



SELECT SIRES

HEAT DETECTION AND TIMING OF INSEMINATION

Make Someone Responsible

Maintaining a twelve month calving interval depends on good heat detection and correct timing of insemination. Make heat detection a high priority item in your herd. Make someone responsible for heat detection, be it yourself, a family member or an employee. In that person's absence a backup person should be named and be aware of the responsibilities. Take time to educate everyone on the importance of this job, on what to look for, when to look, and the benefits of a successful heat detection program.

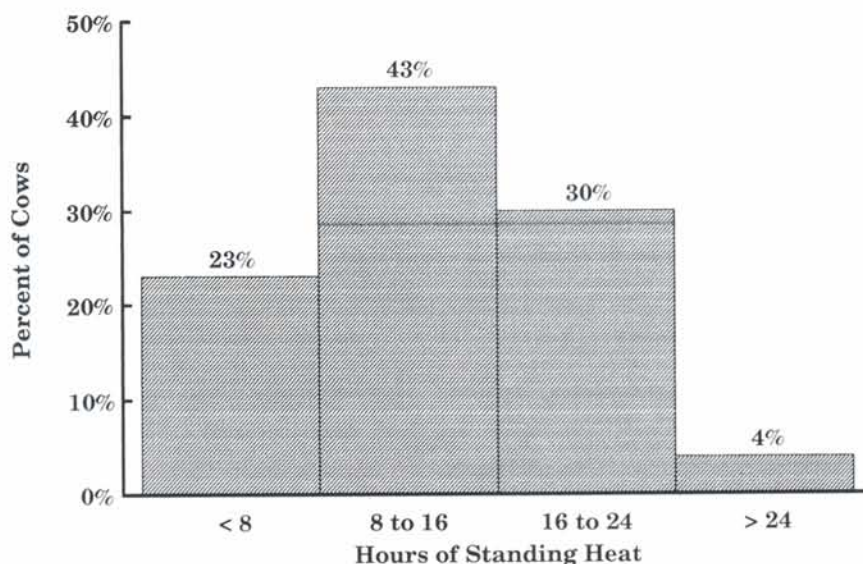
Identify Animals:

The first step in a successful heat detection program is adequate identification of all animals. Ear tags, neck chains, branding, or ankle bands are among the most commonly used methods. Be sure the identification can be read at a distance. This may involve keeping the hair in the ears trimmed, using large ear tags or doing a good job of branding.



Permanently identify all animals.

Variation in Length of Standing Heat



When to Detect Heat:

While the average time in standing heat may be 14 hours, 25% of the cattle stand to be ridden for less than 8 hours. Others may stand for 24 to 30 hours. Therefore, if you choose to observe the cattle once per day, you can only expect to catch about 50% of your cows in heat. Twice a day observations at 11 to 13 hour intervals will allow you to catch about 80% of the heats, while three or four intense 20 to 30 minute periods will result in observing better than 95% of the animals in standing heat.

Many variables including disease, weather, and fear, influence length of standing heat. Cows tend to show signs of heat for a shorter time on extremely warm-humid or extremely cold days.

In keeping heat detection a high priority item, you must do it and

nothing else at the time. Likewise, the cattle should not be doing anything else. While it's true that you should be watching for heat signs anytime you can see the cows, do not schedule your regular heat check periods to coincide with feeding, milking, or cleaning the barn. During these active times cows are busy eating, waiting for relief or dodging the manure scraper.

The best times to watch for heat are the first thing in the morning, before milking and feeding, early afternoon and late in the evening after the animals are milked and have finished eating. These times also correspond with the coolest times of the day, when the frequency of mounting is the greatest. Cows ought to be familiar with the person doing the checking. If possible, they should not associate this person with feeding or trauma situations.

Facilities:

Adequate facilities for heat detection are quite varied across the country. A small 2 to 3 acre lot near the barn may be adequate, but so might a large corral in Arizona or California. Basically the area should be large enough for the animals to mingle freely, but small enough so that all animals can be watched at once.

Important factors to consider when choosing an area for heat detection are footing and shade. Provide good footing so animals won't slip on rainy or icy days. Should a cow slip on a slick surface while mounting or being mounted, she may be hesitant to engage in that activity again. The act of mounting can also exert considerable pressure on an animal's feet. Cows will exhibit more signs of heat and mounting activity on soft, dry dirt than on concrete or gravel surfaces.

