

# Heat detection in dairy animals: What, Why and How?

## What is Heat (Estrus)?

Heat in cow is fairly well defined period when she exhibit sexual desire and receptivity to the male. The hormonal and ovarian milieu around the heat is accompanied by some alteration in animal's behaviour. Standing to be mounted by herd mates is considered to be the best indicator of an animal in heat.

## Why to detect Heat?

Among the many components of the reproduction management, heat detection is one of the crucial as it contributes towards the ultimate pregnancy rate and the survival of the embryo. Improper heat detection and insemination of these cows incurs heavy loss in terms of wasteful expenditure of quality male germplasm, production loss and increase risk of introducing genital infections in the female. In this regard attaining higher heat detection efficiency and accuracy is important key to improve individual animal along with overall herd fertility. The selection of proper heat detection method for a particular dairy farm is dependent on several factors like scale of operation, availability of manpower, type of animals etc. and a single aid cannot be used invariably.

## Different behavioural changes around heat

<b>Before Heat (6-10 hrs before)</b>	<b>Standing Heat (18 hrs)</b>	<b>After Heat (10 hrs after)</b>	<b>Metestrous bleeding</b>
<ul style="list-style-type: none"><li>▪ Altered vocalisation</li><li>▪ Smells other cows</li><li>▪ Attempts to ride other cows</li><li>▪ Vulva- moist, swollen reddening of mucus membrane</li></ul>	<ul style="list-style-type: none"><li>▪ Stands to be mounted</li><li>▪ Nervous and excitable</li><li>▪ Bawls frequently</li><li>▪ Rides other cows</li><li>▪ Clear mucus-string from vulva</li><li>▪ Vulva- moist, swollen reddening of mucus membrane</li><li>▪ Off fed and reduced milk</li><li>▪ Rubbed tail head &amp; dirty flank</li></ul>	<ul style="list-style-type: none"><li>▪ Will not stand to be mounted</li><li>▪ Clear mucus discharge from vulva</li></ul>	<ul style="list-style-type: none"><li>▪ Bloody mucus discharge, though always may not be seen</li></ul>



**Mounting and chin resting during estrus**



**Aggressive behaviour, cervical mucus discharge and swollen vulva during estrus**

Buffaloes are shy breeders and many a times the signs of heat are not overt to be detected easily (Silent heat). Incidence of silent heat is high in the herds practicing artificial insemination rather than natural service. Estrus in buffaloes is expressed between the late evenings to early morning, *i.e.* during the darker part of the day, which further reduce the chances of detection. The most conclusive sign of estrus in buffalo is considered as standing to be mounted by a teaser bull or androgenised female. However, this method can only be practiced in organized large dairy herd. Other signs of classical heat may also be found in buffaloes but with less intensity. The chances of detection of heat in buffaloes can be increased by observing the buffaloes during late evening and early morning for heat signs. The person who is milking the buffaloes can detect the heat most efficiently and accurately.

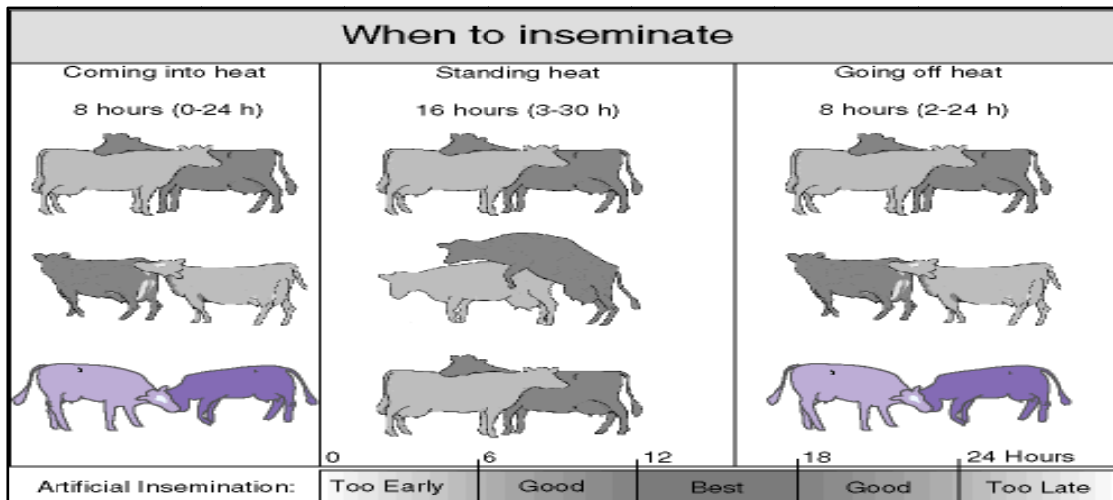
## How to detect heat?

Based upon behavioural changes mentioned above, different methods of heat detection have been developed starting from visual appraisal of heat symptoms to fully automated heat detection aids like infrared camera or radio-telemetric implant devices.

Visual method of heat detection	Non-visual method of heat detection
<ol style="list-style-type: none"> <li>1. Visual Observation</li> <li>2. Heat Expectancy chart</li> <li>3. Marker Animals</li> <li>4. Pressure Sensing Devices</li> <li>5. Activity monitoring by Pedometry</li> <li>6. Video cameras and Recording</li> <li>7. Recording and Evaluation of Vocalisation</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectal palpation of the genitalia</li> <li>2. Milk and Plasma Progesterone detection</li> <li>3. Changes in intravaginal and vulvar electrical impedance</li> <li>4. Elevation in intravaginal and milk temperature</li> <li>5. Rheological properties of cervical mucus</li> </ol>



**Flehmen reaction, frequent micturition and standing to be mounted behaviour during estrus in buffalo**



**Timing of artificial insemination in relation to Estrus**

For further details, please refer:

<http://babcock.wisc.edu/node/158>

<http://www.wikihow.com/Tell-when-a-Cow-or-Heifer-is-in-Estrus>

<http://www.veterinaryworld.org/Vol.6/June%20-%202013/Heat%20detection%20techniques%20in%20cattle%20and%20buffalo.pdf>

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