Northwest Veterinary Associates, Inc.

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Measuring and Monitoring

By far, the most problematic "season" for a dairy cow is the 90 day window of her transition from a dry cow to an early lactation cow. The vast majority of metabolic and infectious diseases occur during a very short period of time. So it makes sense that we intensely focus our management on that area of the farm to ensure that we have all our bases covered in terms of providing a smooth road from the close-up dry group to the fresh group.

Multiple factors, including cow, environment, and feed factors are usually involved in transition cow problems. The key foundation of preventing metabolic disease is routine monitoring for ketosis and other health parameters. Ultimately, the goal for a smooth transition is maximizing dry matter intake during this period. Pre-calving monitoring of non-esterified fatty acid (NEFAs) concentrations and post-calving monitoring of ketones (the one we measure is BHBA) provides a critical widow into the health of individual cows as well as the overall health of the transition herd.

NEFA values reflect the amount of fat on the cow's body that is being moved from storage into usage. A close-up dry cow should not be mobilizing a significant amount of fat if her diet is adequate and her intakes are normal so NEFA values should be low. On the other hand, BHBA values indicate how completely fat is being utilized (oxidized) in the liver. If the liver is being overwhelmed with fat in the fresh period, it cannot fully process the fat overload and ketones, including BHBA, are produced in excess. Elevated levels of ketones can suppress appetite. This can be disastrous in a fresh cow.

High NEFA values in the 2 weeks before calving are associated with:

2-4 times increased risk of LDA

1.8 times increased risk of retained placenta

2 times increased risk of being culled before 60 DIM and 1.5 times increased risk of culling over the whole lactation.

Decreased milk production by 1,503 pounds.

16% less likely to get pregnant.

High BHBA values in the first 2 weeks after calving are associated with:

3-8 times increased risk if LDA.

Increased risk of metritis.

Decreased probability of pregnancy at first AI.

Decreased milk production.

Increased duration and severity of mastitis.

Here's how to determine if negative energy balance (measured by NEFAs and BHBAs) is a risk factor that you need to address in your herd in order to improve transition cow care and minimize the negative health, reproductive and milk production consequences. Sample 12-15 cows in the close-up group (14-2 days pre-calving) for NEFAs and a different set of 15 cows in the fresh group (3-14 DIM) for BHBAs. We can measure the BHBAs cowside with our little electronic analyzers (we are switching to a different unit because the test strips for the old ones (Precision Xtra) are no longer available). The NEFA samples need to be sent to an outside lab.

Using these tools, we can not only measure how you are currently doing in your transition management, but they can be used as a monitoring tool to keep an eye on your transition cows over time.