

# Breeding and Kidding Management in the Goat Herd

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**As the breeding season approaches**, producers should be concerned with the body condition of their breeding does. Goats should not be allowed to become too thin or too fat. Failure in reproduction, low twinning rates and low weaning rates will result if does are too thin. Overly fat does can suffer pregnancy toxemia, but fat does are rarely a problem.

The term body condition refers to the fleshing of an animal. Because the greatest potential for goats is to graze them with beef cattle, we have devised a 1 to 9-point graduated scale, adapted from the beef system used in North Carolina. In that graduated scale, thin is 1 to 3, moderate is 4 to 6 and fat is 7 to 9. In most situations, goats should be in the range of 4 to 7. Scores of 1 to 3 indicate a problem, and scores of 8 to 9 are almost never seen in goats. The ideal **body condition score** (BCS) just before the breeding season is between a 5 and a 6 to maximize the number of kids born. Simply looking at an animal and assigning it a BCS can easily be misleading. Rather, animals should be touched. The easiest area to feel and touch to determine the body condition of an animal are the rib areas, on either side of the spine, by running a hand over those areas and pressing down with a few fingers. In doing so, one is able to determine the amount of fat covering the ribs. Other areas to monitor are the shoulders, the tail heads, the pins, the hooks, the edge of the loins and the backbone. Practice makes perfect, thus use your animals to get a feel for it. An easy way to start is to select a few animals that are over conditioned and some others that are thin in order to get a feel for extreme BCS. Then introduce a small group of animals and compare their BCS to the animals having extreme BCS. Producers should develop an eye and a touch for the condition of their animals and strive to maintain a moderate amount of condition on their goats. When body condition starts to decrease, it is a sign that supplemental feed is needed or that animals should be moved to a higher quality pasture. Waiting until goats become thin to start improving their feeding regime may lead to large production losses.

One should also be concerned with the body condition of the breeding bucks. If bucks are overfed and become too fat, they may have no desire to breed does.

**Pregnant does** should not have a body condition score of 7 or above toward the end of pregnancy because of the risk of pregnancy toxemia. In addition, a body condition score of 5 to 6 at kidding should not drop off too quickly during lactation.

**Body condition score is also used to determine whether flushing will be of benefit to breeding does.** Flushing means increasing the level of feed offered to breeding does, mostly energy, starting about one month prior to the introduction of the bucks, to increase body weight, ovulation rate and hopefully litter size. Increasing the level of energy offered to does should continue throughout the breeding season and for approximately 30 to 40 days after removing the bucks for adequate implantation of the fetuses in the uterus. Does in extremely good body condition (BCS = 7) will tend not to respond to flushing. On the other hand, does that are in relatively poor condition (BCS = 4 or lower) as a result of summer pastures of poor quality, high

worm loads, late kidding of twins or triplets, will respond favorably to flushing by improving their body condition.

Flushing can be accomplished by moving breeding does to a lush nutritious pasture 3 to 4 weeks prior to the introduction of the bucks. This cost-effective flushing method is underutilized in the Southeast where forage is abundant. Another method is feeding ½ lb/day of a high energy supplement. Corn is the grain of choice for flushing; whole cottonseed is another low cost, high energy supplement. The goal being to increase the intake and body weight, breeding does should be grouped according to their BCS and fed accordingly to first improve their body condition, then to maintain it.

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### **BODY CONDITION SCORING CHART**

BCS 1	Extremely thin.	Extremely thin and weak, near death.
BCS 2	Extremely thin.	Extremely thin but not weak.
BCS 3	Very thin.	All ribs visible. Spinous processes prominent and very sharp. No fat cover felt with some muscle wasting.
BCS 4	Slightly thin.	Most ribs visible. Spinous processes sharp. Individual processes can be easily felt. Slight fat cover can be felt over the eye muscle.
BCS 5	Moderate.	Spinous processes felt but are smooth. Some fat cover felt over eye muscle.
BCS 6	Good.	Smooth look with ribs not very visible. Spinous processes smooth and round. Individual processes very smooth, felt with considerable pressure. Significant fat cover felt over eye muscle.
BCS 7	Fat.	Ribs not visible, spinous process felt under firm pressure. Considerable fat felt over eye muscle.
BCS 8	Obese.	Animal is very fat with spinous processes difficult to feel. Ribs can not be felt. Animal has blocky obese appearance.
BCS 9	Extremely obese.	Similar to an eight but more exaggerated. Animal has deep patchy fat over entire body.

