HIT TRANSITION TARGETS WITH A SOURCE OF HIGH-QUALITY PROTEIN AND ANIONS

In the competitive landscape of dairy farming, achieving optimal cow health and maximizing milk production are paramount goals. BIO-CHLOR was designed to meet these critical needs by delivering high-quality metabolizable protein (MP) and essential anions in a single, highly efficient formulation. Engineered to create a negative dietary cation-anion difference (DCAD) prepartum, BIO-CHLOR is vital for preventing milk fever and ensuring smooth transitions for dairy cows.

What is BIO-CHLOR?

- A palatable supplement delivering both metabolizable protein (MP), and the anions needed to create negative dietary cation anion difference (DCAD) prepartum, in a single formulation.
- Contains a unique source of highly digestible protein made through a proprietary drying process.
- Rumen microbes can use the proteins in BIO-CHLOR – peptides, nucleotides and free amino acids – directly to increase efficiency of bacterial protein production, which the cow can use to her benefit[1].
- Proven to increase startup milk production, improve postpartum dry matter intake (DMI) and decrease the occurrence of expensive health issues in transition cows.[2,3]

How does BIO-CHLOR work?

Metabolizable protein
Underfeeding protein during a cow's pregnancy can reduce performance and health in the subsequent lactation. BIO-CHLOR is specifically designed to provide transition cows with the metabolizable protein needed for high milk startups and peaks and to maintain high DMI.

Negative DCAD
A negative DCAD is a feeding strategy used to prevent milk fever in transition cows. To build a negative DCAD diet, potassium and sodium consumption is reduced (positively charged cations) and sulfur and chloride are increased (negatively charged anions). BIO-CHLOR, an anion supplement, can be used to achieve negative DCAD.

Why negative DCAD?
When a negative DCAD diet is fed, cows typically enter mild metabolic acidosis which increases the animal's responsiveness to parathyroid hormone (PTH).

The effect of PTH is three-fold:
1. Stimulates absorption of calcium from the bones.
2. Switches "on" the enzyme responsible for converting Vitamin D into its active form.
3. Stimulates calcium transport across the intestinal wall.

As a result, a cow fed a negative DCAD diet can more easily regulate her calcium supply around calving, meeting a dramatically increased requirement and avoiding subclinical and clinical milk fever.

BIO-CHLOR®

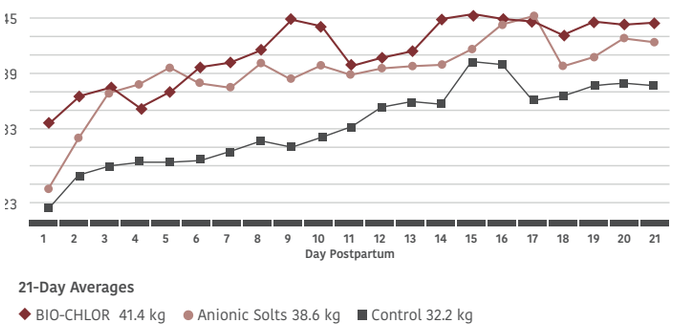
Benefits of BIO-CHLOR

Increased Start-up Milk[2]

Key takeaway

Feeding BIO-CHLOR prepartum delivers higher start up milk and 21 day yields than anionic salt diets formulated to the same negative DCAD level.

Figure 1. Effects of prepartum DCAD supplement on postpartum milk yield



Reduced Transition Disease Incidence[3]

Key takeaway

A 42-study meta-analysis summarized that BIO-CHLOR supplementation not only improved milk production but also reduced total disease incidence per cow.

Figure 2. Meta-analysis of 42 studies altering negative DCAD prepartum from +200 to -100 mEq/KG DM using BIO-CHLOR

Postpartum Dry Matter Intake (kg/day)	+1.1
Milk Production (kg/day)	+1.7
FCM (kg/day)	+1.2
Milk Fever (Incidence %)	-80%
Retained Placenta (Incidence %)	-47%
Metritis (Incidence %)	-39%
Displaced Abomasum (Incidence %)	-18%
TOTAL DISEASES/COW	-56%

Transition Cow Diet Tips

Always consult your nutritionist to discuss a feeding strategy specific to your herd.

To formulate an ideal negative DCAD diet, use:

- A DCAD value range between -80 and -120 mEq/KG DM.
- A recent mineral analysis of forages (including straw) intended for the transition cow group to formulate BIO-CHLOR inclusion strategy.
- BIO-CHLOR can be safely and effectively used for a single dry cow grouping strategy and fed for 42 days, avoiding the need for pen moves[4].
- Urine pH to measure diet formulation (and feed intake) success.

Other dry cow tips:

- Provide a minimum of 1200g of metabolizable protein per day.
- Achieve dry matter intakes of 13kgs per day or 2% of bodyweight.
- Feed low potassium forages and keep total dietary potassium below 1.5% DM.
- Target body condition score of 3.0-3.5 at dry off and maintain this until calving.
- Feed mold-free silage and straw; if there are any concerns, include a mycotoxin mitigation product such as Arm & Hammer's BG-MAX.
- Keep feed troughs clean.
- Provide 85-100cm of space per cow at the feed trough.
- Provide 1.25m^2 of lying space per 1,000lts milk.

1 Miller-Webster TK, Hoover WH. Rumen Fermentation Profiling Laboratory Study, West Virginia University, 2008. Data on file. **2** DeGroot MA, Block E, French PD. Effect of prepartum anionic supplementation on periparturient feed intake, health, and milk production. Journal of Dairy Science. 2010 Nov 1;93(11):5268-79. **3** Santos JE, Lean IJ, Golder H, Block E. Meta-analysis of the effects of prepartum dietary cation-anion difference on performance and health of dairy cows. Journal of dairy science. 2019 Mar 1;102(3):2134-54. **4** C. Lopera, R. Zimpel, A. Vieira-Neto, F.R. Lopes, W. Ortiz, M. Poindexter, B.N. Faria, M.L. Gambarini, E. Block, C.D. Nelson, J.E.P. Santos, Effects of level of dietary cation-anion difference and duration of prepartum feeding on performance and metabolism of dairy cows, Journal of Dairy Science, Volume 101, Issue 9, 2018, Pages 7907-7929, ISSN 0022-0302, https://doi.org/10.3168/jds.2018-14580.

Discuss BIO-CHLOR with your local Arm & Hammer Animal Nutrition representative, nutritionist or veterinarian, or visit ahanimalnutrition.com