

SynTech™ RGI

Gut Health & Immune Function



RUMINANT



Beyond the Gut

In both ruminant and monogastric animals, a healthy gastrointestinal tract is essential to maintain optimal immune function. The animal's diet can have a significant effect on its health by altering the gut microbiome and affecting the immune system. SynTech RGI's new two-way action supports both digestive health and immune function to promote overall animal health and performance in the ruminant animal.

SynTech RGI

SynTech RGI is manufactured exclusively by D&D Ingredient Distributors, intended for use in ruminant animals to help promote digestive health and maintain optimal immune function. SynTech RGI is a complex product containing Mannan-oligosaccharides (MOS), Beta-glucans, and two stable *Bacillus* strains that work together to promote healthy microbial populations, optimize immune function, and support intestinal tissue integrity.

MODE OF ACTION

SynTech RGI has two distinct modes of action:

1. Promotes digestive health by stabilizing ruminal pH, supporting healthy microbial populations, and maintaining intestinal integrity
2. Optimizes immune function by positively impacting both humoral and cell-mediated immune responses



**INGREDIENT
DISTRIBUTORS, INC.**

Ingredient Sourcing & Custom Premix Blending Specialists

Key Features

PRODUCT STABILITY | Contains both a patented form of live yeast (*Saccharomyces cerevisiae*) and two *Bacillus* strains (*licheniformis* and *subtilis*) designed to withstand the major physical stress factors occurring during the pelleting process and storage.

SYNBIOTIC FORMULA | Contains both probiotics and prebiotics (MOS).

CONSISTENT QUALITY | We utilize only quality, traceable ingredients in manufacturing to ensure product consistency.

Key Benefits

There are numerous benefits. Research shows the nutritional health technologies contained in SynTech RGI help:

Enhance fiber digestibility

Provide better feed conversion

Improve animal performance

Optimize health and wellness

Typical Analysis

DRY MATTER (MIN)	> 94.7%
TOTAL BACTERIA (MIN)	1.28 X 10 ⁹ CFU/G
TOTAL VIABLE YEAST CELLS (MIN)	5.0 X 10 ⁹ CFU/G

Recommended Feeding Rate

DAIRY COWS	10 g/hd/day
HEIFERS	10 g/hd/day
CALVES	5 g/hd/day
BEEF CATTLE	10 g/hd/day

Quality Commitment

Quality is an integral part of D&D's business principles. These principles guide our actions to deliver products and services that are safe, effective, and reliable.

Manufacturing Certifications



Additional Information

If you would like more information about SynTech RGI, please contact your local Nutrition Specialist or D&D Ingredient Distributor Representative.

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Ingredient Sourcing & Custom Premix Blending Specialists

CIDIFY™ Innovative Anionic Blend



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⁺)
 - Potassium (K⁺)
- Anions are negatively charged and include:
 - Sulfur (S⁻)
 - Chloride (Cl⁻)

Although several equations can be used to calculate DCAD, the most commonly used is:
DCAD = mEq (Na + K) – (Cl + S)

Production Phase **Target Diet DCAD Levels¹**

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

¹ 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 challenges (e.g., environmental, transition, production, diet variation), animals that are unable to withstand the challenges are compromised in their health and overall lactation performance.

Pre-fresh Cows – Anions

In comparison to post-fresh cows, transition cows can benefit from a negative DCAD which helps prevent metabolic disorders. To aid in the prevention of hypocalcemia or milk fever, provide a diet with a negative DCAD. Hypocalcemia is caused by low blood calcium levels in the early postpartum period. Hypocalcemia occurs when demands for calcium exceed what the cow is able to absorb from dietary sources and mobilize from storage in bone. Cows that experience hypocalcemia are more likely to develop other metabolic disorders, such as fever, ketosis and metritis.

Cidify helps Support Health and Performance

Cidify is an anionic blend designed to supply a consistent amount of anions in the cow's close up period to help temper hypocalcemia related disorders. It provides dietary anions with a DCAD of -910 milliequivalents (mEq) per 100 g allowing the nutritionist to meet a -12 to -16 DCAD with an average inclusion rate of 0.5 to 0.7 lb of dry matter (DM) depending on target DCAD and cation levels of other ingredients.



