# CALVING EASE

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## PRESERVING COLOSTRUM QUALITY

Everyone knows how important it is to feed enough good quality colostrum early in a calf's life. In the ideal world each calf would get this clean, rich milk directly from the dam at body temperature - no middleman involved. In the real world there are lots of other factors to consider. Many farms store colostrum for twelve to seventy-two hours for feeding calves even before the dams are cleaned up and milked.

### ANOTHER MEASURE OF QUALITY

Nearly everyone knows about antibodies in colostrum. The more antibodies per ounce, the better the colostrum quality. High antibody-content colostrum does a better job of getting antibodies into the newborn's blood than colostrum with a low IgG content.

But, what about the bacterial concentration in this colostrum? Doesn't it make sense that colostrum with lower bacterial concentrations is better quality than that with higher concentrations? How high is "high?" In a recent presentation at the Professional Dairy Heifer Grower's Association, John Baker of Valley Vet Clinic, Turlock, CA suggested these standards for a standard plate count:

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|---|---|
| Less than 100,000 | Good quality |
| Between 100,001-500,000 | Fair quality |
| Over 1,000,000 | Poor quality - not to be fed! |

If it's possible to get a count by species of bacteria, that's better. We really want to see low numbers of coliform bacteria. The other ones are not as toxic to young calves.

### HOW CAN "GOOD" TURN INTO "POOR?"

Most of us turn to our milk quality reports to get information about bacterial content of the milk we sell. Lots of farms average less than 10,000 counts from month to month on tank milk. But, colostrum isn't tank milk! Noblehurst Farms worked with Immucell Corp. for over five years producing colostrum for the manufacture of First Defense product. Our colostrum was checked regularly for bacterial content. The year-in-year-out count was 35,000. These counts came from twenty ml samples that were dropped into a 0 F. freezer within ten minutes of milking the cow. So, let's use that number as sort of an average bacteria count for fresh, just-milked colostrum.

At roughly 100 F (close to a cow's body temperature) we know that many bacteria grow rapidly. One source estimates it takes about twenty minutes for the bacterial population to double at that temperature. Let's say that this summer it takes about an hour before we get the fresh colostrum into a refrigerator after milking the fresh cow. Hummmm! If we start at 35,000 and this doubles three times before we even put the colostrum into the refrigerator we could end up with a count over 250,000 (35,000 x 2 = 70,000 x 2 = 140,000 x 2 = 280,000). Then, we load the refrigerator with a full, five-gallon pail of warm, fresh, 280,000 count colostrum. We get two more doublings of bacteria in the first hour, and two more doublings before the temperature drops low enough to really slow down growth. We don't really want to think about this but let's just look at the numbers.

280,000 x 2 = 560,000 x 2 = 1,120,000 (At the end of the first hour of refrigeration)
1,120,000 x 2 = 2,240,000 (At the end of 12 hours of refrigeration)

Whoa! Should we feed this stuff to a newborn calf? Are we doing this on a fairly regular basis?

**ASKING FOR TROUBLE OR DOING IT CORRECTLY?**

Dr. Baker suggests that loading a refrigerator with a five-gallon pail of warm colostrum is asking for trouble (that is, asking for high bacteria-count colostrum). What's worse? Loading the refrigerator with two five-gallon pails of body-temperature colostrum.

How to cool colostrum correctly? How to prevent bacterial growth "blooms?" Low temperatures and plenty of surface area. Some farms keep a large supply of clean two-quart nursing bottles in their freezer. These are filled with fresh colostrum and chilled. Some folks chill the bottles in the refrigerator. Others put the bottles first in the freezer, transferring them in the next two to three hours to a refrigerator for final cooling. Gallon zip-lock plastic bags may be used in place of nursing bottles. Either method greatly increases the surfaces exposed to cold air in either the freezer or refrigerator as long as they are not packed in tightly.

More innovative methods? Chill the colostrum in bulk. Some farms use heat exchangers to cool tank milk - often referred to as plate coolers. If large quantities of colostrum could be routed through the plate cooler this would give ideal cooling. Or, if chilled water could be diverted from the plate cooling system through a chiller-probe and placed in a five or ten-gallon container, this would give excellent cooling. Using bulk chilling with well water would require imagination and some mechanical tinkering. But, that's a lot better than 2.5 million bacteria count colostrum!

**WHY GUESS! CHECK IT OUT.**

Every dairy that ships milk has access to a milk quality lab. Check out your colostrum. Take a few samples this month and have bacteria counts run on them. If you are doing a good job, take time to pat yourself on the back. If the bacteria counts come back in the fair to poor range, maybe it's time for some innovative thinking. The last thing we need to do is feed newborn calves bacteria-laden colostrum.

**CALF FEEDER'S TIP**

Ice. Use ice to chill colostrum. Freeze gallon jugs of ice. Put a jug of ice into a five gallon pail before adding the fresh colostrum. Usually only three gallons of colostrum are poured into a pail since the jug takes up space and the pails are easier to handle if they are not too full. Cover the pail. In winter the pail can be set outside. In summer the pails go into the refrigerator - jugs and all. Pam reminds us that these jugs need to be scrubbed between uses - especially around and under the cap - to prevent bacterial build-up.

If you know of someone that doesn't currently receive **Calving Ease** but would like to, tell them to **WRITE** to Calving Ease, 11047 River Road, Pavilion, NY 14525 or to **CALL** either 585-591-2660 (Attica Vet Assoc. office) or 585-343-8128 (Offhaus Farms Office) or **FAX** (585-591-2898) or **e-mail** sleadley@frontiernet.net or pams91@2ki.net . A limited number of back issues may be accessed on the Internet at www.calfnotes.com and clicking on the link, Calving Ease.