Introduction

Interest in goats has mushroomed over the past fifteen years. Increased interest in goats and the value of these animals has made us do a better job in managing them. Kid management from birth to breeding is an essential component of the dairy goat enterprise. The kid management along with the nutritional management of the doe herd has the greatest effect on the long-term productivity of the 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 characters of the kid are determined at the hour of conception, survival to lactation, and an adequate body size are necessary to realize inherent genetic potential for lactation. Kid mortality has a direct effect on genetic progress and, thus, we need to maintain low mortality from birth to weaning.

Pre-Parturition

The kid management program should actually begin prior to parturition, with attention to the nutritional needs of the gestating doe in late lactation and during the dry period. The tendency is to regard the late-lactation and dry doe as a non-productive part of the milk-producing system. On the contrary, however, an adequate diet for the dry doe is essential to reproduce healthy kids. Pregnant does should receive plenty of exercise. An obese 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.

Vaccination booster 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 dry off and also before kidding.

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 so that the doe can 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.

**Kid Management**

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; transmission might be avoided through the use of extra colostrum frozen from does tested and
shown to be CAE-free or heat treated colostrum. An additional practice at birth that enhances the
health of the newborn kid is to give 3 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.
Kids should receive colostrum 10% of their body weight within 24 hours. For example, a six pound
kid will receive 300 mL of colostrum within 12 hours. Kids could be left on does to nurse or started
on a good quality milk replacer after they get their colostrum. A lamb milk replacer may be the best
substitute for goat milk. Typical lamb milk replacers contain 22 to 24 % protein and 28 to 30% fat.
*Casein*, a protein in lamb milk replacer, can be completely replaced with whey protein concentrate,
which allows acidification. Acidification helps maintain the quality of the unused milk and reduces
the incidence of diarrhea. Maintaining milk replacer quality after mixing is particularly important
when kids are fed ad libitum.

The biggest problem with using lamb milk replacers occurs with the feeding schedule. Frequently, kids become “pets.” There is a tendency to feed them as much milk as they will
consume each feeding. Unfortunately, this may result in bloat and sudden death from diarrhea. A
restricted feeding program is beneficial.

<table>
<thead>
<tr>
<th>Age</th>
<th>Amount of Fluid</th>
<th>Feeding Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 3 days</td>
<td>4 ounces</td>
<td>5 times a day</td>
</tr>
<tr>
<td>3 days to 2 weeks</td>
<td>8 to 12 ounces</td>
<td>4 times a day</td>
</tr>
<tr>
<td>2 weeks to 3 months</td>
<td>16 ounces</td>
<td>3 times a day</td>
</tr>
<tr>
<td>3 months to 4 months</td>
<td>16 ounces</td>
<td>2 times a day</td>
</tr>
</tbody>
</table>
Kids will nibble at fine-stemmed leafy hay at one or two weeks of age. At three to four weeks, a calf starter should be offered. As the hay and grain consumption increases, gradually reduce the milk being fed. When the kid is eating \( \frac{1}{4} \) pound of grain per day plus some hay and is drinking water from a bucket, it is time for weaning.

**Birth to Weaning**

Milk is the principal component of the diet of the pre-weaning 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 two to four 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 does. Pail or pan feeding may reduce labor somewhat, but body weight loss and need for 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 low temperature of the milk (40°F) that 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.

In raising dairy goat kids, increases in size and weight are not the only measures of success. A well-formed skeleton and proper development of internal organs are often neglected when the emphasis is on rapid gain. An average daily gain of 250 g 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 five times as large as suckling kids of the same age.

Kids should be consuming forages such as pasture grass or hay by two weeks of age and grain within four. Careful attention needs to be given to formulation of a concentrate supplement for the pre-weaning kid. Palatability is of primary concern. Molasses at the rate of 10% of 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 to 18%. Ground alfalfa may be added at 5% or 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 weaning 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 for weaning and also leaves the kid disposed to diarrhea.

**Disbudding**

Kids should be disbudded in the first two weeks of life. Buck kid horns grow faster than doe horns. Some large single buck kids should be disbudded within the first week. Disbudding a buck kid is the true test of proficiency and many fail it, judging by the number of scurs seen on adult bucks. If you try to de-horn a buck kid whose horn base is wider than a regular de-horning iron, you will get re-growth of the horn in a crown outside the burned area. If you try to de-horn a small kid with a wide calf de-horner, you may get re-growth of the horn from the center of the ring. If one person is doing the job, a de-horning box offers the best and safest restraining.

Although local anesthetic is commonly advocated, the actual technique is not easy and the baby goat will scream while being held in preparation for a ring block or a cornual nerve block.
Goats are more sensitive than other ruminants to local anesthesia, which results in adverse reactions as a result of overdosing. If kids are brought to the clinic, the easiest and fastest technique is masking them down with halothane and oxygen. However, remove the mask and gas flow during cautery; otherwise a flash of fire in the goat hair may result. Xylazine at 0.3 to 0.4 mg/kg is commonly used for injection anesthesia, and kids should be kept warm during the prolonged recovery period.

The equipment most commonly used is an electric-heated metal rod with a hollowed-out end. None of the irons can be relied upon to maintain a constant temperature, and it is extremely important to match temperature and time. Underburning will result in scurs and overburning will lead to brain damage or death. The horn bud is located over the sinus close to the cranium in kids. After the dehorning iron is hot, apply the de-horner firmly over the horn area and rock it around slowly for 3.5 to 4 seconds. Remove the iron and repeat if necessary and do the other side. Descenting could be done at the same time if necessary. Inject the kids with 150 IU tetanus antigen. Although the risk of tenanus after disbudding is not great, it is a good practice to do it.
Dewattling

Many goat breeders believe that wattles detracts from the appearance of a show goat, and it is difficult to show clip the hair evenly and smoothly, so wattles are removed at birth.

Castration

Dairy and pygmy goats should be castrated if they are intended to be companion animals. This will reduce the smell and aggressive behavior. Angora goats are castrated so they can be run in either flocks for mohair production. Angora goats are usually castrated at 6 to 12 months of age so that they can develop bigger horns. Castration methods include use of a rubber ring, Burdizzo clamp, or surgical methods.

Reproduction

Doelings are usually bred when they reach a weight of 80 to 95 pounds. Breeding season is usually September to February but some does, particularly Nubians, will breed at any time of the year. They are seasonably polyestrous and cycle every 20 to 21 days. Estrus lasts about two days and is detected by frequent urination, tail erect and swishing, drop in milk production, riding and being ridden by other goats, and hanging around the buck pen. Ovulation is usually towards the end of estrus and gestation is 144 to 157 days.
The proper citation for this article is: