk yield.
- Altered behaviour – such as changing order in which she is usually milked, coming back to the shed after milking.
- 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.
- Saliva or mud marks on the flanks from other cows mounting her.



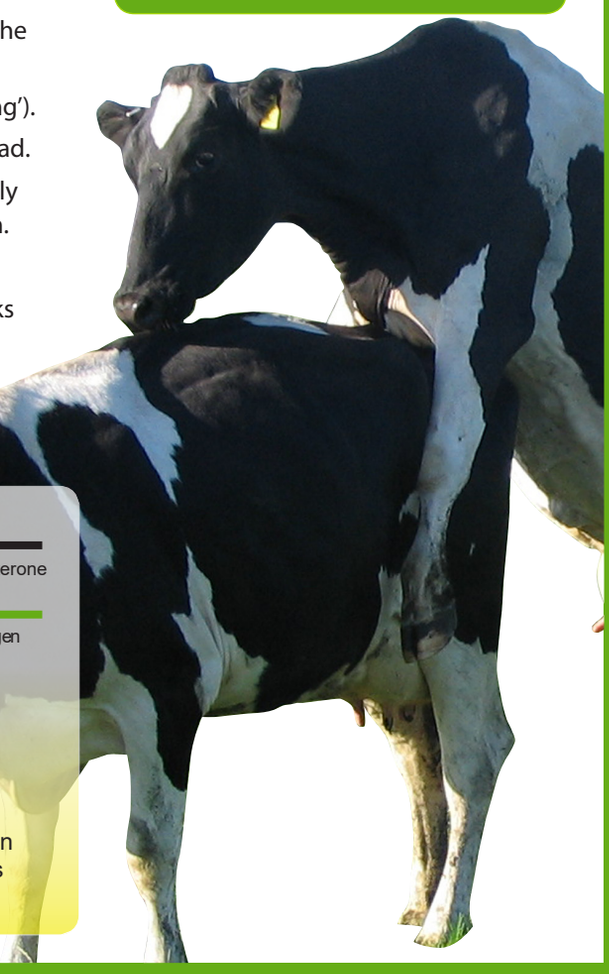
This graph shows the waves of progesterone and oestrogen, with the cow being in heat during the surge in oestrogen. If the cow does not become pregnant this is repeated. If she is pregnant the progesterone level remains high.

MISSED HEATS

Detection of oestrus or heat involves being able to observe and record behaviour associated with cycling. 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 on 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.



XLVets The Oestrus Cycle

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Improving heat detection

For good heat detection there must be:

- Clear identification of cows by freeze branding or clean easy to read ear tags (ideally in both ears).
- A good system outlining the staff members responsible for heat detection and how those cows will be identified and removed from the herd for AI, or recorded only if bull matings.
- 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 time of day is two hours after the cows have been locked away in the paddock when the majority of cows are settled and sexually active groups may be more apparent.
- A good recording system, either computerised or manual, with all heats recorded into a central place.
- Adequate light to ensure cows can be seen in heat and identified.

Heat detection may be further improved by:

- Detecting and recording pre mating heats – these give an idea of when cows will be on heat again, and will help reduce the chances of heats being missed if they are quiet. Pre mating heat detection will also give an early idea of the herds cycling status and will therefore allow early planning of veterinary or nutritional intervention if needed.Heat mount detectors. These are stuck on the on the tail head of the cow and are triggered by the pressure of another cow mounting them, leading to a colour change. Examples of these are Kamars™, or Estrotect™ scratchies.
- 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, touch ups twice weekly are recommended.
- 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 – such as calves in nearby paddocks or other stock movements past the paddock.

COST OF LONGER CALVING TO CONCEPTION INTERVAL

There are many costs associated with an extended calving to conception interval – most notably a lower 6 week in calf rate which means less days in milk. The relative cost per day increases the longer the interval and includes extra feed costs, loss of milk yield (days in milk/production efficiency) and potentially increased veterinary costs.

Ensuring cows are at target Body Condition Score (BCS) at calving (5 for cows and 5.5 for heifers), as well as having a condensed calving pattern will help encourage cows to start cycling with sufficient time prior to the planned start of mating (PSM).

Veterinary intervention can be a tool to help detect problems and get cows cycling earlier. Prompt and early examination by a vet will lead to identification of anoestrus ovaries, ovarian cysts and other abnormalities. This can help shorten the time until she is mated (and conceives) which ultimately increases days in milk and shortens time until she is at peak lactation for the next season.

Hormone treatments

There are various hormone treatments available for both cows that have cycled pre mating, 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. There are several options and the most appropriate one for your herd can be discussed with your vet.

For more information contact your local XLVets practice: