Calving Ease

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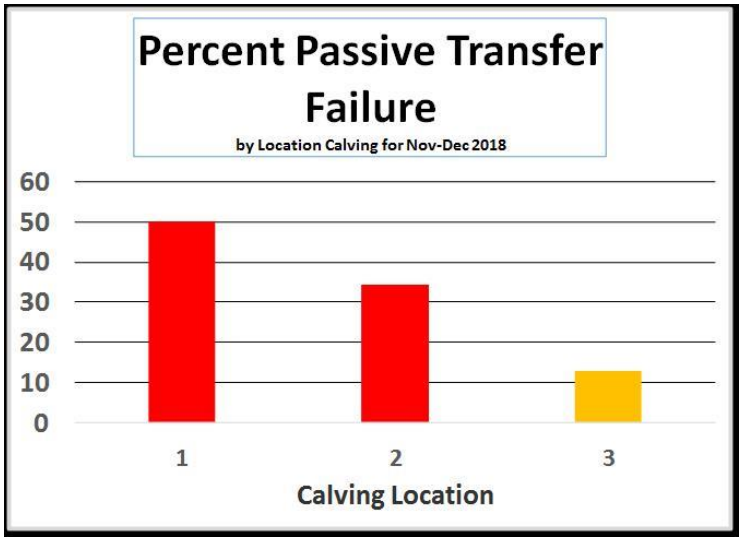
By Sam Leadley and Kazzie Nero

Newborn Calf Immunity: How Well Is Your Colostrum Management Program Working?

- **Test, Don't Guess!**
- **Sampling vs. blanket blood draws.**
- **Use the results.**

Test, Don't Guess!



This dairy calves at three locations. Colostrum is fed at each location. Then, all the calves go to one place to be reared. Once a month they bleed the youngest calves. This is what the blood serum total protein values revealed the last two months in 2018. "Passive Transfer Failure" (PTF) was defined as Blood Serum Total Protein (BSTP) at or below 5.5.

The workers at **Location Three** (yellow) had 13% PTF. Not great but the best of the three. The lowest value was 5.4 with the average at 6.1.

Oops, not so good at **Location Two** with 33% PTF. The average BSTP at this Location was 6.0 and only three of the calves tested were at 5.0 or below – so, while the results do not look good, calf immunity was not a disaster. The issue here may have been inconsistency with 33% failures. Some calves were near or at 5.0 while fully 57% were at 6.0 and above.
Was it lack of instruction? Was colostrum being warmed in excessively hot water? Was worker overload causing first feeding to be delayed? Did lab cultures of colostrum show high bacteria counts? All the calves were not being treated the same, somehow.

Given the high standards for this dairy for passive transfer failure (values of 5.5 and lower were considered failures) improvements were needed at **Location One.** While the average BSTP was 5.7 here, too many of the calves tested in the low 5.1-5.4 range. Sounds as if the colostrum management protocols needed to be reviewed and the workers needed re-training. Not a disaster but lots of room for improvement.

For comparison, I obtained the Blood Serum Total Protein values from **January 2020**. Locations One and Two had 100% of calves above 5.5! Whoo Hoo!!! It must be that training and attention to detail paid off with average BSTP's at Location One at 6.2 and Location Two at 6.4 with one-hundred percent above 5.5 at both locations.

However, success is not always guaranteed. Recall the most successful performance in the fall of 2018 at Location Three? **The Failure rate** (5.5 or below) **in January 2020 at the same location was 32 percent even though the average BSTP was 6.0.** Picking up this kind of failure helps management focus on finding a "fix" to the problem. Test – don't guess.

Sampling vs. blanket blood drawing

If you choose to sample (vs. drawing blood on all the calves) we recommend sampling until you get at least 12 calves. [For more on drawing blood, handling samples, etc. click HERE or enter this URL http://atticacows.com/library/newsletters/TestPassiveTransferR2080.pdf. The best time to draw blood is between 24-48 hours after first colostrum feeding. However, blood sampling once a week or even up to 9 days after birth will still give useful information.

Sam chose to draw blood all of his calves (the blanket-draw approach). His experience with passive transfer failure was highly variable with seasonal peaks during spring planting/haylage harvest and fall harvest. Kazzie's experience was more stable and she chose to do monthly samples [10 samples a month. Three to five days old- not long after a feeding.].

Use the Results

Go back to what happened on my sample dairy. Back in Fall 2018, it was clear that an overhaul of procedures and training was needed at Location One. In January 2020 that seems to have been successful.
What is going to happen at Location Three? It is too soon to know for sure. What do Sam and Kazzie recommend?

- Continue sampling. Collect five or more "as-fed" colostrum samples, culture in a lab to be sure high bacteria levels can be eliminated as a cause.
- If not already done, push a rapid-read thermometer through the nipple vent hole on bottles of colostrum that are being warmed to prevent over-heating.
- Check all the colostrum with a refractometer to be sure only high quality colostrum is being fed for first feeding.
- Keep a record of when a calf is born and when she receives her first colostrum feeding – sooner is better – set a goal (for example, 90% less than 4 hours), and who fed the calf.
- Keep a record of the volume of colostrum received for first feeding or first 24 hours.

Reference: Wilm, J and Others, "Technical Note: Serum total protein and immunoglobulin G concentrations in neonatal calves over the first 10 days of age." Journal of Dairy Science 101:6430-6436. 2018.

Thanks to Merck Animal Health for their support of this newsletter.
For dairy products go to https://www.merck-animal-health-usa.com/species/cattle/dairy
For more calf management resources, go to www.calffacts.com. See also "Calves with Sam" blog.