

South Dakota State University
**Open PRAIRIE: Open Public Research Access Institutional
Repository and Information Exchange**

Extension Extra

SDSU Extension

3-1-2002

Heat Detection in Beef Cattle

Terry Goehring
South Dakota State University

Follow this and additional works at: http://openprairie.sdstate.edu/extension_extra

Recommended Citation

Goehring, Terry, "Heat Detection in Beef Cattle" (2002). *Extension Extra*. Paper 42.
http://openprairie.sdstate.edu/extension_extra/42

This Other is brought to you for free and open access by the SDSU Extension at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Extension Extra by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.



Extension Extra

ExEx 2012
Updated March 2002
F&F: 4.1-3.5

COLLEGE OF AGRICULTURE & BIOLOGICAL SCIENCES / SOUTH DAKOTA STATE UNIVERSITY / USDA

Heat Detection in Beef Cattle

*by Terry Goehring, Extension beef specialist
Department of Animal and Range Sciences*

New techniques and cheaper products for estrous synchronization of beef cattle have increased the use of this management practice for both commercial and seedstock producers. Hand-in-hand with synchronization comes the need to accurately detect heat in cows and heifers.

Heat detection is simply looking for changes in a cow's behavior caused by her coming into, or being in, standing heat. The most definite behavioral change is standing firmly while mounted, with the mounting/riding process repeated several times.

The goal of good heat detection is this: Before declaring a cow in heat and eligible for AI, you must observe her standing solidly while being ridden.

This is a goal that can't be achieved for all cows. A few cows may not be observed in standing heat simply because you're not at the right place at the right time to see them. In addition, by heat synchronization, an overwhelming number of cows may be showing heat, making it very difficult to see each individual cow actually standing. Therefore, you need to evaluate all other signs pointing to a standing heat.

The intent of this publication is to describe in detail what signs to look for when detecting heat. Although cows are referred to throughout the text, the information applies to yearling heifers as well.

Defining Terms

Estrus or standing heat is a regularly occurring

state of sexual readiness during which the female will accept the male. This is indicated in cattle by the cow standing to be mounted by a bull or other cows.

Standing heat typically lasts about 12 to 18 hours, but some cows may stand as short as 4 hours or as long as 24 hours.

Estrous cycle refers to the whole sequence of hormonal and reproductive changes that take place from one heat period to the next heat period. The length of the estrous cycle averages 21 days but may vary among individuals, with 17- to 24-day cycle lengths common.

Physiology of Standing Heat

Standing heat is the result of a series of hormonal changes. Estrogen is produced by the follicles on the ovaries. As a cow's next heat approaches, the estrogen output from the primary follicle increases. The estrogen is released into the bloodstream where it is transported to the brain. The estrogen activates the cow's central nervous system, causing the behavioral changes associated with standing heat.

Signs of Standing Heat

Changes in cow behavior cause some physical changes that may be associated with standing heat. Individually, these changes may not allow a confident decision on whether or not a cow should be bred. However, with some experience in heat detection, if you note enough changes, you can make a confident decision without actually seeing the cow stand.

You may observe the following signs from 4 to 48 hours before a cow comes into standing heat.

Nervousness

This may be observed in excessive, nervous walking accompanied by bawling. Don't expect cows to walk fast without ever stopping, but do watch for movement when other cattle are relatively stationary, as when grazing, nursing calves, laying down, etc. You might see cows grazing while walking or making frequent trips to the feed bunk.

The hyperactivity may start 4 to 48 hours before standing heat and will last until the cow goes out of heat. The length of hyperactivity before standing heat varies from cow to cow. Hyperactivity is nature's way to help the cow attract a bull or search one out herself.

Along with nervousness, cows may appear to be more observant and give the appearance of studying their surroundings or looking for something. If a cow is uncommonly nervous, check her closely the following 1 to 2 days.

Riding others in heat

The cows that are doing the riding may or may not be in heat or coming into heat themselves. The cow that mounts a few times, drifts off, and shows no further interest probably warrants no serious observation. However, check the cow that constantly rides others and doesn't drift away from the activity, or perhaps goes away and comes back.

Look her over for signs of a thick, clear mucus discharge and signs of having been ridden.

