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Goat Kid Management

Birth to Breeding

Kid management from birth to breeding is an essential component of the dairy goat enterprise. With the possible exception of the nutritional management of the doe herd, the kid management program has the greatest effect on the long-term productivity of the dairy goat herd. The dairy goat kid at birth represents a genetic resource necessary to replenish the herd gene pool which has a changing composition due to death, culling and sales for breeding stock. While the genetic character of the kid is determined at the time of conception, survival to lactation and an adequate body size are necessary to realize inherent genetic potential for lactation. One of the advantages of the dairy goat is the opportunity for rapid genetic progress due to early sexual maturity (breeding is possible at 7 months or less), short gestation interval (150 days) and multiple offspring per parturition (2.0 or more for mature does). Kid mortality has a direct effect on genetic progress by its effect on selection pressure, that is, the percentage of the kids which must be retained as replacements. Maintaining low mortality from birth to weaning while producing a 100 lb. doe at kidding should be the primary objective of the kid management program.

As practiced on most dairy goat farms, the kid raising enterprise is highly labor-intensive. Because in the absence of control programs involving lighting and/or hormonal treatments, dairy goats have a highly seasonal reproductive cycle, a labor-year profile for kid raising would show a peak demand in January through May, with low demand in July through November. In order to reduce the characteristic high labor input per unit of milk produced on dairy goat farms, attention should be given to systems of kid management which reduce labor while keeping mortality low.

Pre-Parturition

The kid management program should actually begin prior to parturition with attention to the nutritional needs of the gestating doe in lactation and during the dry period. With a gestation period of 150 days, most of the development of the dairy goat fetus occurs when the nutritional demands on the doe are at their lowest; late lactation and during the dry period. The tendency is to regard the late-lactation and dry doe as a nonproductive part of the milk-producing system. On the contrary, however, an adequate diet for the dry doe is essential to producing a healthy litter of kids. Depending upon the forage source and size of the doe during the dry period from one to two lb. of a 10-16% concentrate ration should be fed daily. Pregnant does should receive plenty of exercise. An overly fat doe should be avoided but the high-producing doe needs to recover body weight lost during the previous lactation. Clean, cool water and free choice trace-mineralized salt should be available. A supplement meal will aid in fetal development but care should be taken to not overfeed calcium.

Vaccination boosters for *Clostridium perfringens C* and D, and tetanus toxoid should be given not less than 3 weeks prior to kidding. Vitamin E/selenium injections are given during the dry period to prevent white muscle disease in the kids, especially in areas where soils are selenium deficient. Does should be wormed at drying off.

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The goal for average kid weight at birth should be 8 to 11 lbs. Kid mortality in the first 10 days is higher among kids born underweight either due to a premature parturition or poor due nutrition.

Parturition

The doe should kid in a clean environment, either a well-rotated pasture or stall bedded with straw or other absorbent material. The kid prior to birth has been existing in a germ-free environment and parturition represents exposure to common disease organisms to which the mature animal has developed resistance. The location of the kidding stall or pasture should be near a well-traveled area in order that the doe will be frequently observed for kidding difficulties. Few adult does require assistance at the time of kidding though problems are always a possibility. First-freshening does should be closely watched, especially if bred to bucks known to sire large kids.

At birth, two management practices are critical to the future health and survival of the newborn kid. The navel cord should be dipped in a solution of tincture of iodine to prevent entry of disease-causing organisms through the navel cord and directly into the body of the kid. If necessary, a long navel cord can be cut to 3 or 4 inches in length. A bleeding cord should be tied with surgical suture material. Dipping of the cord in iodine not only prevents entry of organisms but promotes rapid drying and the eventual breaking away of the cord from the navel.

