Calving Ease

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Testing Colostrum for IgG's

- Sick calves? Feeding low quality colostrum could be contributing to the problem!
- Make colostrum quality testing part of the dairy's SOP for colostrum management.
- Connect test values to colostrum feeding – keep it simple!

What are the chances of having low quality colostrum?

The data from a national colostrum study including 12 states show 29 percent of the colostrum samples fell below the industry standard of 50g/L immunoglobulin G (IgG). There is a lot of low quality colostrum on our dairies. [Morrill, K.M., & Others "Nationwide evaluation of quality and composition of colostrum on dairy farms in the United States. JDS 95:3997-4005]

What are chances that colostrum from an individual cow on your dairy will have an acceptable antibody concentration? This same research measured IgG levels by lactation of the dam (parity). IgG by lactation:

1st lactation 42g/L average concentration. But, about 1/3 of first-calf dams may have 50g/L or greater.
2nd lactation 69g/L average concentration. But, about 1/4 of these dams may have less than 50g/L.
3+ lactation 96g/L average concentration. But, about 1/5 of these dams may have less than 50g/L.

Chances of low quality (less than 50g/L) also go up as the interval between calving and collecting colostrum increases, length of dry period is under 40 days, lack of vaccinations, and herd genetics.

How can we identify low quality colostrum?

1. Make colostrum quality testing part of the dairy's standard operating procedure (SOP). Quality testing can become as much as colostrum management routine as excellent teat-end preparation before colostrum collection. Prep the cow, collect the colostrum, test for quality, feed the calf. So, step number one for identifying low quality colostrum is test, test, test.

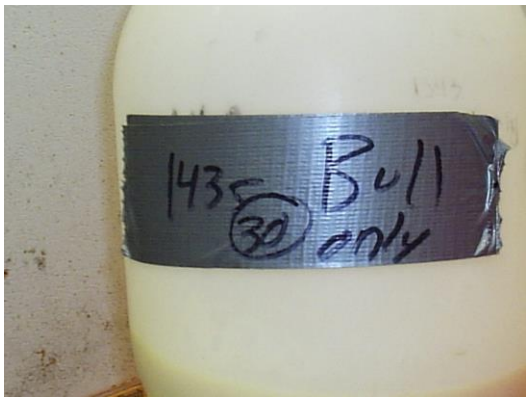
2. I am comfortable using any kind of test equipment/method as long as testing is done. The Colostrometer® that floats in the colostrum is temperature sensitive. The manufacturer's directions suggest adding about ½" on the stem for a temperature-adjusted reading if colostrum is cow body temperature (that is, the float will sink into the colostrum about ½" too deep when colostrum is 102F compared to the standardized 72F scale). Click HERE for a spreadsheet to calculate temperature-adjusted values.

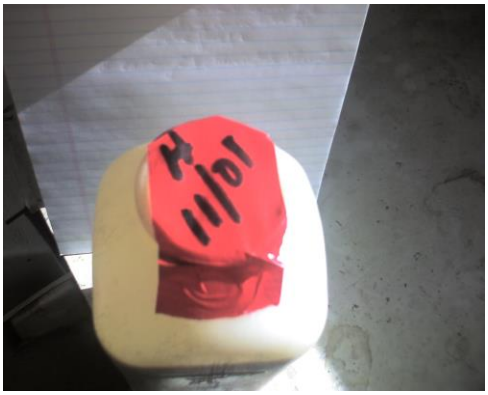
3. A Brix refractometer will work okay – when using the optic style remember that the line designating the number value will be sort of blurry so plan on estimating as best you can. I have

a digital-style refractometer so that is not an issue. Refractometers are usually temperature compensating so temperature of the colostrum is not an issue.

Once we have identified low quality colostrum, how do we avoid using it for first feeding for our heifer calves? Keep it simple!

1. Unless your dairy follows a "collect and feed" management style where there is no colostrum storage, use a simple, easy to follow procedure for labeling colostrum containers with quality information.





Note that the label pictured at the left shows the Colostrometer reading (30) as well as the "Bull only" directions. The dairy whose colostrum is shown on the right just has a "heifer" threshold, they don't record the test values. The "11/01" helps the calf care persons keep track of the collection date.

Some larger dairy clients use either separate refrigerators or separate shelves to segregate the tested colostrum. Often a separate shelf is used to store the highest-test colostrum for first feedings. Another dairy snaps nitrile gloves onto nursing bottles to keep colostrum clean – blue gloves for bull colostrum and plain white ones for heifer colostrum. When preparing fresh colostrum for chilling in ice water after it is tested, another dairy uses 2-quart pitchers from a discount store – white ones for heifer colostrum and blue pitchers for bulls.

What can we do if colostrum supplies are low?

First, keep testing. Some of the first lactation dams are likely to have superior quality colostrum.
Second, collect and test second milking from mature cows. You may be surprised to find that some of this second-milking product tests well above the 50g/L threshold. Use it for first feeding.
Third, if colostrum from mature cows tests very high quality (for example, 80g/l or 28 Brix) consider feeding only three quarts for first feeding rather than 4 quarts. This superior quality colostrum will still deliver 200g of antibodies when we feed 3 quarts. Recent research suggests that once we reach the 200g level more antibodies are not absorbed when excess antibodies are fed. The four-quart feedings are nice for nutritional value but if our supply is low we have to find a way to compromise.

Thanks to Merck Animal Health for supporting this issue.
More information on their products is HERE or at this URL www.merck-animal-health-usa.com/species/cattle