Cows in heat usually thrust quite vigorously with their hips when riding another cow. This resembles the movement of a bull when breeding a cow. A thick, clear string of mucus may be expelled from a cow in heat as she rides other cows.

Congregating

Cattle in heat naturally seek each other out, forming little clusters of activity. Several clusters may be formed when a large number of cattle are in heat at the same time. Watch for little groups of cattle that are on the move and for fence-line attraction between two groups of cattle in bordering pastures.

If there is little riding activity in the heat detection pasture, a cow in heat may try to seek out the neighbor's bull or she may be attracted to cows in heat across the fence. This may be particularly noticeable if the cow is a long distance from herdmates or in an area not commonly grazed. If a bull is observing from across the fence, he may be excited and trying to ride something in his own bunch, even if they aren't in heat.

Whenever you note a cluster of cattle and there appears to be excessive, uncharacteristic movement that may include some cows attempting to ride others, monitor that cluster closely. Make careful note, either mentally or in your heat detection book, which cows are present in these clusters. Paying attention to detail and knowing which cows are participating is the only way to later use more subtle signs of standing heat.

When working with synchronized cattle, it is desirable (and most times essential) to sort them off as soon as you're confident they're actually standing. Some cows will be ridden excessively if left in the bunch, which probably isn't a problem, but other cows may be in heat and are going undetected.

After sorting and restructuring the social group, you usually will detect new cows. Sorting in increments of 10 to 25 head allows easy handling and leaves enough riding activity to keep the larger group interested.

If possible, pen the "hot" cows where they can be viewed by the remaining cattle. Make note of the individuals that walk briskly up to the fence to watch the others ride each other. These cows will often bawl more than normal. Individuals displaying this type of behavior often are 1 to 12 hours away from standing heat.

Because of the attraction between cows in heat, penning the "hot" cows in view of the remaining cows and next to an empty pen may make sorting much easier.

Small amounts of mucus

Some cows will have a small amount of mucus that can be seen when they're lying down or when they stand up and stretch. Don't confuse this with the long string of clear, thick mucus associated with standing

heat. A small amount of mucus is not too uncommon and by itself may not be a real good indicator that heat is approaching. However, this does represent a potential change in heat status, so watch the cow closely the next two days.

The following signs usually indicate that a cow is in actual standing heat or that she's less than 12 hours from coming into heat.

Thick, clear mucus

Estrogen also affects the cow's reproductive tract itself, causing a thick, clear mucus to be released within her cervix. This mucus aids in lubrication of the bull's penis during natural mating and in sperm transport into the reproductive tract.

The physical activity of riding other cows, being ridden, or having the reproductive tract stimulated during AI'ing may cause the mucus to be expelled.

Mucus often is observed hanging from the vulva, where it becomes caught on the cow's tail. As she switches her tail, the mucus may be smeared over each rear quarter. Dried mucus will leave a distinct mark for several hours.

All cows in heat should produce cervical mucus. However, the mucus may not be expelled by all cows in heat. Observing thick, clear mucus, or evidence of this mucus on the tail or hip is a strong indication of standing heat. These cows probably should be inseminated, even if they aren't observed standing.

Close physical contact

This goes along with cattle congregating. It may include cows standing head to tail and circling, butting heads in mock fighting, and chin resting on the back or rubbing on the hip of other cows.

For example, cattle will frequently place their chins on the back of another animal before attempting to mount. Sometimes they will vigorously rub their chin along the hip or back and push with their body at the same time. You might also see cattle standing head-to-tail, with chin resting on hip, while circling and pushing with their bodies. This also is a prelude to mounting and may be accompanied by mock fighting or head butting.

Cows in heat will form attachments with each other.

They may try to prevent other cows from riding their partner. Head butting and attempting to drive the other cow off is commonly observed.

If you're heat detecting when cattle are grazing, look for cows almost touching each other. Cows don't normally stand that close together, and if you watch long enough, you might catch a brief mount. If only a few cows are in heat, cows nursing calves do not ride as vigorously during their grazing mode.

Swollen vulva

A somewhat reddened and swollen, loose vulva often is mentioned as a characteristic of standing heat. Practical experience suggests that this may be subject to interpretation and difficult to see making it of limited value as a heat detection aid.

