CALVING EASE

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Feeding Refrigerated Colostrum

Let's review the basics. Feed newborn calves colostrum as soon as possible after birth. Feed the highest quality colostrum to heifer calves. Get at least four quarts of colostrum into the calf within the first six hours.

Now, if we do not have fresh colostrum to feed, we must turn to our stored supply. Colostrum may be stored either refrigerated or frozen. Two keys to a clean (low bacteria count) stored product are:

- Start with clean colostrum (less than 10,000 cfu/ml)
- Chill it rapidly (less than 60° within one-half hour of collecting)

Is it clean? Have a standard plate count (SPC) run on your colostrum. If it comes back over 10,000 cfu/ml, then you may want to use my checklist, "Colostrum: Reducing Coliform Counts Checklist" at www.atticacows.com or click HERE.

If you have more than four quarts of colostrum to chill rapidly, do not depend on a household refrigerator to do it properly. They are made to keep food cold, not to rapidly chill large amounts of warm colostrum. In the winter, using a place that is safe from cats and dogs, bottle the colostrum (make lots of surface area) and put it outside. In warm weather, use a water bath with ice or freeze ice in small clean plastic bottles and put them into the colostrum. See also at www.atticacows.com , click on the Resource menu, select Calf Facts, “Colostrum: Chilling.” (or click HERE)

Choosing between refrigerated and frozen storage

The main advantage of refrigerated compared to frozen/thawed colostrum is the presence of maternal immune cells. You may recall that the freezing step destroys all the maternal immune cells (leukocytes).

Recent research confirms the work of German researchers that shows that calves fed fresh colostrum compared to colostrum without leukocytes had stronger immune responses to pathogen challenges. This does not mean that it is a bad thing to feed frozen/thawed colostrum. When thawed properly, frozen colostrum contains essentially all the essential antibodies that it did before freezing. If no fresh or refrigerated colostrum is available always feed the frozen product anyway to get as immune protection for the calf.

Choosing which stored colostrum to feed

Assume that we have done a good job of collecting clean colostrum and getting it chilled rapidly. How long should it keep refrigerated (that is, 40° or colder)?

It will usually still smell good and have a low bacteria count at four to five days. Now, if it seems to "go bad" in just a day or two, the most likely causes are:

- starting with colostrum contaminated with coliform bacteria, and
- not getting it chilled quickly enough to prevent coliform bacterial growth.

Nevertheless, let us assume that you have a supply of one, two, three and four day old refrigerated colostrum that smells good and has a low bacteria count. Which bottles should be fed to the next calf?

In order to lose as little colostrum as possible to spoilage it makes sense to feed the oldest first. That keeps the stock rotating.

However, add one more piece of information before we make this decision. Remember that the main advantage of fresh colostrum is the presence of millions of white blood cells that promote immunity. These white blood cells or leukocytes only survive for a limited amount of time. Observations suggest that 48 hours is a reasonable estimate. Leukocyte concentrations apparently drop off rapidly from the second day on. Three-day old refrigerated colostrum is not likely to have a significant concentration of them.

Now, which bottle should we use for the calf's first feeding? The one-day old or the four-day old bottle? If we are having scours among ten to twenty day old calves, we need all the immunity we can get. I would feed the one-day old bottle first to get both maternal immune cells and antibodies. Then, I would not hesitate to use the older bottle to complete the four-quart feeding. If we are treating less than five percent of the calves for scours, it probably does not make any difference which bottle is fed.

Why the fresh bottle first? Because first into the gut has the highest rate of absorption through the intestinal wall into the blood. Sometime in the next few hours, we can get the second bottle into her. Even if the second bottle is lower in maternal immune cells and antibodies, it still gives us some extra antibodies and a lot more energy and protein for nutrition.

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