



**Northwest
Veterinary Associates,
Inc.**

Stephen Wadsworth, DVM
Peter Averill, DVM
Jennifer Hull, DVM
Tom Linden, DVM
Erica Sebastyan, DVM
Carter Wallinger, DVM

August 2020 Newsletter: Using Urine pHs to Evaluate DCAD Diets

Prepared by Dr. Carter Wallinger

Transition cow management is a crucial component of a productive and healthy lactation. One component of transition cow management is diet, and in this newsletter we'll be diving into DCAD diets. DCAD diets are formulated to change the ion movement within a cow's body. All diets contain cations (positive charge) and anions (negative charge), DCAD diets simply utilize ions that have more of an impact on the cow's blood ions than other ions. Acidic diets are most commonly accomplished by incorporating anionic salts into the TMR. For tie stall herds that don't use anionic salts, bagged dry cow grain can help you achieve an acidified cow. The equation for the DCAD diet is:

$$(\text{sodium} + \text{potassium}) - (\text{chloride} + \text{sulfur})$$

The ideal range for a DCAD diet on a dry matter basis is -50 to -150 mEq/kg. The negative value indicates an acidic diet. When she eats an acidic diet, the cow's blood becomes mildly acidic which causes calcium ions to move from her bones to circulating blood. Having more calcium available in the blood allows her to meet the high demand of calcium in the colostrum and her milk production, without experiencing clinical or subclinical hypocalcemia (milk fever).

Think of this process like a runner training for a race. A runner increases their distance as they train for an upcoming race so on race day their bodies are better equipped to handle the physical and metabolic demands. When a cow's calcium is utilized from her bones in the few weeks prior to freshening, she has a better start to the lactation. Can a runner perform well without training? Sure! But they have a better outcome when they prepare properly, just like lactating cows do with a correctly implemented DCAD diet.

One of the biggest benefits to the DCAD diet is the decrease in risk of clinical and subclinical hypocalcemia. However, DCAD diets also decrease the risk of other transition cow diseases including ketosis, retained placentas and metritis, and DAs. It also improves feed intake and increases milk production during early lactation.

While many of you are familiar with the DCAD system and its benefits, you may not be as familiar with urine pH testing, which can help you determine how well the DCAD diet is acidifying the cow. Urine pH is an easy test to perform, the only materials needed are pH strips and urine (one easier than the other to get). In a normal cow (not on a DCAD diet), their urine pH is 8.0-8.5. Close-up cows that have been eating a DCAD diet for at least 3 days should test 6.0-6.5 for Holsteins or 5.5-6.0 for Jerseys.

To get an accurate picture of how the diet is working, urine pH would be done once or twice a week. We can expect 80% of cows to fall within the pH ranges above when a DCAD diet is implemented correctly. It is best to test the group at the same time of day each time you test, and the same time relative to when fresh feed is put out.



Northwest Veterinary Associates, Inc.

Stephen Wadsworth, DVM
Peter Averill, DVM
Jennifer Hull, DVM
Tom Linden, DVM
Erica Sebestyan, DVM
Carter Wallinger, DVM

Many factors can influence the data we get from urine samples. If after testing the close-up cows you find less than 80% of the group is in the appropriate pH range, look for issues like overcrowding, ration mixing errors, bunk management, and sorting. Make sure you are consistent with the time of day they are being tested and feed delivery. If none of these apply to your pen(s), consider submitting a feed sample to be tested.

Northwest Vets is a good resource for routine urine pH testing, either to perform the testing ourselves, help you interpret the results of the pen or to show you the tips and tricks we have for getting a pesky urine sample! In the larger picture, the DCAD diet is another area where a team mentality is critical. Dairy owners, feeders, nutritionists and veterinarians all contribute to the functioning of the DCAD diet, and it's critical we incorporate all of those voices into a solution should there be a problem. DCAD diets can have such a large role on the transition period and can save the dairy significant money by decreasing costs associated with hypocalcemia, ketosis, metritis and DAs.

Reminders

Starting August 1st, we will be permanently changing our office hours to 7:30am-4:00pm Monday to Friday. The office will no longer be open Saturday. We will continue to take calls as usual on Saturday from 7:30am-noon, but your call will be forwarded to the answering service for the vet(s) on call.

We apologize for any inconvenience and thank you for your understanding!