Natural markers

Normally, the hair on the cow's tailhead is lying down and pointed toward the tail. A cow that's been ridden hard will sometimes have the hair rubbed off her tailhead down to the hide. Before this occurs, the hair may be roughened up to the point where it sticks almost straight up. The hair on the sides along the hip and over the hip may be rubbed off, in the case of cows that haven't shed off, or have a roughened, disorganized appearance in shorter-haired cows. This is caused by being gripped by the front legs of the cow that is riding.

Mud leaves an excellent natural marker; cows will have mud plastered on both flanks and maybe further up along the back ribs. Take care when using mud and hair loss as a sign that a cow is being ridden. Both sides of the cow in question must show the signs, since a cow cannot be ridden and marked on only one side.

Hot iron hip brands that are fresh but scabbed over make excellent heat detection aids. When the cow is ridden, the scab will be peeled off and leave the brand bright-red. Apply brands about 6 weeks before heat detection starts. Normal branding procedures for ownership (as calves, on locations other than the hip) will limit the use of this aid. However, it might be useful to use a year brand for heat detection purposes.

Cattle can be inseminated with good results, based

solely on natural markers, if the heat detector is observant and knows approximately when the cow might have been standing previously. That means natural markers can be used effectively only if you have a record from the previous heat detection period of cows that showed signs of approaching standing heat.

Calf Behavior

It is true that suckling steer calves will try to ride cows in heat, but they also will try to ride cows that aren't in heat. So, being ridden by calves is not a very reliable heat detection aid. However, if two or three calves are determined in their efforts to follow and mount a cow, perhaps you should watch her.

Cows in heat travel the pasture and, consequently, their calves sometimes get left behind. Take note of the calf that's bawling and acts like it's looking for its dam or hasn't nursed for awhile. The dam could possibly be in heat.

Bloody Discharge

Two to three days after standing heat, you may observe a bloody discharge from the cow's vulva. You may see evidence of a bloody discharge on her tail or rear quarter. The bloody discharge is normal and only means the cow was in heat, and, if not inseminated already, it is too late. A bloody discharge has no relationship to conception.

General Heat Detection Considerations

Cycle lengths of 7 to 10 days are termed "short cycles." Beef cattle may have a short cycle after the first standing heat postcalving or after the pubertal heat in heifers. The short cycle is caused by a short-lived corpus luteum. The heat preceding the short cycle is not fertile, the next one will be fertile, and the cow that short-cycles should be inseminated again.

Establish a heat detection routine that allows you to observe cattle initially without disrupting their estrous behavior. That means don't do anything that will distract the cattle from riding cows in heat, i.e., allowing the cattle to hear the sound of the feed vehicle, feeding the cattle, gathering them before observation. If possible, don't check heat in the same vehicle used to carry their feed.

Cattle confined in close quarters will try to mount each other. If you see mounting activity when the cattle are being herded or after they are corralled take some time to determine if any cows are actually standing.

Heat detection is a skill learned through experience. Very early in the morning and in the evening are the best times to heat detect, particularly cow/calf pairs out on grass.

Some producers experienced in heat detection suggest that 20 to 30 minutes of observation night and morning is adequate. Others think 45 minutes to an hour is necessary. In practice, base your time spent on heat detecting on how long it takes you to be confident that you have found all the cows in heat. It's a bad feeling when you have to leave the cows, wondering if you've missed a heat.

If 100% of the cows or heifers in a management group are cycling, then about 5% should show estrus each day. A daily average of less than 5% may indicate that a portion of the females are not cycling and estrous synchronization results may be disappointing. Or, it may mean inadequate heat detection.

This publication and others can be accessed electronically from the SDSU College of Agriculture & Biological Sciences publications page, which is at <http://agbiopubs.sdstate.edu/articles/ExEx2012.pdf>



Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the USDA. Larry Tidemann, Director of Extension, Associate Dean, College of Agriculture & Biological Sciences, South Dakota State University, Brookings. SDSU is an Affirmative Action/Equal Opportunity Employer (Male/Female) and offers all benefits, services, and educational and employment opportunities without regard for ancestry, age, race, citizenship, color, creed, religion, gender, disability, national origin, sexual preference, or Vietnam Era veteran status.

ExEx 2012 - PDF by CES November 1990; updated March 2002.