

A field study on prevention of subclinical hypocalcemia in dairy cows supplemented synthetic aluminums silicate or anionic salts in late pregnancy

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Objective:

The objective was to compare Ca serum concentration and frequency of severe [Ca < 2.0 mmol/L] and moderate [Ca < 2.125 mmol/L] subclinical hypocalcemia (SCH) in cows supplemented according to the Dietary Cation Anion Differences (DCAD) principles or with synthetic zeolite.

Materials and methods:

-The trials were performed in two large commercial farms in US and blood samples were taken within the first 24 hours after calving.

-The test consisted in comparing plasma Ca concentration when the farms were using DCAD management for preventing hypocalcemia (in Farm 1 at -14.7 mEq/100 g DM (full DCAD) and in Farm 2 at 0.62 mEq/100 g DM (partial DCAD)) with the plasma Ca concentration levels when synthetic aluminum silicate was supplemented by using the commercial product X-Zelit (Protekta Inc/Vilofoss, Graasten, DK).

-The differences in the plasma calcium concentrations between treatments were tested within farms with ANOVA using the lm procedure in the R package. Fisher's exact test was used to assess differences in incidences of SCH.

Results:

The plasma calcium concentration was significantly ($P < 0.001$) higher in the X-Zelit group compared to the DCAD group on both farms (Table 1).

The frequency of animals having severe SCH [Ca < 2.0 mmol/L] and moderate SCH [Ca < 2.125 mmol/L] was higher for the DCAD group compared to the X-Zelit group in both farms (Figure 1).

Table 1. Least square means \pm error of means of plasma calcium in multiparous cows.

	DCAD		X-Zelit	
	n	Ca (mmol/L)	n	Ca (mmol/L)
Farm 1	54	1.98 \pm 0.02	40	2.26 \pm 0.02
Farm 2	76	1.92 \pm 0.02	84	2.26 \pm 0.01

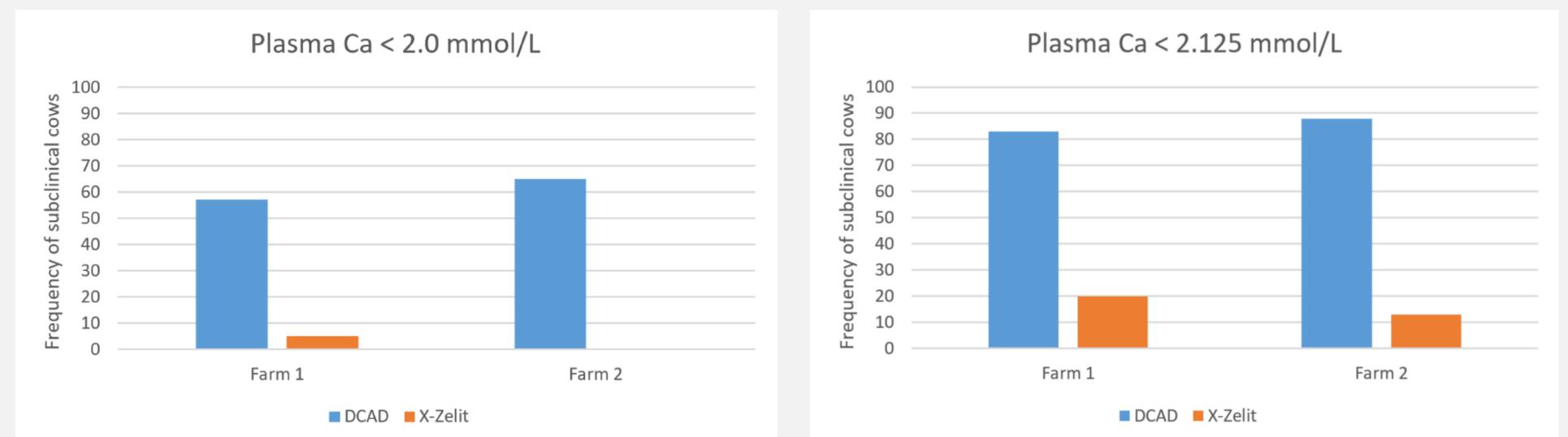


Figure 1. Prevalence of subclinical hypocalcaemia at two calcium level thresholds. Treatment difference were significantly ($P < 0.001$) on both farms.

Implications:

- The average plasma calcium where higher in the X-Zelit group compared with the DCAD group.
- The results show a lower SCH frequency using X-Zelit compared to DCAD feeding.
- Results suggest that X-Zelit could be an efficient alternative to DCAD feeding for preventing SCH