

Criteria to Select Goat Breeding Stock

UNP-110

Introduction

It is important to understand criteria to select and replace breed does and bucks in order to improve the productivity of meat goat herds.

First, become familiar with some commonly used terms for male and female domestic goats (*Capra hircus*) at different stages of reproductive development.

Term	Definition
Doeling	A doeling is a female goat that is less than a year old.
Doe or Nanny	A doe is a mature female goat.
Buckling	A buckling is a young male that less than a year old.
Buck or Billy	A buck is an adult goat male.
Yearling	A yearling is a female or male goat that is a year old.
Wether	A wether is a castrated male goat.

Selection of Replacement Doelings

Replacing doelings in a breeding program is a multi-step process that is based on breed, season of birth, and management practices.

The first screening begins at weaning when the doelings are between 3 to 4 months of age. It is based on weight and development. Doelings are selected from their contemporary group in a herd and kept for further evaluation. At 6 to 8 months of age, the doeling should be re-evaluated based on their growth and development

within their contemporaneous group. Only doelings that have achieved good growth and are structurally sound should be kept as replacement stock.

Further selections are made at the yearling stage when the female is ready to breed. In this stage, choice is based on cyclicity and pregnancy. Young does that do not show estrous cycles or do not become pregnant are cull candidates.

The final selection is made after young does have weaned their first kids. Replacement prospects are determined according to whether the does adequately raised their kids. This practice is only valid when doelings are under the same management practice.

Other traits to consider when selecting replacement doelings:

- Females must be feminine, which includes good structural conformation including good feet and legs.
- The vulva must not be infantile. A small vulva with a tuft of hair is a sign of intersexuality.
- The length of the upper jaw should be equal with the lower teeth touching the superior dental pad. Mouth malformation will provoke bad bites and will prevent the animal from eating efficiently. This trait can also be transmitted to offspring.
- Watch for a higher average daily weight gain during development in comparison to their contemporary group.

Breeding Does

The maintenance of mature does in the breeding stock should be based on higher reproductive performance. Does are expected to wean kids annually. A doe should also exhibit good structure. The udder must be of good

structure, not pendulous, and with good ligaments, with one functional teat on each half to facilitate nursing of the kids. Having oversized teats is a cull factor.

Other valuable traits:

- A doe must be capable of breeding with no more than two services (rate to effect a pregnancy) required to conceive in a breeding season. The does must be able to carry out a pregnancy to term.
- She must be prolific with a history of kidding multiple births and have raised the kids up to weaning unassisted. Keep in mind that the reproductive merit of a doe cannot only be measured by the number of kids she has kidded, but by the number of heavy kids she has weaned.
- Does must have good milk production as indicated by the weaning weight of the kids.

Detecting Reproductive Problems in a Doe Herd and Criteria for Culling

In an existing goat herd it is expected to annually cull 10-20 percent of the stock. A goat production system should rely on does with higher reproductive performance; does that can reproduce, raise, and wean the kids with lower input. The reproductive efficiency of a goat herd is determined by the kidding and weaning rates in a herd. Another important trait is the prolificacy or the ability to deliver multiple kids. Goats should have a weaning rate of 1 kid per year. A rate of 1.5 kids per



Figure 1. Culling does: Cull does with poor conformation of the udder and teats, and/or with mastitis, an inflammation of the mammary gland that will prevent kids from milking.

year is a good herd goal, The percent herd prolificacy can be calculated by the total number of kids born over the total number of does kidded in a season X 100:

Percent herd prolificacy =

$$\frac{\text{number of kids born}}{\text{number of does kidded}} \times 100$$

Percent herd weaning rate =

$$\frac{\text{number of kids weaned}}{\text{number of does mated}} \times 100$$

Criteria for Culling Does from a Breeding Program

The maintenance of poor reproductive performers will lower profitability. Following are some criteria that can be considered for culling:

1. Eliminate does with poor health and higher susceptibility to nematodes (worms) as compared to others in the herd. Also, make sure that does do not test positive for caprine arthritis encephalitis (CAE), toxoplasmosis, CL abscesses, or chronic mammary and/or uterine infections.
2. Avoid does that present frequent prolapsed uterine, or the eversion of the internal uterine layer to the outside the doe's vagina. These abnormalities may be attributed to the genetic makeup of the doe, or are common among does with a history of dystocia or difficult labor.
3. Eliminate does that have poor or lower milk production and are incapable of rearing kids to wean unassisted. Does with poor conformation of the udder and teats prevent kids from suckling adequately.
4. Cull does with poor fertility rates, such as older does that are no longer reproducing; does that fail to reproduce in a production year; or does that require several services per conception. A reproductively sound doe needs no more than two services per conception. However, if the majority of does return to heat in a breeding season, an examination of the buck's ejaculation and an evaluation of management practices must be considered.
5. Remove does that fail to maintain adequate body condition.



Figure 2. Herd sire: Bucks should be sired at 19 months of age.

Selection of the Breeding Bucks or Herd Sires

A herd sire or buck is the most important animal in the herd. The buck contributes 50 percent of the genetic makeup of every kid born and determines overall pregnancy rate of the herd. The choice of good breeding stock is an important factor and fundamental in a meat goat operation. A replacement herd sire or buckling can be selected from the contemporary at weaning (3 to 4 months of age) based on weaning weight. Subsequently, a post-weaning growth evaluation can be made by 6 to 8 months of age.

At 8 months of age, a buckling can serve a small number of females in a herd. At two years of age, bucks are considered adults



Figure 3. Buck with firm mobile testicles: Buck must present firm elastic testicles and have good mobility in the scrotal sac.

capable of serving a large number of does in heat. In general, a good herd sire should be selected based on structural and breeding soundness. Structurally, a good buck must present male characteristics such as the following: masculinity, adequate muscling, conformation of the head and neck, and standard buck vocalization. Bucks must have two testicles in the scrotal sac. The testicles should have a firm consistency, elasticity at palpation, good mobility in the scrotal sac, and be oval-shaped. Adult bucks should present a scrotal circumference of 25 cm in average. Testicular size is positively correlated to daily sperm production and output.



Figure 4. Buck with overbite: Overbites are congenital malformations that can pass to offspring.

Bucks must not present abnormality of the mouth such as an undershot or overshot jaw. The length of the upper and lower jaw should be equal, with the lower teeth touching the superior dental pad. Mouth malformation will provoke bad bites. Buck will not be able to eat efficiently and this trait can be transmitted to the offspring. Pursue bucks with good feet and legs. Avoid bucks with feet problems such as laminitis and arthritis, which causes pain, reduces libido, and prevents copulation. A buck must be dominant and display mating behavior, including a good libido or sexual interest throughout the breeding season in the presence of a doe in heat to effectively present a good serving capacity.

Sexual exhaustion is another condition that dominant buck can suffer during a breeding season, which lowers serving capacity. It's important for bucks to:

- Present a good sense of smell
- Structural soundness

- Present a good erection and be able to ejaculate. Look for malformation of the penis and prepuce. Pursue the ability to produce fertile spermatozoa. It is recommended, when possible, to have fertility tests run.

Criteria for Culling of Bucklings and Bucks

Eliminate buckling from the herd that displays poor conformation such as cryptorchidism, a genetic malformation where only one or no testicles descend in the scrotum. A buckling with hypoplasia or undeveloped testicles is usually a sign of genetic abnormalities. A buck presenting testicular hypoplasia, or testicular underdevelopment, may be infertile and display an abnormal penis and prepuce. In addition, watch for orchitis, an inflammation of the testicle(s). These conditions can cause sterility

or a permanent incapacity to reproduce. Bucks with a permanent incapacity to copulate or that display poor fertility must be culled.



Figure 5. Buck with orchitis, an inflammation of the testicle.

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UNP-110

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All pictures are of the Tennessee State University Meat Goat Research Herd.

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Updated June 2009; UNP-110

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