

# ION PLUS™

Potassium Source Matters

48.5

## DCAD – A closer look

Electrolytes for adult animals are commonly expressed as **DCAD** -- the **dietary cation-anion difference**. DCAD is an index of the relative balance between the principle cations and anions in the cow's diet.

- Cations are positively charged and include:
  - Sodium (Na<sup>+</sup>)
  - Potassium (K<sup>+</sup>)
- Anions are negatively charged and include:
  - Sulfur (S<sup>-</sup>)
  - Chloride (Cl<sup>-</sup>)

Although several equations can be used to calculate DCAD, the most commonly used is:

$$\text{DCAD} = \text{meq (Na + K)} - (\text{Cl} + \text{S})$$

### Production Phase      Target Diet DCAD Levels<sup>1</sup>

Transition	-8 to -15 mEq per 100 g
Early lactation	+35 to +45 mEq per 100 g
Mid-late lactation	+35 mEq per 100 g

### Potassium (K) Guidelines:

- Fresh and Early Lactation Cows: 1.6 to 2.0. %
- Mid Lactation Cows: 1.5 to 1.9%

<sup>1</sup> Hu and Murphy. 2004. Dietary cation-anion difference effects on performance and acid-base status of lactating dairy cows: A meta-analysis. J. Dairy Sci. 87:2222-2229.

## Healthy Cows Perform Better

Dairy animals are exposed to a wide range of potential stressors every day. Even though we try to minimize environmental challenges (like heat stress) and variation in diet, those animals unable to withstand the challenges are compromised in their health and overall performance.

### Post-fresh Cows – Cations

In comparison to pre-fresh cows, lactating cows often benefit from a positive DCAD diet. Here we want to focus on strong cations, notably sodium and potassium. Due to higher incorporation of rapidly fermentable carbohydrates in their diets, lactating cows tend to experience increased levels of acid buildup, both ruminally and in their blood. These rations also tend to support less rumination, which reduces the production of salivary bicarbonate, the major buffer of acids in both the rumen and blood. During periods of heat stress, panting and reduced rumination increase the loss of bicarbonate, which reduces blood pH and blood buffering capacity.



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# Ion Plus helps Support Health and Performance

Transition research indicates most early-lactation and high producing cows are deficient in potassium. Ion Plus provides the necessary potassium (K) cows need post-fresh to replenish the K lost through milk production and basic physiological losses including panting and urination. It also helps mitigate the effects of summer heat stress by maintaining positive DCAD levels.

## Key Features:

- **Stable Form** – Source of K is potassium carbonate to minimize heating of diet.
- **Fast Acting** – Replaces K lost through perspiration and urination.
- **Positive DCAD** – Helps maintain positive dietary cation-anion difference and does not contain chloride anion.
- **Consistent Quality** – We utilize only quality, traceable ingredients.

## Key Benefits:

There are numerous benefits. Research shows a diet delivering a positive DCAD for lactating cows:

- Supports dry matter intake (DMI) and rumination
- Increases milk production and milk components
- Helps keep cows hydrated, even during periods of rising environmental temperatures
- Improves income over feed cost (IOFC) and profitability
- Optimizes overall health & wellness

## Typical Analysis:

- Potassium: 48.5 %
- Sodium: 0.31 %

## Manufacturing Certifications:



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**If you would like more information,  
please contact your local Nutrition  
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