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### **SUMMARY - BODY CONDITION**

- To monitor and fine tune nutrition program

- To "head off" parasite problem
- Visual evaluation is not adequate, has to touch and feel animal
- **Areas to be monitored**
  - Tail head
  - Ribs
  - Pins
  - Hocks
  - Edge of loin
  - Shoulder
  - Back bone
  - Longissimus dorsi
- **Scale**
  - Thin 1 to 3
  - Moderate 4 to 6
  - Fat 7 to 9
- **Recommendations**
  - End of pregnancy 5 to 6
  - Start of breeding season 5 to 6
  - Animals should never have a body condition score of 1 to 3
  - Pregnant does should not have a body condition score of 7 or above toward the end of pregnancy because of the risk of pregnancy toxemia
  - A body condition score of 5 to 6 at kidding should not drop off too quickly

## **Heat detection**

Goats are seasonal breeders and in our region the breeding season **GENERALLY** extends from September to February, although exceptions occur. There are even indications that in dairy herds some does (Saanen, Alpine, Nubian) have the ability to breed out of season and as early as July if housed or grazed with a buck. Meat type goats such as the Pygmy and the Tennessee Stiffleg apparently have the ability to breed out of season. The same appears to be true for the Boer breed. Two factors playing an important role in the ability of goats to breed out of season are plane of nutrition and body condition.

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 scent emitted by glands located behind the base of the bucks' horns will induce estrous in does. This is called the "**buck effect**". Does will come into heat approximately 7 to 10 days after the introduction of the buck. It is a good strategy to use to naturally synchronize breeding does at the start of the breeding season.

During the breeding season, goats come into heat or estrus approximately every 18 to 22 days. 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 mature and smelly 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 male mating behavior has been used to detect estrus at the NCSU Meat Goat and 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 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. On occasion, some does may find the buck sexually unattractive and will not stand to be bred. Ovulation usually occurs 12 to 36 hours from the onset of standing heat. At the beginning of the heat cycle, the vaginal discharge is clear and colorless. It becomes progressively whiter and more opaque towards the end of standing heat.

### **Other Considerations**

**Deworming, vaccinating and hoof trimming:** Animals that have a rough hair coat and general appearance, that stay thin and do not gain weight, may have a high worm load. Such animals will not breed well. Therefore, it is a good practice to **deworm the breeding flock** (does and bucks) prior to flushing or/and the introduction of the bucks. Does should not be dewormed during the first 20 to 60 days of pregnancy because the stress associated with handling and deworming may cause the animal to abort. In addition, some dewormers may induce abortion. Cases of abortion have been reported, but not proven, with levamisole (trade name: levasol, tramisole, ripercol). Albendazole (trade name: valbazen) should not be used during the first third of pregnancy and oxfendazole (trade name: benzelmin) should not be used at all in pregnant animals. Does should also be dewormed 2 to 3 weeks prior to kidding or at kidding because the doe hormonal changes will induce gastrointestinal parasites to produce a lot of eggs. In turn these eggs will be excreted in the feces and contaminate pastures and the animals' other surroundings.

**The breeding flock should be vaccinated** against enterotoxemia (over-eating disease) and tetanus. Adult breeding males should be vaccinated once a year. Breeding females should be vaccinated 4 to 6 weeks before kidding, so that some immunity will be passed to their offspring. An additional vaccinating of breeding does could take place 4 to 6 weeks before breeding. Following birth, kids should be vaccinated against enterotoxemia and tetanus at 8 weeks of age, followed by a booster at 12 weeks of age.

