



# ANIMAL SCIENCE FACTS

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## Extension Animal Husbandry

Department of Animal Science

### HEAT DETECTION AND BREEDING IN MEAT GOATS

**Jean-Marie Luginbuhl**  
*Extension Meat Goat Specialist*

Although goats are considered seasonal breeders and in our region the breeding season generally extends from September to February, many exceptions occur. Dairy breeds such as the Saanen and Alpine are temperate climate Swiss dairy breeds and the prototype of seasonal breeders. Nevertheless, even in these two breeds, some does have the ability to breed out of season and as early as July if housed or grazed with a buck. The Nubian breed, originally derived from African stock, is probably the least seasonal dairy type goat. Meat type goats such as the Pygmy and the Myotonic (Tennessee Stiffleg) also differ in their ability to breed out of season. The same appears to be true for the Boer breed. The Pygmy is a true year around breeder in the USA, whereas the Myotonic is moderately seasonal. Factors playing an important role in the ability of goats to breed out of season include plane of nutrition, body condition, and stimulus from a buck.

Segregating does from bucks is crucial in the development of sound breeding programs that should be paralleled with feed resources and market demands. The best approach to separate does from bucks is to develop a secure buck pasture. The buck pasture should be far enough from the breeding doe herd, otherwise

bucks will attempt to go through fences to breed does in estrus.

In goats, estrus can be induced with the strategic exposure of anestrus does to intact males. This response is dependent on the depth of seasonal anestrus and associated with a first ovulation in two to three days after the introduction of the buck. The first ovulation is usually silent and of low fertility. The second ovulation five days later is accompanied by a fertile estrus. The response to the male effect is influenced by the sexual aggressiveness of the buck, the intensity of the stimulation and the body condition of the does. Immediate contact results in a greater response than fence-line contact or intermittent contact. The pheromones responsible to induce estrus are present in buck hair, but not in urine, and are not associated with buck odor during the breeding season.

During the breeding season, goats come into heat or estrus approximately every 18 to 22 days. A transitional period occurs at the beginning and end of the breeding season during which short heat cycles without ovulation have been documented. Short estrous cycles of less than 12 days and very often of 5 to 7 days may occur, especially in young does. Mature does that have shortened estrous cycles in the middle of the breeding season should be considered abnormal.

For successful breeding, does and bucks should be joined for 40 to 45 days, which is the length of time necessary for does to complete two estrous cycles. A ratio of 20

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*Reviewed by: Steven P. Washburn and Scott Whisnant, Department of Animal Science, North Carolina State University, and Stephan Wildeus, Virginia State University*



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to 30 does per buck is recommended for best breeding results.

Does in heat become vocal and some bleat very loudly as if in pain. Constant tail wagging from side to side is another sign of heat. In addition, the vulva will appear slightly swollen and reddened and the area around the tail may look wet and dirty because of vaginal discharge. Other signs of heat include decreased appetite and an increased frequency of urination. Does in heat also are easily identified if a buck is nearby. They will pace restlessly along their enclosure for a way to get to the buck or stand close to the fence. Finally, a doe in heat may mount another doe as if she were a buck or let another doe mount her.

In spite of all these signs, it is still sometimes possible to miss heat. In general, people experiencing most trouble in detecting estrus usually have only one or two goats. In some instances, it may be very useful to run a teaser (vasectomized) buck with the does to detect estrus. A vasectomized buck is rendered infertile through surgery by cutting the tubes carrying the sperm from the testes to the penis. However, his libido and interest in mating still remains. An intersex animal exhibiting female genitalia with an enlarged clitoris but demonstrating male mating behavior has been used to detect estrus at the NCSU Meat Goat and Forage Educational Unit. Animals used to detect estrus can be fitted with a harness containing a crayon that will mark the females in heat when they are mounted. If the herd is checked twice a day, marked females can then be separated and mated to the appropriate stud male.

The duration of estrus varies from 12 to as long as 48 hours. Within that duration standing heat (the period the doe stands firmly when a buck attempts to mount)

lasts approximately 24 hours. For some unknown reasons, some does in estrus will not stand to be bred by certain bucks. Ovulation usually occurs 12 to 36 hours from the onset of standing heat. At the beginning of estrus, the vaginal discharge is clear and colorless. It becomes progressively whiter and more opaque towards the end of standing heat.

Does reach puberty and may be ready to breed at 7 to 10 months of age. However, does should not be bred until they reach 60 to 75% of their expected mature weight, because otherwise their growth may be stunted. Therefore, in deciding when to breed does, producers should consider their age and size, but also when they were bred last, and their body condition. Season should also be taken into consideration because kids born during the hot spring or summer months do not thrive and experience more health problems than kids born during cooler parts of the year. Meat goats are often bred every 8 months. Such frequent breeding requires excellent management, good nutrition, and breeds that effectively breed out of season. However, breeding once a year will result in increased litter size per breeding and over the lifetime of the doe, give the doe more time to nurse kids when they grow the fastest, and will give the doe time to rest to replenish its body condition for the next breeding season.

Additional related information can be found in the following Animal Science Facts:

- ANS 00-602MG: PREPARING MEAT GOATS FOR THE BREEDING SEASON.
- ANS 00-605MG: MONITORING THE BODY CONDITION OF MEAT GOATS: A Key to Successful Management.
- ANS 00-606MG: BASIC MEAT GOAT FACTS.