

# Why Colostrum?

*Karen H. Baum, DVM  
Little Doc's Veterinary Care  
Huddleston, Virginia, USA*

**C**olostrum is the first milk the mother gives. It is rich in antibodies and vital nutrients. The newborn should ideally get at least 10 % of body weight of colostrum in the first 12 hours after birth. 10% of a 30 pound cria is three pounds or three pints (a pint a pound the world around). Continue feeding colostrum for at least 24 hours. Colostrum is strongest THE FIRST MILKING and gradually becomes diluted.

This means you need three pints of colostrum on hand for each 30-pound cria you are expecting. You can use it to feed the cria at any time. The antibodies are absorbed the best the first 6-12 hours. By 24 hours of age virtually no antibody absorption occurs. There are antibodies in the colostrum which continue to help protect locally in the gut, even after 24 hours.

Storage of the colostrum in the freezer can be maintained for a year. Try to use the older colostrum first. If in doubt of the age use unlabeled colostrum to supplement after 12-24 hours of age. Very good absorption occurs the first 6 hours of life; good absorption of antibodies happens the next 6 hours then there is a steady decline. By 24 hours of age virtually no more antibodies are absorbed.

Use the best colostrum the first 6-12 hours. Be sure to label the colostrum with **Date Collected, Source, and Species** (cow, goat, llama etc.) as well as animal identification if available. Try to find out what the colostrum donor was vaccinated against and how long since the last booster.

**Colostrum from cows or goats should be thick, yellow and sticky!** Make sure it is the first milking which is collected. Many dairy people call colostrum any milk from the first three days. Each milking the amount of antibodies diminishes,

gradually becoming regular milk. Absorption of antibodies seems to be good in crias for either cow or goat colostrum.

Save colostrum from females that have had babies before. Preferably vaccinate the female 1 -2 months prior to giving birth (and colostrum) with Covexin 8 and any other vaccines you use on your lamas.

Remember which kind of colostrum the cria received when testing for adequate antibody transfer. Specific tests, such as the radial immunodiffusion (RID) plates, detect only a certain antibody from one species of animal i.e. cow, llama or horse. There is not a commercially available goat IgG plate at this time, which means if you gave your cria goat colostrum the first 24 hours of life you do not have a test available to specifically detect the amount of goat antibodies absorbed. The general tests, such as plasma or serum protein, will give an indication of the relative amount of antibodies absorbed.

IgG is the major antibody absorbed by the gut in the newborn. This is true for cattle, sheep, goats, horses, llamas and alpacas. The IgG helps protect the newborn animal against disease until the animal is old enough to form its own antibodies. If other species, ex. goats and cattle, experience the same diseases as

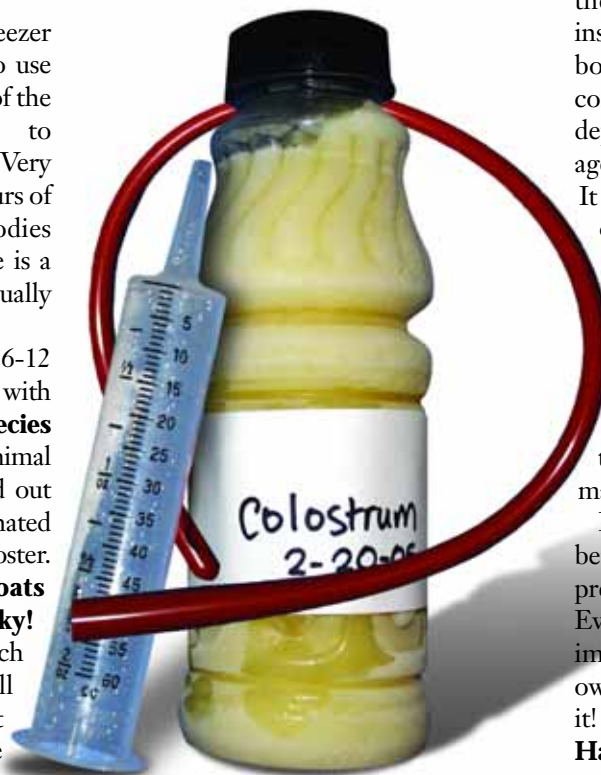
lamas the antibodies in the colostrum will help protect the newborn cria. It is best to vaccinate the doe or cow donating the colostrum as you would your lama mama. It is ideal to house the colostrum donors on the same premises as the lamas. This means all animals are potentially exposed to similar diseases. This aids in appropriate antibodies being in the colostrum.

Some crias will eagerly take a bottle. The nipple which has worked well for me is the "NUK" orthodontic nipple, which is hourglass shaped. You will need to cut a slit or "X" in the tip for adequate flow. The "ANSA" bottle with a hand hold (donut) shape works well with the "Nuk" nipple. The oblong donut shape exposes more surface to the warm water when heating it. The 10-ounce volume is also convenient.

The "Nuk" nipple can be adapted to a calf bucket. A flat washer (which plumbing stores usually carry) is needed because the "Nuk" nipple is thinner than the calf nipple you remove. Once the cria accepts the nipple, transition from a bottle to a bucket is usually smooth. This is particularly useful when the cria is supplemented for longer periods, such as when the mother does not come into milk.