**Trimming the hooves** of breeding animals is another practice that will increase reproductive success. Limping does may not let bucks breed them and bucks with hoof problems may breed only sporadically or even not at all.

## **Kidding**

Have the pregnant does graze a pasture close to your house, so that you can easily check them. If you supplement your does with a concentrate or hay, feed it at night. Somehow late feeding delays birthing toward the early morning hours in the majority of animals. It is a good idea to have some kidding pens ready for weak kids. It is not always easy to detect pre-kidding signs in goats: however, mucous discharge is a sure sign that kidding is imminent. Following birth, the navel of newborn kids should be dipped in iodine.

## **Nutrition of Newborn Kids**

Colostrum is the first milk produced after parturition . Colostrum contains a high content of immunoglobulins (antibodies), vitamin A, minerals, fat and other sources of energy. Antibodies are proteins which help the goat kid fight diseases. The ability of kids to resist diseases is greatly affected by the timing of colostrum intake and the quantity and quality of the colostrum fed. Reports from cattle indicate that if left alone, 25% of the young do not nurse within 8 hours and 10 to 25% do not get sufficient amounts of colostrum. Colostrum should be ingested or bottle-fed (in case of weak kids) as soon as kids have a suckling reflex. In cases of extremely weak kids, they should be tube-fed. The producer must be certain that all newborn kids get colostrum soon after birth (within the first hour after birth, and certainly within the first 6 hours) because the percentage of antibodies found in colostrum decreases rapidly after parturition. It is crucial that the antibodies in colostrum be consumed before the kids suck on dirty, pathogen-loaded parts of its mother or stall. In addition, the ability of the newborn kid to absorb antibodies also decreases rapidly 24 hours after birth. Newborn kids should ingest 10% of their body weight in colostrum during the first 24 hours of life for optimum immunity. The extra colostrum produced by high lactating does during the first 24 hours following kidding can be frozen for later use when needed. Only first milking from healthy animals should be frozen for later feeding, and the colostrum from older animals that have been on the premises for several years is typically higher in antibody content against endemic pathogens than is colostrum from first fresheners. Revaccination against tetanus and enterotoxemia (over-eating disease) 2 to 4 weeks before the kidding date is commonly used to improve the protective value of the colostrum against these conditions. Ice cube trays are ideal containers: once frozen, cubed colostrum can be stored in larger containers and the trays used for another batch. Ice cubes are the perfect size for newborn kids, thus thawed colostrum is always fresh, and wastage reduced to a minimum. It is recommended to thaw colostrum either at room temperature or at a fairly low temperature. Colostrum should never be overcooked during the thawing process.

## **When to kid and when to wean?**

Kidding season and weaning age depend on several management and marketing factors. However, kids born in very late winter and early spring (March-early April), when grazed with their mothers on lush, high quality small grains or cool-season forages, will grow faster and will

be healthier than kids born during the heat of late spring and early summer when forages mature and worm burdens increase.

Letting the kids nurse and graze with their mothers for as long as the doe stays in good enough body condition so as not to impair the success of its next breeding season is a sound management practice that will ensure rapid growth of the goat kids.

Weaning is a very stressful period for kids and coccidia infestations generally show up at weaning. It is important to frequently observe weaned kids. Kids showing signs of coccidia infestation should be treated immediately; otherwise they will dehydrate and die. Coccidia can damage the lining of the intestines and if not treated properly surviving kids may not grow to reach their normal size and production potential.

<b>Reproductive Aspects - Summary</b>		
<b>FEMALE</b>		
Age of puberty	7-10 months	
Breeding weight	60-75% of adult weight	
Estrous cycle		
	Length	18-22 days
	Duration	12-36 hours
	Signs	Tail wagging, mounting, bleating
Ovulation	12 to 36 hrs from onset of standing heat	
Gestation length	146-155 days	
Breeding season	August-January	
Seasonal anestrus	February-July	
Buck effect on estrous	Positive	
<b>MALE</b>		
Age of puberty	4-8 months	
Breeding age	8-10 months	
Breeding season	All year	
Breeding ratio	1 buck : 20 to 30 does	