

TECHNICAL SERVICE



BULLETIN



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No. 292

FIELD STUDY PROVES CLOSE-UP PELLETT® PREVENTS HYPOCALCEMIA WITHOUT REDUCING URINE pH

A field trial was conducted at the 150-cow Jim Melichar Dairy, in Port Washington, Wisconsin, to determine the relationship of urine pH and serum calcium (Ca) of transition cows fed **CLOSE-UP PELLETT**. This study was supervised by Dr. Joe Scoby of the Cedarburg Veterinary Clinic in Cedarburg, Wisconsin. In addition to veterinary care, Dr. Scoby provides complete production consulting to this herd, including nutrition services.

CLOSE-UP PELLETT has been included in this farm's close-up feeding program for several months, with excellent results seen in fresh cow health and performance. However, urine pH of pre-fresh cows has consistently been greater than 7.0. Some university and consulting nutritionists, and veterinarians, recommend urine pH be 5.5 to 6.5 for anionic salt programs to be considered effective. Dairymen using **CLOSE-UP PELLETT**, though, frequently report improved health and performance of fresh cows despite relatively high urine pH (see TSB #289).

In the current study, the close-up ration was fed beginning approximately 14 to 21 days prior to the expected calving date. This diet included the same forages, grain, and protein supplement fed to lactating cows. **CLOSE-UP PELLETT** was added at 1 lb. per cow per day. Calculated nutrient values for the ration were:

Net Energy_{lactation} + .72 Mcal/lb.

Crude Protein = 16.8%

ADF = 22.4%

NDF = 34.2%

Calcium = 134 grams/cow/day

Phosphorus = 58 grams/cow/day

DCAD = -1.00 mEq/100g DM

Projected dry matter intake was 24.6 lbs./cow/day, but actual intake for this group was higher.

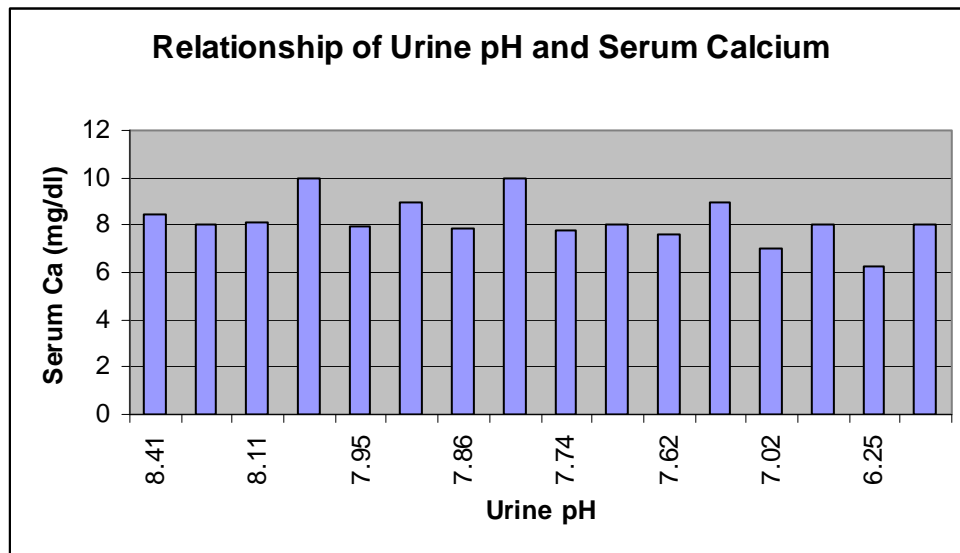
Over a two-month period, urine pH was measured in 32 cows during the final week prior to calving. Mean urine pH for all cows was 7.34, among these animals, the only incidence of metabolic disorders was two cases of retained placenta, both of which had twin calves.

Sixteen cows also had blood drawn within 6 hours after calving, and these samples were analyzed for serum Ca. Five animals were first lactation, eight were second lactation, and three were third lactation or greater.

	Urine pH	Serum Ca (mg/dl)	Correlation Coeff
All Cows	7.52	8.55	-.0088
First Lactation	7.44	9.01	-.2728
>First Lactation	7.56	8.35	+.0815

Urine pH was poorly correlated with serum Ca in these animals. Only first lactation cows, those least likely to display milk fever, showed a correlation coefficient substantially different than zero. Low correlation coefficients indicate urine pH is a poor indicator of Ca status in cows fed **CLOSE-UP PELLETT**.

The following graph of individual cow results clearly demonstrates the poor relationship of urine pH to serum Ca in this study.



Subclinical hypocalcemia is defined as serum Ca less than 8.0 mg/dl. Clinical milk fever is seen when serum Ca is less than 4.0 mg/dl. Serum Ca from 12 of the 16 cows tested exceeded levels considered subclinically hypocalcemic, across a wide range of urine pH.

This study better defines the relationship of urine pH and blood Ca in cows fed **CLOSE-UP PELLETT**. There have been no other reports examining the correlation of urine pH from pre-fresh cows fed anionic salts with serum Ca concentration from these same cows after calving. This field trial is not intended to question the effects of anionic salts upon acide-base balance. Other research does suggest that urine pH is reduced when some anionic salts are fed. According to Dr. Scoby, "This study clearly demonstrates that feeding a balanced close-up ration including **CLOSE-UP PELLETT** can prevent hypocalcaemia without reducing urine pH."