

Trace Minerals and Open Cows: Is There a Link?

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Objective:

To examine the relationship between a beef cow's trace mineral status at the start of breeding season and her pregnancy status in the fall.

Study Methods:

40 patrons from 5 southern Saskatchewan PFRA pastures were recruited to participate in this study. Bulls to be used on breeding fields with study cows were required to have satisfactory semen evaluations and be negative for Trich (*Trichostrongylus axei*) and Vibrio (*Campylobacter fetus*). As the 791 cows arrived to the pastures in May 2008 blood samples were drawn for trace mineral measurement and a body condition score assessed. Breeding field management information was collected from PFRA managers. The bull to cow ratio ranged from 1:26 to 1:30 and the length of breeding season ranged from 63 to 111 days. Each patron provided herd management and individual cow history for their cows, including: calving to breeding interval, cow age, mineral supplementation and vaccination history. Cows were removed from pasture in September and October 2008 and their pregnancy status was determined by rectal palpation. Serum trace mineral concentration was analysed by Prairie Diagnostic Services Toxicology Laboratory in Saskatoon. Analyses were used to examine the relationship between serum concentrations of copper, selenium, molybdenum, vitamins A and E and pregnancy.

Results:

Of the trace minerals examined, only serum copper concentration was related with pregnancy status. As the serum copper concentration decreased, cows were 2 to 6 times more likely to be found open in the fall, even after we accounted for cow body condition prior to breeding, the interval from calving to breeding, the length of the breeding season and the age of the cow.

Other interesting findings:

46% of cows coming to pasture in the spring were copper deficient (ranged from 33% to 72% at the 5 pastures)

17% of cows were high in molybdenum (ranged from 1% to 48% at the 5 pastures)

80% of producers gave a pre-calving mineral supplement, while only 55% gave a post-calving mineral supplement

Ensure your cows have a body condition score greater than 2.5 at spring turnout, especially in young cows (<4 yrs of age)