

MONITOR URINE PH TO MASTER NEGATIVE DCAD DIETS



By Vicky Ham
Ruminant Technical Service Manager

Despite formulating for a negative DCAD, there are a multitude of reasons why the intended DCAD might not be achieved. To check you're hitting the right negative DCAD level, a simple urine pH measurement can be taken.

Variability in forage mineral content, differences between operators measuring and loading ingredients, presentation of the diet and space for cows to eat are just a few examples why the ration on paper does not match what the cow eats.

Consequently, relying on the formulated negative DCAD level alone is a risk to achieving success. A safer approach is to monitor via regular testing of urine pH.

The goal of a negative DCAD diet pre-calving is to achieve a mild metabolic acidosis and urine pH is considered an accurate reflection of a cow's acid base status. Blood pH can remain relatively stable because of the kidney's role in buffering blood electrolytes. But the outcome of this results in greater excretion of either cations or anions via the urine, which subsequently affects urinary pH. Thus, when a negative DCAD diet is fed, we can check if we're achieving the correct acidification level thanks to the work of the kidneys in altering urine pH.

A cow's normal urine pH will be around 8, but with a negative DCAD strategy, we want to be between 6 and 6.8 for Holstein cows (for Jerseys, 5.8 to 6.5 pH is more appropriate). The response of urine pH to a negative DCAD isn't linear, meaning that until the dietary DCAD level is reduced to

2 meq/100g dry matter or below, you're unlikely to see any change in urine pH level. Read our previous article on the recommended target DCAD level.

When moving onto a negative DCAD diet, it is advisable to test cows on a weekly basis to enable ration finetuning, but once the diet is stable, testing every 2 weeks would be sufficient. It's not necessary to test all animals in a group; a minimum of 10 animals in larger groups (over 30 cows) will be enough but avoid testing animals that have only been on the negative DCAD diet for several days or are close to calving. A consistent time slot for testing is important to avoid any diurnal variation and preferably 2 to 4 hours after the animals have been fed.

If 80% of the cows tested are within the target urine pH range, the diet is achieving the necessary acidification. If more than 20% of cows are outside of the target urine pH range, investigate the ration and ask your nutritionist for advice.



Vicky Ham is the Ruminant Technical Service Manager covering Europe for Arm & Hammer Animal Nutrition. Prior to joining Arm & Hammer, Vicky spent several years working as an on-farm dairy nutrition advisor across the Southwest of England and beyond. Her special areas of interest are in dry cow management, mineral nutrition and milk fatty acid composition.

“The beauty of urine pH testing is that it's simple, quick and inexpensive to do by yourself,” says Vicky Ham, Ruminant Technical Service Manager at Arm & Hammer. “Plus, unlike other tests, you get the results instantly, meaning you can take action straight away if something needs changing,” adds Vicky.

We've created a handy poster that will help visualise the performance of your negative DCAD diet. Request a copy for your dairy farm office through our local distributor. ■

NEXT IN THE SERIES: We'll talk about forages best for negative DCAD diets.



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