**Everyone should have a tube and dose syringe, as well as colostrum, on hand to feed the cria.** Tubing assures the amount taken in and does not instigate as much bonding to humans as bottle-feeding. This is of particular concern with young male crias; dependence on only humans at a young age can lead to a berserk male at puberty. It is critical to the health and well being of the cria that you are capable of tubing the baby. Even if you have never tubed a cria have everything on hand. Someone can teach you when needed, either in person or over the phone. Your veterinarian may not have the appropriate equipment therefore YOU, as the owner or manager, need to be prepared.

Have everything on hand months before you think you will need it. It is the premature crias which need the most help. Even if you do not use the equipment immediately your neighboring lama owner might call you in a panic to borrow it! Being prepared can ward-off disaster. **Have 3 pints (16 ounces = 1 pint) of colostrum on hand for each cria**



**expected.** You cannot have too much on hand. It can always be used whenever supplementing crias when you are ready to freshen your supply.

If you do not get adequate colostrum into the baby within 12-24 hours of life, antibodies can be supplied via plasma transfusions. This protection is probably of shorter duration than naturally absorbed antibodies; it offers no local gut protection because it is given intravenously (in the vein) or intraperitoneally (in the belly - more potential complications than intravenously); plasma costs much more than colostrum.

You still need to feed the newborn, so why not use colostrum? Any time there is any doubt about the quantity or quality of colostrum the mother has, give the newborn 8-10 ounces within two hours of birth. Some farms do this as a routine to all crias to give them a good start. It will not deter them from nursing. It will give good nutrition and antibodies so critical to health of the newborn.

Give another 8-10 ounces within 6 hours of birth. Within 24 hours of birth the cria needs to consume 10-20% of body weight in colostrum. A 30-pound cria needs 3 - 6 pints (A pint a pound the world around.). A 20-pound cria needs 2 - 4 pints within 24 hours. 3 pints equals 48 ounces, which means six feedings of 8 ounces each. That means feeding every 4 hours. Yes the baby can take that volume. If it is premature and inactive 4-ounce feedings every 2 hours can be given in the beginning. Frequency can be decreased as the volume per feeding is increased. Plan to give 4 ounces per 10 pounds body weight every 3-4 hours if the cria is not nursing or the mother does not have colostrum.

After the first 24 hours you can switch to goat milk, kid milk replacer or whole cow's milk. Be sure the cria continues to get at least 10 - 20% of body weight per day. Weigh the cria daily. Increase the amount fed until you see 1/2 to 1 pound per day gain. If the mother comes into milk gradually cut back on the amount supplemented, as long as the cria continues to gain.

Fresh colostrum, which is not used immediately, should be frozen. Freeze in



16-ounce (1 pint) or 1 quart aliquots, which can be conveniently thawed. Plastic is better than glass containers. Be sure to leave extra space in the container for expansion as the liquid solidifies. Ziploc type freezer bags are readily available but sometimes leak during thawing. Plastic soda bottles with screw caps, small Tupperware or other plastic containers can be used. The soda bottles make it easy to thaw and pour.

Thawing of the colostrum should be done gradually until the colostrum is

warm. **Use warm water to thaw the colostrum.** Do NOT use boiling water and do not get the colostrum too hot. Colostrum will gel if it is heated too hot. Microwaves can denature (destroy) the antibodies in the colostrum, especially at high temperatures or in hot spots. Why risk damaging the antibodies when this is the primary reason to give colostrum? It thaws plenty quickly in warm water.

**A Final Note:**

The best colostrum is usually from the newborn's mother; milk her out if possible if the baby is not nursing well. Keep frozen colostrum on hand in case it is needed.

***COLOSTRUM is liquid gold. It is cheap insurance for your investment!***

CO



**About the Author**

*Dr. Baum, a native of Wisconsin, graduated from Iowa State University, College of Veterinary Medicine, completed an ambulatory internship at the Ohio State University, a large animal medicine residency at Cornell University and worked at a racetrack practice before accepting a faculty position at the College of Veterinary Medicine, Virginia Tech. Dr. Baum managed a llama herd after leaving the University.*

*She is the owner of Little Doc's Veterinary Care, a private large animal practice emphasizing llamas and alpacas. Many patients are hospitalized which required special care and attention. Her special interests are newborns, problem breeders, intensive care, heat stress, nutrition, neurologic problems and physical therapy. She raises llamas, alpacas, sheep, goats, and cattle.*

*She has given over 100 seminars and invited lectures nationally and internationally, produced over 70 articles, handouts, autotutorial sets and book chapters, as well as helping plan and coordinate numerous conferences.*

*Dr. Baum is Past-President and past Vice-President of the Lama Association of Mid-Atlantic States (L.A.M.A.S.). Karen is on the Alpaca Research Foundation board of directors, having filled the roles of President and Vice-President as well as Secretary, enjoying involvement in ongoing research and the alpaca industry. She is the past Vice President, and past Treasurer, currently President, of the International Lama Registry and is enthusiastic about the llama and alpaca industries.*

*Karen received the prestigious PUSH ME PULL YOU award from the International Lama Association in 1992 for contributions to the betterment of the health and well being of camelids.*