The second critical practice is the feeding of colostrum milk as soon after birth as possible. The colostrum, or first milk, contains antibodies which the doe did not pass to the fetal kid in utero. Consumption of colostrum must occur as early as possible and prior to 18 hours after birth as there is a rapid reduction in the permeability of the intestinal wall of the newborn to the antibodies. The colostrum milk should be bottle-fed to the newborn to insure adequate consumption. Excess colostrum can be frozen for use in orphan or bonus kids**. Recent research indicates that disease organisms, especially caprine arthritis encephalitis (CAE), may pass from doe to kid through the milk and transmission might be avoided through the use of extra colostrum frozen from does tested and shown to be CAE-free or pasteurized colostrum**. [Ed. Milk replacer ingredients are pasteurized before use in milk replacer production.] An additional practice at birth which enhances the health of the newborn kid is to give injections of iron dextran and vitamins A and D after birth. A vitamin E/selenium injection may be beneficial in areas of selenium-deficient soils.

Kids should be checked carefully at birth for any deformities or abnormalities.

Pneumonia is a major killer of young kids. A dry, draft-free environment is an excellent preventative measure.

Birth to Weaning

Milk is the principal component of the diet of the preweaning kid. There are numerous ways to feed milk including the use of bottles or pails, suckling the dam or nurse does, and self-feeder units. The method chosen will depend upon such factors as the size of the herd and available labor, as well as personnel preference. With any system, the health of the kid, sanitation and available labor are the major factors to consider. Under natural suckling, kids consume small amounts of milk at very frequent intervals. Ideally, artificial rearing should mimic natural suckling but the constraint of available labor precludes frequent feeding. Nevertheless, kids should be fed 2 to 4 times daily for the first week or two and twice daily thereafter. Bottle feeding is more labor intensive but kids receive more individual attention and are easier to handle post-weaning than kids that are allowed to suckle

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does. Pail or pan feeding may reduce labor somewhat but bodyweight loss and need of extra "training sessions" at the beginning must be expected.

For larger herds, self-feeder units such as a "lamb bar" may successfully reduce labor. The key to use of the system is the maintenance of a low temperature of the milk (40°F) which will limit intake by the kid at any one time.

Small, frequent feedings increase digestibility and decrease digestive disturbances. Consumption of large quantities of milk may lead to bloat due to entry of milk into the reticulo-rumen or rapid passage of milk through the abomasum and small intestines resulting in diarrhea or nutritional scours.

Where a strong market for goat milk exists, kid milk replacer formulated to meet the needs of kids is an important option available. A limitation to the use of milk replacer is the tendency by manufacturers to substitute whey for skim milk as a protein source. Whey is high in lactose which causes bloat and scours in young kids. Research conducted on raising kids on lamb milk replacer fed cold and free-choice from 4 days of age to weaning at 6 weeks indicates that growth performance is lower and the incidence of digestive disturbances such as scours and bloat are increased compared to goat's milk under the same system. If milk replacer is to be used it is recommended that it be given to animals older than 2 weeks of age, or combined with goat's milk on an equal weight basis. It is best to make a gradual change to milk replacer over a few days.

In raising dairy goat kids, increase in size and weight are not the only measurements of success. A well-formed skeleton and proper development of internal organs are often neglected when the emphasis is on rapid gains. An average daily gain of 250 gm during the first weeks of life should be the goal. By limiting daily milk consumption to about 2 quarts, daily consumption of dry feed will be encouraged. Dry feed consumption is important in developing body capacity. By increasing body capacity, feed intake and digestion increase. Research has shown that at two months of age a weaned kid has a reticulo-ruminal capacity 5 times as large as suckling kids of the same age.

Kids should be consuming good forages such as pasture grass or hay by two weeks of age and grain within four. Careful attention need be given to formulation of a concentrate supplement for the pre-weaning kid. Palatability is of primary concern. Molasses at the rate of 100f the total dry matter, corn (preferably chopped or rolled) and whole or rolled oats make up the energy "core" of a good pre-weaning diet. Balance the crude protein needs by adding cottonseed or soybean meal or another high protein source. Though few studies with kids have been done, crude protein contents of the pre-weaning ration should be within the range of 14-18. Ground alfalfa may be added at 50r less to provide additional stimulation for reticulo-ruminal development.

Several factors need to be considered when making the decision as to when to wean dairy goat kids.

