

# Colostrum Management for the Dairy Goat Kid

*Jennifer Bentley, Dairy Field Specialist, Iowa State University Extension and Outreach*

Feeding kids the correct amount of high-quality colostrum immediately after birth is one of the most important management practices in kid management. Colostrum is so important that sometimes it is called “liquid gold”.

## The Importance of Colostrum

All mammals produce colostrum. It is the thick, yellowish, first milk produced by the female after she gives birth. Colostrum is rich in energy, protein, vitamins, and minerals. Most importantly, it contains maternal antibodies that help protect the newborn from disease pathogens during the early part of its life. Immediately after birth, kids are exposed to a variety of infectious agents present in the environment, the doe, and other goats. Without any protection from these infectious organisms, the kids may become diseased and die.

At birth, the kid does not carry any antibodies against these organisms because antibodies in the doe's bloodstream do not cross the placenta. However, these antibodies are concentrated in the colostrum and provide a natural and efficient source of protection against many intestinal, respiratory, and other diseases.

Vaccinating for diseases such as enterotoxemia and tetanus prior to kidding is important, since antibodies against these diseases will then be contained in the colostrum. Additionally, colostrum provides the energy needed to stay warm and acts as a laxative to ensure excretion of meconium.

## Three Keys to Colostrum Feeding

To achieve the desired effects of colostrum, kid managers should focus on three factors: timing of feeding, the quantity fed and colostrum quality.

### 1. Feed colostrum as soon as possible.

The immunoglobulins found in colostrum are large proteins. Kids have openings in the small intestines to accommodate the protein's absorption-but these openings close shortly after birth. Absorption of

these antibodies is most efficient the first few hours after birth. Ideally, kids should receive half of their colostrum within the first four hours of birth and the total colostrum amount within 24 hours. After 24 hours, the kid's ability to absorb antibodies has diminished.

### 2. Feed colostrum at a minimum of 10 percent of the kid's bodyweight.

This means that a 10 pound kid should receive 16 ounces of colostrum within 24 hours of birth. Try to feed 50% of the total colostrum needed as soon as possible and the other 50% within 24 hours, 2-3 ounces at 3-4 hour intervals. Hand milking the doe and bottle feeding the kid is the most certain method of insuring a known intake.

Colostrum should be fed at body temperature (102-103 F). Kids that are too weak to bottle-feed can be fed using a stomach tube. However, it is not recommended to tube kids with a subnormal temperature or kids that are unable to at least lay eternal on their own. These animals need more intensive therapy. A small catheter (flexible, rubber like tube), obtainable from a veterinarian or farm supply, attached to a 60 cc syringe (holds 2 ounces) makes an ideal stomach tube. Measure and mark how far the tube needs to go in by starting from the kid's nose, to center of the ear, and back down to the kid's last rib.

To insert the tube, hold the kid between your knees in the upright position. Gently advance the tube towards the back of animal's mouth. The animal should swallow as the tube is advanced. Feel the tube on the left side of the animal's neck. Fill the syringe with warm milk and let fluid trickle in via gravity. When pulling the tube out, pull slowly, squeezing or pinching the end of the tube so that any remaining liquid does not come out while removing the tube.

### 3. Use high-quality colostrum.

High quality colostrum contains 50 mg or more of immunoglobulin-G (IgG). The concentration of IgGs decreases rapidly after parturition. The sooner colostrum is harvested from the doe, the better. Once colostrum is collected, it should be fed within 1-2 hours of collection or refrigerated immediately. If refrigerated, it should be fed within 24-48 hours to limit bacterial growth. If not fed within that time period, freeze in small quantities as previously mentioned.

#### Colostrum Sources

Colostrum from fresh females in your own herd is the best source of colostrum because it will have custom-made antibodies. If this is not possible, frozen colostrum from the herd is the next best source. If you have the opportunity to harvest extra colostrum from a healthy, older doe, this is good colostrum to freeze and have on hand. It is best to freeze colostrum in small quantities which can be stored up to 1 year. Ice-cube trays work well to freeze small quantities; the cubes can then be stored in zip lock bags. Colostrum must be thawed carefully so that the antibodies are not destroyed. A warm water bath less than 120 F will prevent antibodies from being destroyed.

Cow colostrum can serve as a substitute for goat colostrum, but because cow's milk is not as nutritious as goat's milk, more volume (about 1/3) must be fed to kids. Although Johne's disease is not as common in goats as it is in cattle, it is still advised to get cow colostrum from a herd that has tested negative for Johne's. Colostrum supplements are nutritious and can be used to increase the amount of IgG fed when no other source of colostrum is available, but they cannot replace high quality colostrum. They do not contain sufficient quantities of antibodies.

Colostrum replacer is labeled for any product able to raise IgG concentration above 10 mg/ml. These products are bovine serum-based and contain at least 100g of IgG per liter, plus fat, protein, vitamins and minerals needed by the newborn. In dairy calf trials, calves fed colostrum replacers have performed as well as calves fed maternal colostrum.

Milk replacer should never be a substitute for colostrum, and should not be fed until kids are over 24 hours old.

#### Precautions

Producers who are attempting to develop a Caprine Arthritic Encephalitis (CAE) free herd must be concerned with the source of colostrum used, since CAE can be transmitted from infected does to their offspring via colostrum. The surest way to prevent this transmission is by isolating all newborns at birth and not allowing them to nurse the mother.

Colostrum can be harvested and heat-treated to eliminate the CAE virus as well as other pathogens transmitted through colostrum (Mycoplasma, Caseous Lymphadenitis, Johnes). Colostrum from any doe may be heated to between 133 degrees and 139 degrees F and held at that temperature for one hour to inactivate the virus. An accurate thermometer is important. It is recommended to use a water bath or double boiler to regulate the temperature more closely. A large batch may be heat-treated and frozen in small feeding size portions for later use (about 1 pint per kid). If heated higher than 140 degrees F, the usefulness of the colostrum will be greatly reduced due to denaturing of proteins, including beneficial antibodies to other infectious microorganisms. Additionally, colostrum heated to 140 F or over turns into a pudding-like consistency that is not conducive to feeding kids.

#### Summary

Colostrum is vital for kid viability and survival. Timing, volume, and quality are the three important factors when considering a colostrum management program. Passive immunity against several infectious diseases can be transmitted from the doe to the kid via colostrum. Producers should evaluate their genetic, nutritional, and health management programs to develop a well-managed colostrum program.

## IOWA STATE UNIVERSITY Extension and Outreach

### Healthy People. Environments. Economies.

Iowa State University Extension and Outreach programs are available to all without regard to race, color, age, religion, national origin, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. veteran. Inquiries can be directed to the Director of Equal Opportunity and Compliance, 3280 Beardshear Hall, (515) 294-7612.