While it is best to check heats in the early morning and late evening hours when temperatures are cool, providing some type of shade will keep afternoon temperatures a bit lower and aid in estrus expression. A sheltered area for the person doing the watching will be an incentive to check for heats during bad weather.

Recognize Heat Signs

What are some of the signs of heat to look for? **Traditionally the**

cow that stands still and allows other animals to mount is the animal in heat. This is the primary sign of heat and determines time of insemination since ovulation occurs 25 to 30 hours after an animal first stands to be ridden.

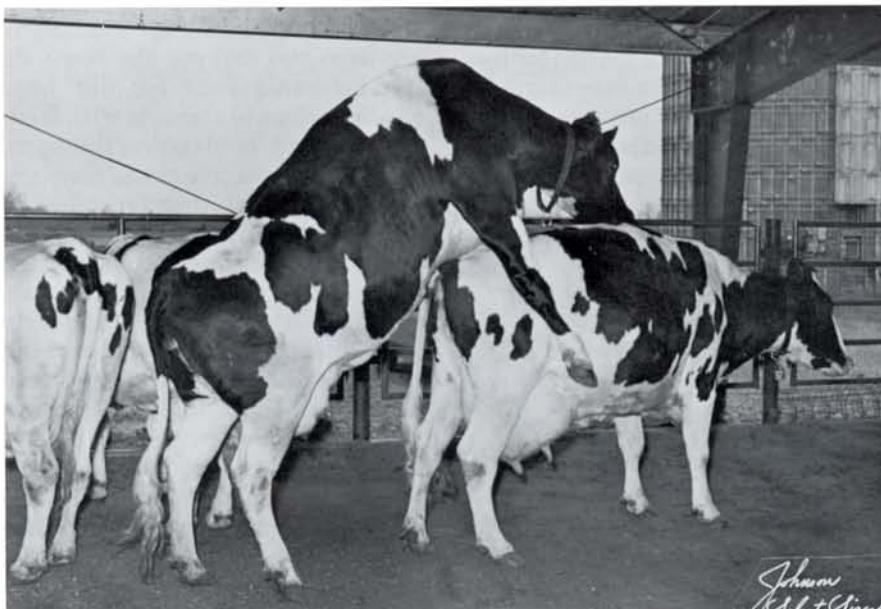
Secondary Signs . . . are unreliable:

Secondary signs of heat may be an indication that the animal may soon display standing heat, is standing now, or has already gone out. Since the degree of these advanced signs vary in length and intensity, they are unreliable as keys to when the animals should be inseminated. Many animals will display secondary signs of heat as much as 48



Cows approaching heat will attempt to mount cows not in heat.

hours before standing heat. A cow or heifer coming into heat may attempt to mount other animals not in heat. She may often lay her head up over the backs of her compan-



Standing to allow mounting is the **PRIMARY** Heat Sign.



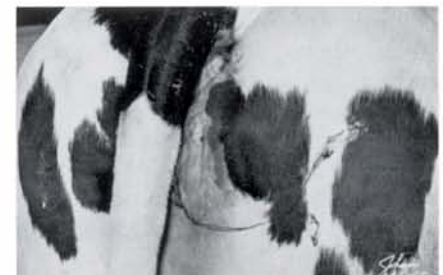
Head laying is a Secondary Heat Sign.

ions. They may spend considerable time in licking or sniffing activities whether on the giving or receiving end. The animal will begin holding her ears erect, walking fences, bellying or become restless and nervous. While little discharge is seen beforehand, the lips of the vulva will begin to swell and go from light pink to dark pink or red. The animal may also urinate frequently.



Frequent urination is a Secondary Heat Sign.

Cows coming into heat will become more active and will spend more time walking around rather than lying down chewing their cud. As the cow moves into standing heat, the hair on her tailhead becomes ruffled from other cows mounting her. With continuous



Mucus Discharge and a Red Swollen Vulva are Secondary Heat Signs.

mounting the tailhead may become raw or void of hair. Her flanks will become dirty from other cows' hooves, while saliva from their mouths will be on her back. She may not let her milk down, nor come into the parlor in her usual manner. Both are signs of being somewhat nervous. Large amounts of a clear viscous discharge may stream from her vulva, get caught on her tail and get smeared on her side. Cows in heat spend less time

eating. Thus, you may see a slight depression in milk production.



Bawling and Erect Ears are Secondary Heat Signs.

After Heat:

As an animal goes out of heat, she may stand to be ridden for a few seconds and then scoot out from beneath the riding individual. Eventually she avoids all attempts of being mounted. She may butt heads with other animals. Her vulva returns to a light pink color and becomes dry and wrinkled. Often, her tailhead will be rubbed raw. In muddy conditions her flanks will be caked with mud. She will often appear a bit weak or tired due to the intense physical activity over the past 24-48 hours.

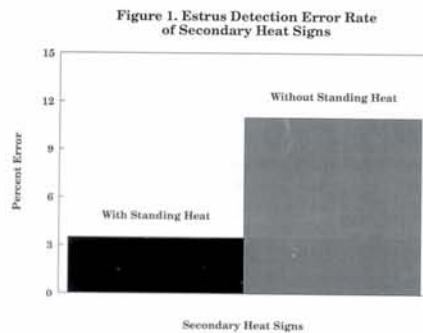


Dirty Flanks and a roughed tail head are Secondary Heat Signs.

One to three days after an animal was standing, a bloody discharge may be seen coming from her vulva. This indicates only that she has been in heat. It has no relationship with ovulation or whether or not she became pregnant. If you see only the bloody discharge, a written note to watch her closely 18 days later may help to catch her standing the next time.

A 1985 study at Cornell University shows the importance of accurate heat detection. Cows were observed for heat and all signs were recorded. Any cow presented for breeding and assumed to be in heat was evaluated for milk progesterone content. Since no functional corpus luteum should be present on the ovary when an animal is in heat, only cows with low progesterone levels were actually considered to be in heat or approaching estrus. Figure 1 shows the estrus detection error rate for secondary signs of heat with and without observation

of "standing heat." Regardless of the secondary sign, the error rate was significantly lower when standing heat was also observed.



How to Heat Check

You can actually begin to check heats before you reach the pasture or pen where the cows are kept. If several cows are in heat, they will often form a small sexually active group on the periphery of the rest of the herd. When this situation is observed, these cows should be watched very closely during the heat check period.

Watch for cows that are waiting at the gate or come running to the gate as you approach. Especially if these cows are usually timid or shy. The pets in the herd may run away or become very elusive as estrus approaches.

Most of the cows in heat will at least be standing or active, however, don't rule out the animal lying down. Walk the lot and make all cows stand and mingle. Watch for globs of clear mucus which will often flow from the vagina of a cow in heat when she stands. Move cows from one end of the lot or pen to the other several times during the heat check period. This will often encourage additional mounting activity. Periodically, force cows to mingle.

Mounting frequencies increase two or fourfold when more than one cow is in heat. Keep the standing cow with the herd until she is inseminated. She will help you detect other potential animals to breed. This practice may involve risk to the animals if footing conditions are less than optimal.

Carry a note pad and pen to write down the name or number of any cow showing any signs of heat. Circle or star the number of any cow in standing heat so she can be inseminated later. Cows showing secondary signs of heat can be watched more closely for standing

heat during subsequent heat check periods. Also, by writing down the number, cow 98 in heat won't become cow 89 at insemination.



Carry a notepad to write down the number of cows in heat.

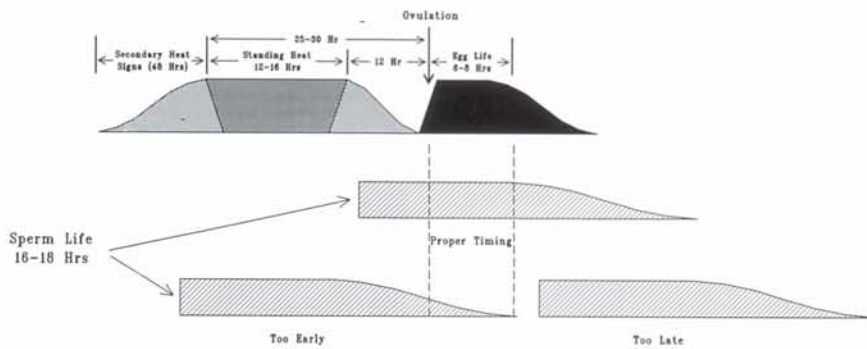
Make a practice of recording all heat dates for all cattle regardless of whether or not they are inseminated. Take a few minutes to transfer data on cows in heat to a centralized record. This will help you to watch for the same cow when she comes back in heat in 21 days. It will also alert you to detect unusual cycle lengths before breeding so needed veterinary treatment can be done quickly.

