



October 2007

AG/Swine/2007-02pr

## Swine Artificial Insemination for Beginners: Heat Detection

*Dennis Worwood*, USU Extension Educator, Emery County

Heat detection is the most important and time consuming part of an A.I. breeding program. Your goal is to recognize when the sow or gilt reaches “standing heat,” which is the period when she stands still and rigid when you put weight on her loin. Detection of standing heat is critical because it determines when the animal should be inseminated. Gilts should be bred 12 hours after standing heat is detected, and again 12 hours after the first insemination. Sows should be bred 18-24 hours after detection of standing heat, and again 12 hours later. These insemination schedules work on most animals, but you may need to adjust timing on those that have extra short or long heat periods.

Heat detection is change detection. To be successful, you must know how an animal looks and acts when she is not in heat, and recognize changes in appearance and/or behavior that occur when she is in heat. It is helpful to make comparisons. How does the animal look and act compared to other sows and gilts? Is her appearance or behavior different than normal? Is her appearance or behavior different than it was 12 hours ago?

Check sows and gilts twice a day for signs of heat. Physical signs of heat are easy to see at feeding time. Changes in behavior are best observed after the animals have been fed, when they are not distracted by food.

Changes that may be observed as a sow or gilt is coming into heat are listed below in chronological order. Some animals will not show all

of the signs listed. For example, a sow may appear physically normal but behave differently when she comes into heat.

**Unusual Noise and Activity:** Sows and gilts that are coming into heat may “chant” or make other unusual noises. You may hear squealing as animals in heat attempt to ride other sows. Watch for animals that sniff, nuzzle or ride other sows or walk the fence line. Many animals show less interest in feed when they are coming into heat. Nearly all sows and gilts show increased interest in boars as they are coming into heat.

**Reddening and Swelling of Vulva:** Swelling of the vulva is perhaps the most easily-recognized physical sign that an animal is coming into heat. In many animals the vulva swells and reddens 2 to 5 days before she is ready to breed.

Some sows (and gilts) show little or no swelling. To detect heat in these animals, compare the appearance of their vulva with those of other sows and gilts. Carefully watch for changes in behavior or other physical signs described below.

Reddening and swelling of the vulva peak and begin to subside 24 to 36 hours before the animal reaches standing heat.

**Engorged Clitoris/ Sticky Mucous Discharge:** The clitoris is a small, finger-like structure located inside the base of the vulva. It can be seen by pulling the lips of the vulva apart and

outward. The clitoris may be difficult to see in gilts because of the small size of their vulva. When a female is in standing heat, the clitoris is engorged with blood, causing it to protrude outward and have a bright red color. The lining of the vulva may also be red at this time. When females are not in standing heat, the clitoris is flat and has the same light pink color as the lining of the vulva.



**Figure 1.** A red, swollen vulva is often the first sign that an animal is in heat.



**Figure 2.** A mucous discharge is often present just before and during standing heat.

Most sows and gilts discharge mucous from the vulva as they approach standing heat. At first the mucous is clear, slick and oily, but becomes cloudy and sticky during standing heat. To check the consistency of the mucous, put on a latex glove and wipe the inside of the vulva with the thumb. Press the pointer finger and thumb together and slowly draw them apart. If a strand of mucous connects the thumb and pointer as they are drawn apart, the mucous is sticky. Straw or bedding stuck to the vulva is another sign that the animal is discharging sticky mucous.



**Figure 3.** The sow on the left is nuzzling and attempting to ride other sows.

An engorged clitoris and sticky mucous are physical signs that the female is in standing heat, or that standing heat is only a few hours away.

**Roaring:** Some sows and gilts “growl” or “roar” when they reach standing heat. A sow or gilt that gives repeated deep-throated growls should be checked immediately for standing heat.

**Signs of Standing Heat:** Once signs of heat are noticed, the sow or gilt should be checked morning and night for standing heat. This is best done after the animal has finished eating. Check for standing heat by pushing down on the animal’s loin with both hands, or by sitting on the loin. A female in standing heat will stand still and rigid, and often “push back” by arching her back slightly when weight is applied to the loin. This is an instinctive response that braces her to support the weight of the boar.

The classic sign of standing heat is “ear popping,” in which the female holds her ears erect with the tips nearly touching when weight is applied to her loin. Floppy-eared breeds like Durocs can’t hold their ears erect, but may twitch their ears or lift them part way. Ear popping is a sure sign that the animal is in standing heat.

Sows and gilts show a much stronger response to loin pressure if allowed nose to nose contact with a mature boar that is in an adjacent pen. Allow contact with the boar only during heat

detection, since sows and gilts that have constant exposure to a boar may not react to loin pressure even when they are in standing heat. If no boar is available, Sex Odor Aerosol (also called SOA or Boar Scent) should be sprayed on the female's nose before applying weight to the loin. SOA is a synthetic version of a pheromone found in boar saliva, and is available from many boar studs.

When using SOA, spray a little on the animal's nose and observe her reaction. Sows or gilts that are not in heat show little interest in SOA and may be repelled by it. Sows and gilts that are coming into heat are interested in the SOA and may follow if you walk away after spraying it. Animals that are in standing heat usually stand and pop their ears (sometimes without loin pressure) when SOA is sprayed on their nose.

A nervous, frightened, or injured animal may not allow you to apply back pressure even if she is in standing heat. This can often be overcome by allowing nose to nose contact with a mature boar in an adjacent pen. Some sows and gilts will not stand for loin pressure unless a boar is present.

Always handle animals calmly and humanely so they will not be afraid of you during heat detection and insemination.



**Figure 4. "Ear popping" when weight is applied is a sure sign of standing heat.**

Utah State University is committed to providing an environment free from harassment and other forms of illegal discrimination based on race, color, religion, sex, national origin, age (40 and older), disability, and veteran's status. USU's policy also prohibits discrimination on the basis of sexual orientation in employment and academic related practices and decisions.

Utah State University employees and students cannot, because of race, color, religion, sex, national origin, age, disability, or veteran's status, refuse to hire; discharge; promote; demote; terminate; discriminate in compensation; or discriminate regarding terms, privileges, or conditions of employment, against any person otherwise qualified. Employees and students also cannot discriminate in the classroom, residence halls, or in on/off campus, USU-sponsored events and activities.

This publication is issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Noelle Cockett, Vice President for Extension and Agriculture, Utah State University.