

Whether the heat detection is done by the owner of the animals or hired personnel, adequate skills in detecting the animals in heat are crucial.

Task assignment

A person assigned to perform heat detection should be able to focus on this task only during its execution and should not combine it with other chores such as cleaning, milking or feed distribution.

Evaluation of the skills

should be done at least once a year for all new personnel (including new-to-the task) and as soon as deficiencies in heat detection accuracy are detected.

Training

Training should be provided to all new personnel (including new-to-the-task) and periodically (once early). Additional training should take place if deficiencies in heat detection accuracy are detected. Training should be provided either by a member of staff with proven experience and high skills in heat detection or by a defined professional such as an AI technician or veterinarian.

Evaluation of heat detection accuracy

An easy way to estimate the heat detection efficacy is to run a 24-day heat detection rate test.

Group of cows most likely to display heat over the next 24 days (eligible to be cycling)

→
After 24 days of
heat detection

(Cows detected in heat/Cows eligible to be cycling)*100%
At least 75% should be achieved

It is well recognized that high producing dairy cows tend to have less pronounced heat signs and overall shorter heat periods (Wiltbank et al., 2002). That is why it is so important to give adequate attention to the heat detection strategy and technique in dairy herds.

Duration and frequency of heat observation

Ideally 4 times a day for at least 20min, with full attention of the observer on the animals' behavior.

Frequency of heat observation	Efficiency
1x daily	60%
2x daily	80%
3x daily	90%
4x daily	95-100%

Observation and other activities

- Full attention of the person observing heat on the task
- Animals free to display heat behavior, not stressed or distracted

Time	Months/Hour
30 min after feeding	2.4
2 hours at milking	1.9
Time other than milking or feeding	6.4

Observation timing

The highest frequency of heat is noted during early morning and in the evening. That is why if only two sessions per day are feasible, they should take place at 6.00-8.00am and 18.00-20.00pm.

Time of day	Percentage showing heat
6.00am-noon	22%
Noon-6.00pm	10%
6.00pm-midnight	25%
Midnight-6.00am	43%

It is good to develop a habit of checking cows at specific times each day, for example:

- before the morning milking
- early afternoon
- after all activities are finished in the evening



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Place of detection: animals should be observed in places where they can have free movement, non slippery, comfortable floor surface and freedom to interact with other animals.



In free stall barn animals have freedom of movement and enough space to mount each other. Make sure that the manure is cleared from the surface regularly to prevent it from becoming too slippery.

Have a look at the images below and identify the situation that most resembles your set up and check the related comments about how the environment may influence heat behaviour of your animals.



Cows on pasture or exercise paddock have very good conditions to fully display their heat behavior, provided that they are not tied. Tied animals cannot mount each other and the primary sign of standing heat will be missed.

Attention: During periods of high ambient temperature and sun, the animals will tend to show heat only in shaded areas or in the early morning, in the evening and at night.








Although the cows usually move in groups to the milking parlor and can interact with each other, heat observation there is difficult. The floor can be slippery and activities around milking can suppress heat behavior.



This is a situation where cows do not have possibilities to display complete natural heat behavior. If they are released for milking, this is the only time when the heat detection can be reliably done.

Accurate identification of cows in estrus and ready for AI is based on both primary and secondary signs of heat as not all cows will show full standing reflex during one observation session.

Coming into heat (8 hours)	Standing Heat (18 hours)	Going out of heat (14 hours+)
<ul style="list-style-type: none"> • Not allowing other cows to mount • Standing and bellowing • Sniffing the vulva of other cows • Chin resting • Headbutting other cows • Attempting to mount other cows • Mucosa of the vulva reddish, moist and slightly swollen • Clear vulvular mucus • Drop in milk production 	<ul style="list-style-type: none"> • Standing/allowing to be mounted by other animals • Mounting other cows • Frequent bellowing • Nervousness and excitability • Sticky vulvular mucus, clear to slightly cloudy 	<ul style="list-style-type: none"> • Not allowing to be mounted by other animals • Attempting to mount other cows • Sniffing of vulva of other cows • Clear vulvular mucus
 		 

Although pharmacological treatment should never replace good management and adequate feeding, some farms will find it difficult to introduce improvements in their heat detection technique quickly enough to notice significant improvement in reproductive performance of the herd.

There will also be situations where due to technical or organizational circumstances implementation of some improvements such as allocation of more personnel time to heat detection or substantial changes to housing are not feasible.

In such cases introduction of estrus synchronization should be considered. Appropriately selected synchronization program offers considerable advantages such as:

- Clear identification and grouping of cows to be observed in heat over a defined period of time makes allocation of personnel to heat detection easier and their efforts usually become more efficient.
- Some programs allow for a fixed time insemination without heat detection eliminating the need to observe heat and errors caused by deficiencies in resources or time allocated to this task.

The decision about introduction of an estrus synchronization program should be made with the veterinary surgeon responsible for the farm and take into account the cost-benefit balance.

Synchronization type	Cows	Hiefers	Breeding management
Prostaglandins	Yes	Yes	Preferably at detected heat
Ovsynch type protocols	Yes	Not recommended	Insemination at fixed time possible
Progestagens alone	Yes	Yes	Preferably at detected heat
Progestagens combined with PGF and GnRH	Yes	Yes	Insemination at fixed time possible