**DAIRY
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Key Features:

- **Concentrated** – One of the most concentrated anionic blends in the marketplace today, which helps preserve value formula space.
- **Palatable** – Does not reduce dry matter intake during the pre-partum period, which allows higher dry matter intake postpartum.
- **Consistent Quality** – We utilize only quality, traceable ingredients to ensure product consistency.

Key Benefits:

There are numerous benefits. Research shows Cidify helps:

- Establish negative DCAD levels
- Optimize rumen health and microbial protein production
- Maintain dry matter intake pre-partum
- Promote overall fresh cow health and wellness

Typical Analysis:

NUTRIENT PROFILE

Nutrient	Units	As-fed Basis	DM Basis
Dry Matter	%	93.10	100.00
Crude Protein	%	42.90	46.10
NPN	%	5.30	5.70
Crude Fat	%	2.51	2.70
Sodium	%	0.19	0.20
Chloride	%	16.64	17.89
Calcium	%	2.14	2.30
Potassium	%	0.42	0.45
Magnesium	%	4.89	5.26
Sulfur	%	6.35	6.83
Cobalt	ppm	236.10	253.90
Propionate	%	1.00	1.07
Bulk Density	lb/Cubic ft	48.00	NA

Recommended Feeding Rate

Cidify should be fed to pre partum cows 21 days prior to calving. Inclusion rates depend on target DCAD and cation levels of ingredients used in the diet. Typical inclusion rate is 0.5 lb per cow per day.

- DCAD in the transition diet should be between -80 to -150 mEq per kg dry matter to effectively control milk fever and low blood calcium.
- Monitor cow urine when using anionic products. Urine pH is a reasonable indicator of metabolic pH status and reflects the effectiveness of anionic products. Urine pH should be 5.8 to 6.5 for Holsteins and 5.5 to 6.0 for Jerseys.
- Check and account for minerals in water when formulating diets for negative DCAD.

Quality Commitment

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Manufacturing Certifications:



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If you would like more information about Cidify, please contact your local Nutrition Specialist or D&D Ingredient Distributor Representative.

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Potassium Source Matters



Ion Pak is a balanced electrolyte additive designed to increase Dietary Electrolyte Balance and improve metabolic buffering capacity in lactating dairy cow diets.

FEEDING DIRECTIONS FOR ION PAK IN DAIRY RATIONS

Recommended conditions for inclusion are high producing dairy cows during time of environmental or dietary stress when lower than desired milk components are observed.

RATION BALANCE ADDITION:

Add **Ion Pak** to increase dietary potassium (K) to between 1.8 and 2.0% of the dry matter. ION PAK supplies +1063.55 mEq per 100 g

OR

To raise Dietary Electrolyte Balance (DEB) as Na+K+Mg-Cl: Add 0.5-1.50 lb/hd/day **Ion Pak**

Ion Pak+ lbs/hd/day	% supplied to Ration based on 50 lbs DMI			DEB mEq/kg added to diet	
	K%	Na%	Mg%	50 Lbs DMI	60 Lbs DMI
0.50	0.33%	0.05%	0.05%	146.7	122.3
0.75	0.50%	0.07%	0.08%	220.1	183.4
1.00	0.66%	0.09%	0.10%	293.4	244.5
1.25	0.83%	0.11%	0.13%	366.8	305.7
1.50	0.99%	0.14%	0.16%	440.1	366.8

Typical Analysis:

- Potassium: 34%
- Sodium: 5%
- Magnesium: 4%
- Calcium: 4%

Optimal DEB levels for Lactating Dairy Cows (calculated as Na+K-Cl) for dairy rations:

- High Producing Cows: 300 mEq/kg
- Mid-lactation Cows: 250 mEq/kg

Typical salt addition to diets are less than 0.15/lb/head/day.

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ION PLUS™

Potassium Source Matters

48.5

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

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

<u>Production Phase</u>	<u>Target Diet DCAD Levels¹</u>
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%

¹ 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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