

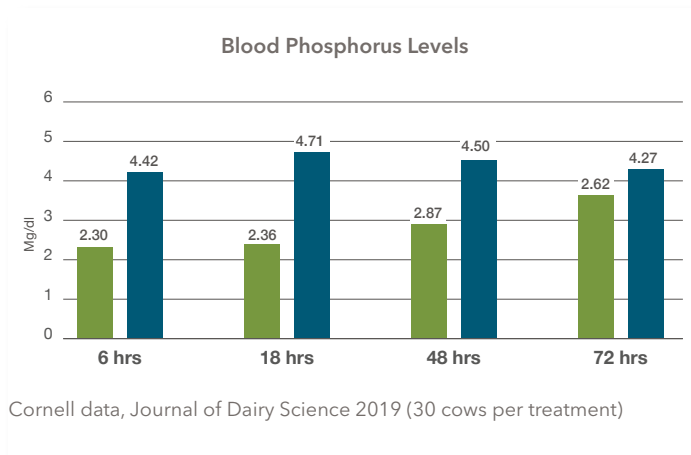
How X-Zelit Works to Reduce Milk Fever and Hypocalcemia

Introduction

Traditionally, milk fever prevention programs have attempted to directly alter Ca status of dairy cows at calving. Examples of common approaches include feeding pre-fresh dairy cows diets containing anionic salts, limiting dietary Ca, feeding hyper-dietary Ca and administering Ca boluses.

Improving Blood Calcium

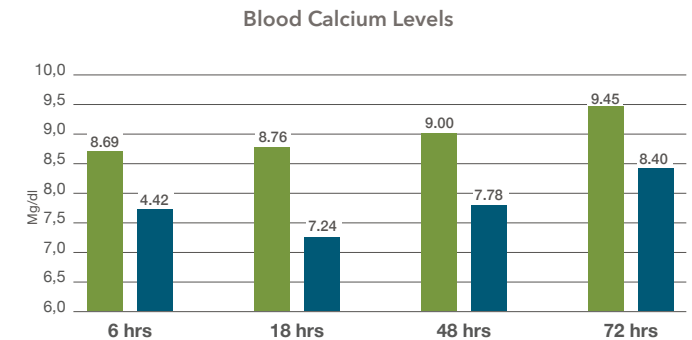
New research (Cornell University, UW-Madison, UVM Germany) has discovered that restricting dietary P in pre-fresh cows significantly improves blood Ca status of cows at calving which greatly diminishes hypocalcemia and milk fever. These and other new studies have discovered that modestly restricting dietary P to pre-fresh cows reduces the release of a bone hormone called fibroblast growth factor-23 (FGF23). FGF23 plays a central role in P metabolism regulating P absorption from the kidneys, intestines and bone mobilization of both P and Ca.



While X-Zelit is a Ca binder, it is an even more effective P binder. When X-Zelit is fed to pre-fresh cows for 12-18 days, in combination with feeding modest levels of dietary P and Ca, enough P is bound to likely cause a reduction in FGF23 yielding rapid release of both Ca and P from bone thereby increasing blood Ca. Elevation of blood Ca at calving induced by feeding X-Zelit and subsequent reductions in milk fever and hypocalcemia has been observed in numerous studies and on commercial dairies.

Blood Phosphorus

When X-Zelit is fed, inducing a modest dietary P restriction, blood Ca level at calving is significantly improved with far less variation between cows. This is a very consistent response observed in numerous studies, but lower blood P is also consistently observed.



Cornell data, Journal of Dairy Science 2019 (30 cows per treatment)

Which brings to question where did the mobilized bone P go? The short answer- is likely saliva. The dairy cow recycles a large fraction of P into saliva to form rumen buffers and she will maintain salivary P (and tissue) levels of P at the expense of blood P. These effects are temporary and blood P levels recover quickly after calving when X-Zelit is no longer fed.

Mechanism

Below is a simplified mechanism adapted from Crenshaw et al., 2010. J. Anim. Sci. The effects of FGF23 on kidney function are omitted for brevity.



Key research

X-Zelit Research

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