

Animate[®]

Anionic Mineral Supplement

Reducing the Incidence of Milk Fever and Hypocalcemia In Transition Dairy Cows

Alleviating metabolic disorders of lactating dairy cattle, particularly in the early phase of lactation, is a major objective of dairy farmers, veterinarians and nutritionists. Milk fever (clinical hypocalcemia at parturition) is one of the most common of all metabolic diseases of dairy cattle. Approximately 5-7% of all adult dairy cows in the U.S. are affected each year and the incidences will likely increase as herd averages increase (Jordan and Fourdraine, 1993). Research has shown that milk production in dairy cows affected with milk fever can be decreased by 14% in the subsequent lactation (Block et al., 1984).

Although often not diagnosed, the subclinical form of this disorder is also significant. Historical studies have shown that two-thirds of multiparous and one-half of all adult dairy cows suffer from subclinical hypocalcemia at calving each year (Oetzel et al., 1988; Beede et al., 1992). Also, the true cost of this condition is much greater than simply treating a case of hypocalcemia. Parturient hypocalcemia is associated with increases in other health disorders including mastitis, ketosis, dystocia, retained fetal membranes, prolapsed uterus, metritis and displaced abomasum (Curtis et al., 1983). These secondary conditions may be due to poor muscle contractions and poor appetite caused by insufficient blood calcium. Studies that have followed up lactational performance (Block, 1984; Beede et al., 1992) have shown that subclinical hypocalcemia dairy cows produce approximately 850 lb. less milk annually than cows with normal blood calcium. If milk fever and subclinical hypocalcemia could be eliminated, savings to the dairy industry would be considerable.

- Hypocalcemia is associated with numerous health disorders and reduced performance:

<u>Metabolic Event</u>	<u>Estimated \$/Incidence*</u>
Milk Fever	\$344.00
Retained Placenta	\$285.00
Ketosis	\$145.00
Displaced Abomasum	\$340.00

*cost per case, from lost or discarded milk, veterinary fees, labor, drugs, culling.
C. Guard et al., 1996

Fortunately, hypocalcemia can be successfully controlled by specific nutritional practices, such as the addition of anionic minerals prepartum. Terms such as alkali-alkalinity, anion-cation balance or difference, dietary electrolyte balance, fixed ion balance, strong ion difference with the most popular term being dietary anion-cation difference or DCAD have been used to describe the numeric relationship between anions and cations. Anionic minerals contain higher levels of bioavailable mineral anions than mineral cations. In general, studies have shown that when dry cows were fed diets supplemented with anionic minerals, milk fever cases were reduced substantially. Feeding anionic minerals is associated with lowered acid-base status which in turn is associated with increased blood ionized calcium. It is the concentration of ionized calcium that essentially regulates calcium absorption and homeostasis (Horst et al., 1994). In one study, milk fever was prevented 92% of the time by feeding anionic minerals prepartum (Dishington, 1975).



Block (1984) fed dry cows anionic minerals and was able to prevent hypocalcemia and also increase subsequent lactational yield by 7%. Other anionic studies over the years have shown the value of anionic mineral supplementation to dairy diets prepartum (Oetzel et al., 1988; Wang et al., 1991) and have suggested that there may be additional benefits associated with alleviating hypocalcemia.

However, it has been difficult to feed anionic minerals in dairy cattle diets due to poor palatability and the potential for reduced dry matter intake (Oetzel and Barmore, 1993). Of course, anionic salts high in chloride and sulfur provide for most of the anionic impact to the diet. Previous studies and producer feedback often cite consumption problems and related inconsistencies in acid-base balance and health and performance response to feeding straight or blended as-is anionic salts. Also, many of these same anionic salts are not user friendly. Fortunately, a new generation anionic mineral supplement called **ANIMATE** is available to the dairy industry today. It has proven to be more palatable and consistent in delivering the proper negative DCAD level during the critical transition period. **ANIMATE** is designed as a nutritional tool to optimize the health and performance of the transition cow by alleviating some of the classical disorders and consumption and milk production problems that occur during this important production phase, while providing solid economic benefits. Hutjens (2000) pointed to studies in Canada and the United States, which found that feeding improved anionic supplements successfully provided at least a 10:1 return on investment.

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