



MONITORING URINE pH

PROTOCOLS FOR CONSISTENT MEASUREMENT

WHY TEST URINE pH?

To reduce the risk of clinical milk fever and subclinical hypocalcaemia, prefresh rations should be formulated for negative Dietary Cation-Anion Difference (DCAD). Urine pH is a monitor to determine if the ration DCAD is being implemented properly and acidifying cows prepartum. Urine pH sampling should only be implemented if a negative DCAD ration is fed prefresh.

THE MOST IMPORTANT ASPECT WHEN DETERMINING URINE pH IN CLOSE-UP COWS IS CONSISTENCY IN MEASUREMENT. ACROSS THE BOARD, YOU MUST BE CONSISTENT WITH THREE MAJOR FACTORS:

- 1 NUMBER OF ANIMALS SAMPLED
- 2 NUMBER OF DAYS PREPARTUM
- 3 TIMING

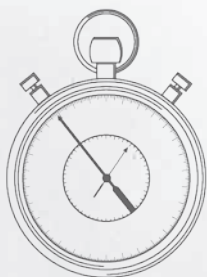
NUMBER OF ANIMALS

Test urine pH in 10 - 15 prefresh cows, regardless of herd size. In smaller herds, it may take 1 - 2 weeks to collect this number of samples. The more animals that are tested the better to get a truer sense of the variation.

NUMBER OF DAYS

Animals should have consumed the close-up ration for at least 5 days.

TIMING



Urine pH monitoring should occur once per week. Once a consistent pH is achieved and dietary or ingredient sources are stable, frequency can shift to once per month.

Consistently collect samples at the same time postfeeding, recognizing that urine pH will vary during the day. Therefore, to assess pH over time in a herd you should be consistent in the timing of sampling.

OBTAINING A SAMPLE

- 1 Gently massage the area about 6 inches below the vulva.
- 2 When the animal starts urinating allow for about a pint to exit before sampling as alkaline (basic) compounds in the vagina can cause erroneous pH values.
- 3 Experience is your best teacher.



TIP A:

Use pH-sensitive paper (dip sticks) with a measurement range of 5 - 9.



TIP B:

If using a pH meter, be sure it is cleaned, calibrated correctly and rinsed between measurements.

EXPECTING VARIABILITY

Despite the same diet, there will be variation between cows.

VARIATION CAN BE CAUSED BY MANY BEHAVIORAL AND MANAGEMENT FACTORS:

- Proper mixing of the ration
- Adequate amounts of feed (if insufficient feed is offered, some will consume normal amounts and others will be shorted)
- Overcrowding (prevents animals from eating within the preferred time frame)
- Forage and commodity feed variability in K and Cl (changes in these without adjusting the DCAD minerals can cause large shifts in urine pH)
- Drinking patterns
- Eating behavior and sorting
- Feed preferences by animals (even if forages are offered separately)
- Recent urination before sampling
- Variation in negative DCAD supplement

INTERPRETING RESULTS

80% of the samples should fall within the desired range according to the DCAD level of the diet.

The outlying 20% is likely caused by improper sampling or one or more of the factors listed.

FOR EXAMPLE:

Figure 1 shows the targeted ranges for urine pH. Increase or decrease ration DCAD until 80% of the cows fall in this range. Usually a DCAD of -8 to -12 meq/100g DM will accomplish this.

BREED	TARGETED URINE pH LEVELS
HOLSTEIN	5.8 - 6.5
JERSEY	5.6 - 6.2

Figure 1



MONITORING URINE pH IS KEY TO METABOLIC DISORDER PREVENTION. IF YOUR PREPARTUM URINE pHs ARE NOT WHERE THEY NEED TO BE, BIO-CHLOR™ CAN HELP ACHIEVE THE NEGATIVE DCAD LEVELS NEEDED FOR SUCCESSFUL START-UP MILK, DMI AND REDUCTION IN HYPOCALCAEMIA.

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