

Colostrum Requirements of Newborn Lambs

Colostrum usually accumulates in the ewe's udder during the final few days of pregnancy. It is also produced during the first 24 hours after birth, but is diluted progressively as milk production increases.

* Colostrum contains immunoglobulins, some of which line the intestinal wall while the rest are absorbed into the bloodstream to help prevent infections.

* Colostrum contains nutrients which fuel heat production and help prevent hypothermia (chilling).

Colostrum contains growth factors, which help promote gut growth and differentiation especially during the first 24-48 hours after birth, thus helping to establish the intestinal route as the lambs sole source of nutrients.

The amount of colostrum a lamb needs depend mainly on how much fuel it requires for heat production. Therefore, any factor which increases heat production increases the colostrum requirement. During bad weather (cold, wind, or rain) the lamb must produce more heat to avoid hypothermia, and colostrum requirements increase. Lambs born in weather range 32-50F (with wind and rain) need about 95cc of colostrum per pound of body weight during the first 18 hours. Lambs born in housed conditions 32-50F (still, dry air) will require about 80cc of colostrum per pound. Of course these figures must be multiplied by the lamb's weight (lbs.) to estimate the total volume of colostrum required in the first 18 hours after birth.

These quantities will normally also be sufficient to protect lambs against E.coli infections because 200cc of colostrum usually contain enough immunoglobulins for protection. This is approximately 7 to 8 ounces of colostrum. It is necessary to feed the lambs 4 to 5 times in the first 18 hours of life if the lamb is unable to suckle on a ewe. Colostrum production by underfed ewes (condition score 1.5 to 2) is usually about half that of well fed ewes (condition score 3 to 4) during the first 18 hours, and in some underfed ewes no colostrum is produced at all.

Colostrum can be stored for at least one year in a freezer without damage to the immunoglobulins. Once colostrum is thawed for use it should be used within 48 hours if kept refrigerated. It is best to thaw the colostrum in a warm sink of water, not hot water. The use of a microwave creates hot spots when thawing and can cause damage to the colostrum. Every producer should have a supply of frozen colostrum on hand prior to the start of lambing. Goat colostrum is a good substitute, however cow colostrum has 20 to 40% less nutrients than ewe colostrum. If using cow colostrum you will need to give approximately one-third more volume. If using a goat to supply colostrum it should be tested negative for CAE (caprine arthritis encephalitis) and the doe should be vaccinated for E. coli and Type C clostridium 3 weeks prior to kidding.

For example: The birth of a 12 pound lamb born in a lambing shed that is 32 degrees F will require the following amounts of colostrum in the first 18 hours of life to meet its energy requirements.

$12\# \times 80\text{cc} = 950\text{cc}$ which equals approx. 32 ounces of colostrum.

The same lamb born outside will require a total of 38.5 ounces. These figures do not seem possible to the shepherd, but in order to prevent hypothermia and starvation in the lamb every effort needs to be made to supply the correct volume. When feeding lambs with a stomach tube a rule of thumb is no more than 20cc per pound of body weight. This is roughly 8 ounces per feeding in a 12 pound lamb.

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International SheepLetter
Vol. 19 No. 1, January 1999

[Back](#)