When to Inseminate:

Cows normally ovulate 25 to 30 hours after first standing to be ridden. Ovulation is triggered by the same mechanism as the one which brings a cow into standing heat. The correct time to inseminate her depends on your knowing when she first allowed another animal to mount.

For best conception results, inseminate cows and heifers about 10-14 hours after they first stand to be ridden. This means animals first seen in standing heat in the morning, should be inseminated late that afternoon. Animals first seen in heat during the evening should be held over until the next morning for insemination, preferably before 10:00 a.m. This procedure is referred to as the AM/PM rule. While conception rates will not drop a great deal if exact insemination times are not adhered to, people managing herds with good breeding efficiencies inseminate cows close to the prescribed time.

Proper timing of insemination results in a large number of healthy sperm being available to fertilize the egg soon after its release. By inseminating too soon in the heat period, such as when cows are bred on secondary signs, many sperm cells will have died by the time the cow ovulates. By inseminating too



Proper timing of insemination is key to maximizing fertility.

late, the egg will have aged, deteriorated and died before sperm reach the site of fertilization. A cow might be bred too late for instance if she was in standing heat in the morning but was not detected until that afternoon or evening. This might be due to a skipped heat check period because of inclement weather, no other cows in the herd approaching estrus or interested in mounting, or many other reasons. If we stick to the A.M./P.M. rule, this cow would probably be inseminated the following morning when actually she should be bred that same afternoon.

Detection Aids Help in Difficult Cases ... But ...

By allowing adequate time for heat detection, most cows and heifers will be seen when they show

signs of heat. However, certain individuals will not or cannot stand to be mounted while in heat. Others stand for such a short time that you miss them. There are some animals that will not show heat no matter how well they are observed, such as 2 year olds under heavy lactational stress, severe cases of uterine infection, or any cow or heifer under nutritional stress. Heat detection aids applied to the rump of the cows, such as "KaMar" patches, will be triggered to a red condition when the cow is mounted. Likewise, crayon markers applied to cows will become smeared after an animal is ridden. These devices may help to call your attention to these animals who would otherwise go unnoticed.

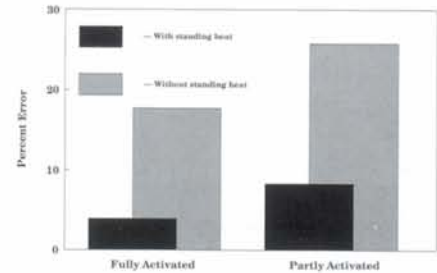
Care must be taken when using such aids since these devices can be activated by low branches or oilers.



Heat Detection Aids are only Aids.

Also, the aids often become crutches in a herd with a poor heat detection program. If this happens in your herd, animals will often be inseminated at the wrong time and not settle. Figure 2 shows the heat detection error rate associated with KaMar Patches is approximately 3 times higher without observation of standing heat than it is with observation of standing heat. One must always keep in mind that heat detection aids are supplements to your heat detection program; not substitutes for good heat detection!!!

Figure 2. Estrous Detection Error Rate of K-mar Heat Detectors



Maintaining a successful heat detection program will result in more calves and milk from your cows. This means more profit for your operation and family.



AW/SS - Burlington, WA	NorthStar Coop - East Lansing, MI
COBA/SS - Col., OH; Tyler, TX	MN/SS - St. Cloud, MN
CV SS - Logan, UT	PS/SS - Hampshire, IL
EC/SS - Waupun, WI	SE SS - Franklin, TN
KABA/SS - Louisville, KY	SSP - Rocky Mount, VA

SELECT SIRES, INC., 11740 - U.S. 42, PLAIN CITY, OH 43064 614/873-4683