SUBCLINICAL HYPOCALCAEMIA

WITH AN OVERVIEW OF MILK FEVER

IMPACT

Subclinical hypocalcaemia (SCH) negatively affects immune function, and is associated with decreased production performance and reproductive function. It also increases the risk for postpartum metabolic diseases.

PREVALENCE

The National Animal Health Monitoring System (NAHMS) estimates as many as 54% of multiparous cows and 25% of first-calf heifers succumb to SCH, even though clinical cases of hypocalcaemia, or milk fever, are much lower overall—almost absent from first-calf heifers. The prevalence of SCH is likely much greater than reported.

CAUSES

SCH occurs within the first 24 to 48 hours postpartum with the initiation of lactation. It results when blood calcium (Ca) levels fall below a still-undefined critical threshold (more on that later), but have not yet fallen low enough to cause clinical milk fever.

MONITORING FOR SCH AND REDUCING RISK: THE BASICS

THERE ARE FUNDAMENTAL PRACTICES THAT SHOULD BE IMPLEMENTED ON THE DAIRY BEFORE A BLOOD PROTOCOL IS CONSIDERED.

1 CLEARLY DEFINE AND RECORD TRANSITION COW EVENTS.
This includes difficult calvings, retained placentas, ketosis, metritis, mastitis and start-up milk production. Use this information to establish a baseline for herd monitoring.

2 TEST FORAGES USING WET CHEMISTRY.
Analyze forages and byproduct commodity feeds for Na, K, Cl and S by wet chemistry analysis.

3 BALANACE RATIONS FOR NEGATIVE DCAD.
Formulating rations for negative dietary cation-anion difference (DCAD) prepartum is proven to consistently acidify cows and help minimize milk fever after calving. A DCAD of -8 to -12 meq/100g DM will usually accomplish this.

4 MONITOR URINE pH.
Urine pH serves as a reflection of blood pH, which assesses the implementation of the negative DCAD ration. Take urine samples from cows that have been fed the close-up diet for at least 5 days. Consistently collect samples at the same time postfeeding, recognizing that urine pH will vary during the day. Target the following urine pH levels (Fig. 1).

Figure 1

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

MONITORING BLOOD CALCIUM POSTPARTUM

THE BEST WAY TO MONITOR BLOOD CALCIUM IS TO IMPLEMENT "BEFORE" AND "AFTER" INTERVENTION BLOOD SAMPLING PROTOCOLS:

THE ANIMALS SHOULD:

- ✓ Have consumed the close-up ration for at least 5 days.
- ✓ Have had normal, uncomplicated calving.
- ✓ Be visually free of disease.

1. Draw tail vein blood on a minimum of 10 first-calf heifers, 10 second lactation and 10 third or greater lactation animals. Take samples within the first day postpartum. This should be done after first colostrum is removed and before applying any oral or injectable calcium interventions.
2. Implement nutritional intervention.

3. After 30 days, repeat the blood sampling process as outlined in step #1 on a new set of animals.

4. Plot the before and after values by parity for each cow and compare the averages. Even without the critical threshold or ideal timing identified, this provides a true comparison to ensure the nutritional intervention was successful.

CAN A NEGATIVE DCAD DIET PREPARTUM REDUCE THE RISK OF SCH?

Negative DCAD has been well-researched and proven to slightly acidify a prepartum cow's blood. As a result, more of the total blood calcium becomes available in ionized form, which reduces the risk of SCH and milk fever.

Identifying the right anion source to lower ration DCAD while delivering metabolizable protein (MP) is critical as you formulate prepartum rations.

NEXT EXIT GETTING IT DONE

ML 2265-0615

HOW DOES BIO-CHLOR™ HELP PREVENT SCH?

When it comes to feeding an anionic source prepartum, only BIO-CHLOR delivers:

- ✓ Consistent formulation.
- ✓ Bacterial growth to support rumen function.
- ✓ A source of metabolizable protein.
- ✓ Reduction in incidence of metabolic diseases.
- ✓ Proven palatable anion source.

To access more tools and resources from Arm & Hammer Animal Nutrition, visit transition.ahdairy.com.