



Anionic Mineral for Non-Lactating Dairy Cows

Optimal DCAD Mineral Nutrition for Dry Cows

Animate® was developed to help optimize the health and performance of the “transition cow” - the time comprising 3 to 4 weeks before and 2 to 4 weeks after calving. Proper feeding and management of dry cows should be viewed as an investment in the next lactation.

The addition of Animate to the diet of dry cows can help reduce the incidence of clinical hypocalcemia (Milk Fever) and subclinical hypocalcemia (low blood calcium) and may lead to reduced incidence of metabolic and non-metabolic disorders associated with hypocalcemia, resulting in improved transition cow performance including greater milk yield.

- Subclinical hypocalcemia occurs in 25% of first-calf heifers and greater than 50% in second lactation and older cows (Reinhardt et.al., 2011. Vet J. Vol. 188. 122-124).
- Hypocalcemia is associated with numerous health disorders and reduced performance, including: mastitis, ketosis, dystocia, retained placenta, prolapsed uterus, metritis, udder edema, displaced abomasum and fatty liver (Horst et al., 1997. JDS.80:1269-1280 and Curtis et. al., 1985. JDS.68:2347-2360).
- Estimated economic impact of some health disorders:

Metabolic Event	Est. cost/Incidence
Milk Fever ¹	\$408
Subclinical Hypocalcemia ²	\$125
Displaced Abomasum ³	\$405 - \$555
Ketosis ³	\$80 - \$92
Retained Placenta ³	\$146 - \$213
Metritis ³	\$176 - \$186

¹Cost per case from veterinary fees, drugs, labor, lost or discarded milk and culling (C. Guard, et al., 1996)

²Non-infectious diseases: Milk fever in Encyclopedia of Dairy Sciences. Vol. 2. F. J. W. Fuquay, P.F., McSweeney, P.L.H., ed. Academic Press, San Diego Oetzel 2011. Lost milk yield and direct costs associated with ketosis and displaced abomasum's

³Liang, Di, “Estimating the Economic Losses from Diseases and Extended Days Open with a Farm-Level Stochastic Model” (2013). Theses and Dissertations--Animal and Food Sciences. Paper 22. http://uknowledge.uky.edu/animalsci_etds/22. First value is for first parity animals and second value is for mature cows.

Animate patented anionic mineral is a unique, homogeneous and palatable product containing chloride (Cl), sulfur (S) and magnesium (Mg), three critically important macro-minerals necessary for proper mineral formulation of negative DCAD diets.

Based on numerous field studies, university research and commercial applications, Animate has been shown to help keep transition cows healthy and productive.

Field observations and university research demonstrate that Animate may promote increased pre- and postpartum dry matter intake.

Characteristics and benefits include:

- Highly palatable and readily consumed
- Homogeneous physical and chemical profile ensures even ration delivery with a uniform and consistent acidification
- One of the most concentrated commercially available anionic products, allowing for easy diet formulation
- Formulated with proper levels of chloride (Cl) and sulfur (S) for easy and effective negative DCAD ration formulation
- Provides supplemental levels of phosphorus (P) and magnesium (Mg), key nutrients needed for a complete anionic diet formulation

Formulation Guidelines for Close-up Dry Cow Rations using Negative DCAD Balancing:¹

- Calcium (Ca): ≥ 180 g and not less than 1.42% DM
- Phosphorus (P): 0.21 to 0.42% DM or 26 - 53 g/d
- Magnesium (Mg): 0.45 to 0.50% DM or 57 - 64 g/d
- Potassium (K): 1.00 to 1.30% DM or 127 - 165 g/d
- Sodium (Na): 0.10% to 0.20% DM or 13 - 26 g/d
- Chloride (Cl): 0.80 to 1.00% DM or 102 - 127 g/d
- Sulfur (S): 0.40 to 0.47% DM or 51 - 60 g/d
- DCAD: -10 to -15 mEq/100 g DM

¹ Grams per day based on a dry matter intake of 28.0 lbs (12.7 kg).

The above guidelines are recommendations only and not absolute requirements.

Animate Anionic Mineral for Non-Lactating Dairy Cows

Typical Chemical Analysis for Animate

	Dry Matter Basis	As Fed
DM, %	88.0	
ENERGY		
NEM, Mcal/kg	1.52	1.34
NEL, Mcal/kg	1.62	1.43
NEG, Mcal/kg	1.03	0.91
TDN, %	71.0	62.5
CARBOHYDRATES/FIBER		
NSC, %	5.59	4.92
NFC, %	24.35	21.43
Sugar, %	3.83	3.37
Starch, %	1.76	1.55
ADF, %	8.25	7.26
aNDFom, %	9.09	8.00
Lignin, %	2.34	2.06
FAT		
Crude Fat, %	4.84	4.26
TFA, %	3.94	3.47
C12:0 (% of TFA)	0.00	0.00
C14:0 (% of TFA)	0.00	0.00
C16:0 (% of TFA)	16.58	14.59
C16:1 (% of TFA)	0.29	0.26
C18:0 (% of TFA)	2.15	1.89
C18:1T (% of TFA)	0.00	0.00
C18:1C (% of TFA)	42.36	37.28
C18:2 (% of TFA)	51.19	45.05
C18:3 (% of TFA)	1.45	1.28
Other Lipids (% of TFA)	1.67	1.47
PROTEIN/AMINO ACIDS		
Crude Protein, %	41.2	36.26
Equivalent Crude Protein from		
Non-Protein Nitrogen, %	22.6	22.6
RDP (%CP)	46.0	46.0
RUP (%CP)	54.0	54.0
Soluble Protein (%CP)	66.0	66.0
ADICP, %	1.62	1.43
NDICP, %	2.03	1.79
Methionine, %	0.32	0.28
Lysine, %	0.52	0.46
Arginine, %	0.74	0.65
Threonine, %	0.64	0.56
Leucine, %	1.99	1.75
Isoleucine, %	0.63	0.55
Valine, %	0.81	0.71
Histidine, %	0.43	0.38
Phenylalanine, %	0.84	0.74
Tryptophan, %	0.27	0.24

Typical Chemical Analysis for Animate

	Dry Matter Basis	As Fed
MACROMINERALS		
Ash, %	20.52	18.06
Chloride, %	13.96	12.28
Sulfur, %	5.44	4.79
Magnesium, %	4.89	4.30
Calcium, %	1.38	1.21
Phosphorus, %	0.62	0.55
Potassium, %	0.90	0.79
Sodium, %	0.25	0.22
*Milliequivalents (mEq)/kg	-6,993	-6,154
TRACE MINERALS		
Iron, mg/kg	85	74
Zinc, mg/kg	44	38
Copper, mg/kg	7	6
Manganese, mg/kg	16	14

*Based on the following DCAD equation:
(Na+K) - (Cl+S)

Estimated Mineral Bioavailabilities

Mineral	Bioavailability (%)
Chloride, %	90
Sulfur, %	60
Magnesium, %	90
Calcium, %	70
Phosphorus, %	70
Potassium, %	70
Sodium, %	70
Iron, %	70
Zinc, %	70
Copper, %	70
Manganese, %	70