COLOSTRUM MANAGEMENT OF GOAT KIDS

BY MICHELLE BUCKLEY, DVM, MS - IOWA STATE UNIVERSITY EXTENSION

Raising quality youngstock is an investment in the future of your herd. Appropriate nutrition is one of the most basic ways that we can set kids up for a healthy and productive life. While some producers may choose to allow partial or full dam-raising of kids, this article will focus on hand-rearing approaches. Removing kids from dams at birth, bottle-feeding colostrum or colostrum replacer, and group-housing with other kids of similar age and size can mitigate many health and safety concerns including transmission of diseases, ensures colostrum ingestion in a timely manner and appropriate volume, and provides daily opportunities for caretakers to monitor milk intake, growth, behavior, and health status that may be missed otherwise.

As with all ruminants, ingestion of colostrum shortly after birth is essential for transmission of a high calorie meal that is packed with numerous immune cells such as immunoglobulins (especially IgG) along with other proteins and even some fats and carbohydrates which double as energy sources and immune protectants for the neonate. The benefit of feeding colostrum harvested on-farm is that it contains antibodies for specific pathogens that affect animals at that site, which may be different from other facilities. So how soon after kids hit the ground are we talking? Andrea Mongini, a veterinarian in Denair, CA and owner of Ewetopia Dairy recommends that kids receive colostrum no more than 2 hours after birth and ideally within the first hour with a second serving offered within the next 6 hours. The most health-conscious colostrum options will be heat-treated goat colostrum, or a high-quality commercial colostrum replacer and a good general dosing rule is to feed 1 oz per pound of body weight. Heat treatment of colostrum consists of holding freshly harvested colostrum at 140°F for 60 minutes in order to kill diseases such as Caprine Arthritis Encephalitis (CAE), Johnes, and many bacteria while keeping essential proteins from cooking and rendering them ineffective. This heat-treated product can then be fed within 24 hours or frozen in a chest freezer for up to 3 months. Dr. Mongini points out that upright freezers that are attached to refrigerators are equipped with a freeze-thaw cycle which can allow for bacterial growth while in storage and advises against their use for this purpose.

It is important to note that not all colostrum is created equal! In one research project, Dr. Robert Van Saun from Pennsylvania State University identified a wide range of immunoglobulin concentrations in one dairy herd ranging from 4.2-180 g/L with an average of 71 g/L. A colostrometer or Brix refractometer can be used to assess the concentration of IgG in each batch of colostrum and predict the strength of the immune protection that we are passing on to the kids who ingest it. Dr. Van Saun recommends feeding at least 35 g of IgG in colostrum or replacer in order to achieve absorption of at least 15 g to kids and in the case of IgG, more is always better!

When it comes to trouble shooting

colostrum management, Dr. Mongini has a few words of advice:

1.) If you make pudding, you have overheated the colostrum. Using a double-boiler system complete with thermometer inside the container with the colostrum and constant stirring can help to mitigate this issue.

2.) Freezing colostrum in 16 oz water bottles allows for rapid freezing and thawing of the colostrum and will generally feed two 8 lb. kids when defrosted.

3.) Culturing colostrum after heat treatment and before freezing is an excellent way to ensure that bacteria are not surviving processing. You may want to culture again after thawing, especially if your farm is experiencing a rash of kid illness.

4.) Producers can work with their local veterinarian to evaluate IgG levels in colostrum samples and compare them with blood samples from kids to evaluate how effective their current colostrum management program is.

It should be evident that managing colostrum intake requires a bit of forethought and planning on the part of the producer. Because the gut's capacity for absorbing immunoglobulins drops sharply within hours after birth, it is impractical to collect and heat treat colostrum from a doe and plan to feed it to the kids that she delivered within one hour. Instead, consider utilizing colostrum from prior kiddings that has already been heat treated and frozen so it can be thawed quickly in a warm water bath and fed immediately to new kids. Dr. Mongini advises that colostrum should be collected from does within 6 hours of freshening. Colostrum is produced and stored in the udder in the days leading up to kidding and birth actually triggers the udder to transition to producing the more fluid milk that we are so familiar with. This change takes 2-3 days to take full effect, but we can see a marked dilution effect on colostrum even at 6 hours post-partum. Therefore, collecting colostrum within the first 6 hours after kidding is a good rule of thumb for ensuring that there is a high concentration of immune cells in the product which means a healthier first meal for the kids who drink it.

For many farms, managing colostrum may be more labor-intensive than the facility and staff are prepared for. Enter colostrum replacer! This is a powdered product that is mixed with water instead of colostrum that is collected on-farm. This can be a convenient and effective method of transmitting immunity to newborns but does still require some advanced planning and management. There are many products on the market of varying quality and it can be hard to know which is the best option. As with maternal colostrum, we use IgG as an indicator of the level of immunity that colostrum replacer contains and the "more is better" rule still applies. When selecting a colostrum replacer for goat kids, Dr. Van Saun recommends selecting a product that will transfer at least 35 g of IgG per serving though products that offer 50 g or greater are preferred. Rules for timing and volume fed are the same as maternal colostrum: feed within an hour of birth at a rate of 1 oz per lb. of body weight. Dr. Mongini notes that colostrum replacer users tend to run into trouble when it comes to mixing up the product. Water should be clean and hot to the touch (approximately 110-120°F) and thorough mixing is required to avoid clumping and provide a palatable, easy to digest product for kids.

Producers familiar with calf-raising may also be familiar with colostrum supplements. These are powdered additives that can be used to supplement the levels of IgG in maternal colostrum that may not achieve the 35 g minimum cutoff. These products are not meant to be fed as a sole source of IgG and are not adequate replacement for maternal colostrum and must be fed in volumes that are too high to realistically accomplish in small ruminants.

As always, producers should consult with their veterinarian and nutrition team to decide what management strategy is best for their goals and capabilities. ■