

# Selenium Supplementation of Beef Heifers: Comparison of a Sustained-Release Selenium Bolus to an 120 PPM Selenium Salt-Mineral Mixture

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The objective of the study was to compare the effect of a sustained-release selenium (Se) bolus to an 120 ppm Se salt-mineral mixture on blood Se concentrations in yearling beef heifers. Thirty nine heifers (blood Se 143  $\mu\text{g}/1$ ) were allotted by weight and breed to one of three Se treatments: 1) Control - no Se supplementation; 2) One sustained-release Se bolus was given on day 0; and 3) *ad libitum* supplementation of an 120 ppm Se salt-mineral mixture (40% trace mineral salt, 40% dicalcium phosphate, and 20% magnesium oxide). Heifers in groups 1 and 2 were given Se-free salt-mineral mix. The heifers grazed a Se-deficient ( $< 0.02$  ppm Se) pasture for the 168

day study. Blood Se concentrations were analyzed by atomic absorption spectrophotometry. Selenium supplementation (treatments 2 and 3) increased blood Se concentrations to  $>200 \mu\text{g}/1$ , whereas blood Se concentrations decreased to 70  $\mu\text{g}/1$  in control heifers. Heifers given 120 ppm Se salt-mineral mix had higher blood Se concentrations than heifers given the sustained-release Se bolus on days 140 and 168 ( $P < 0.03$ ). We conclude that both the sustained release Se bolus and an 120 ppm Se salt-mineral mix are adequate to maintain Se status in heifers that graze Se-deficient pastures.

## Concurrent Infection of Young Calves With *Eimeria bovis* and coronavirus

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Over a period of 3 summers, 21 colostrum-fed Holstein bull calves, 1-3 days of age, were selected to form 7 replicates, each consisting of 3 calves. The project was conducted during the summer because screen-testing of calves indicated a higher likelihood during warm months of obtaining calves without evidence of coronavirus infection. Within each replicate of 3 calves, 2 were selected randomly, to receive 100,000-146,000 sporulated coccidia oocysts 60 hours after arrival at the college research farm. On the 13th day after coccidia inoculation, 2 calves in each replicate, one that had previously been given coccidia and the remaining uninoculated calf, were given coronavirus by

oral and intranasal routes. Each day calves were observed and feces were scored visually according to consistency. Nasal swabs for indirect immunofluorescent antibody testing for coronavirus and feces for oocyst determination were obtained approximately every 3rd day. Three of 7 calves that received only coronavirus developed diarrhea of 1 days' duration. Six of 7 calves given only coccidia developed diarrhea. All 7 calves inoculated initially with coccidia and subsequently with coronavirus developed diarrhea. When compared to calves given only coccidia, diarrhea developed first in coccidia-coronavirus inoculated calves in 6 to 7 replicates. When overall severity, as mea-