The most important consideration is whether or not the average daily consumption of concentrate and forage is adequate for growth and development to continue in the absence of milk. Fixed weaning ages are less desirable than weight goals such as 2.0 to 2.5 times birth weight. Many producers who have an erratic or marginal market for their milk delay feeding for longer periods than necessary. While milk feeding may promote more rapid growth than a concentrate-forage diet, maintaining kids on milk may delay the attainment of the dry feed intake level necessary to weaning and also leaves the kid disposed to diarrhea.

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Kids should be dehorned between 3 and 14 days of age, while the horn bud is visible. The hair should be clipped and a hot electric disbudder held over the area for 15 to 20 seconds with firm, even pressure. The center of t he ring formed by the iron should also be burned and the cap remaining pried off. A topical spray should be applied to avoid problems with flies on the resulting wound. A local anesthesia such as lidocaine may be used to decrease pain and permit easier handling of the kid. Restraint devices are available to purchase or may be homemade.

At about 3 to 4 weeks of age kids should receive a vaccination for *C. perfringens CD* and also tetanus or any bacterin for which there is a problem in the herd. A booster should be given in two weeks.

Buck kids to be slaughtered under 2 months of age need not be castrated. If meat goats are to be kept until an older age, castrating can be done at 2 to 4 weeks. The lower part of the scrotal sac is cut with a knife and the testicles squeezed through the openings. The cords are then cut by scraping with a sterilized knife or scalpel. Iodine or topical spray is
applied. The "bloodless" method of castration using a Burdizzo clamp can be equally effective if care is taken to crush both cords. Use of elastic bands is not to be recommended due to potential development of gangrene.

Weaning to Breeding

The objective of raising the dairy goat kid should be to produce a lactating animal with an adequate body size as inexpensively as possible and in the shortest possible time. For the heavier breeds (Saanens, Alpines, Nubians), the goal should be a 110 lb. doe freshening at 12 months of age and 90 lbs. for the lighter breeds (LaMancha, Toggenburg). If a doe is weaned at 8 weeks, weighing 20 lbs. and is to kid at 12 months, at 110 lbs., then she must gain 90 lbs. in 10 months, or approximately 1/3 lb. daily. Therefore, the nutritional program must aim for a growth rate of approximately 150 gm daily with consideration for both the nutritional requirements of the growing doe and the growing fetus over the 5-month gestation period.

Forage must constitute the core of an economical diet for growing dairy goat kids with mixed concentrates or simple grains fed to provide the nutrients that are not provided by the forage consumed. Forage quality is therefore very important but because the dairy goat is a browsing animal, it is quite poorly estimated. Leaves and young stems chosen by browsing animals have crude protein and digestible energy values higher than the average for the whole plant. The kid grazing on improved pasture, browsing in woodlots or consuming alfalfa hay is able to select plant parts which have a higher nutritional value than laboratory analyses of the forage samples might show. Given the ability of the dairy goat to selectively browse, in order to formulate a program of supplementation on a forage-based diet, one must estimate what the kid is actually consuming rather than what is available.

If good quality, leafy alfalfa hay is fed in quantities which allow for selection, a simple supplement of 2 lbs. of corn or oats per head, daily gain is adequate. On lower quality forage such as poor quality grass hay, or grazing where intake of dry matter might be limited by water content of the forage consumed, 2 lbs. of a higher protein, mixed commercial concentrate may be required. Whatever the "mix" of the diet fed, forage should be provided free-choice in quantities which allow for maximum opportunity to select, with limited feeding of concentrates or grain to fill in the nutritional gaps.

Exercise, fresh water and access to salt and minerals are also important in the post-weaning period. Attention must be given to control of internal parasites, especially coccidiosis. Treatment of kids with a coccidiostat, either liquid or solid, should begin at 3 weeks of age and continue at proper intervals through the post-weaning period.

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Hooves should be trimmed frequently to assure proper development of the hoof.

Summary

There are a variety of management techniques available for raising healthy replacement dairy goat does and bucks. Selection should be based upon efficient use of available resources and development, of a healthy doe of adequate bodyweight, ready to produce an economical level of milk at 12 months of age. Particular attention needs to be paid to the system of feeding pre-weaning due to the high labor requirement for raising young kids.

Stress and disease-causing organisms often interact to produce high kid mortality. Cleanliness, proper nutrition and a good herd health program are the best ways to prevent such losses.

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