Newborn Beef Calves Benefit from Supplementation with Vitamins D and E

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Introduction

- Vitamins A, D, and E are critical for growth and health of newborn calves, but supplies of each in beef calves often receive little attention.
- Recent work indicated a high prevalence of vitamin D deficiency in newborn beef calves (Nelson 2016).

Hypothesis

Supplementation of newborn beef calves with vitamins A, D, and E will achieve vitamin D sufficiency and benefit supplies of vitamins A and E.

Methods

Calves were randomly assigned to receive no treatment (CON) or subcutaneous injection of VITAL-E® Newborn (ADE, Stuart Products, Inc.; 50,000 IU retinyl-palmitate, 50,000 IU vitamin D₃, and 500 IU RRR-α-tocopherol/mL). Minnesota calves received either no treatment (n = 8) or 5 mL of VITAL-E Newborn (n = 8) within 24 hours of birth and serum samples were collected at 0, 2, 7, 50, and 210 days of age. Florida calves received either no treatment (n = 7) or 4 mL of VITAL E-Newborn (n = 9) within 24 h of birth and serum samples were collected at 0, 25, 50 and 180 days of age.

Results

Objective and approach: The objective of this study was to determine the effects of injectable vitamins A, D, and E on fat-soluble vitamin status of beef calves. Calves were randomly assigned to receive no treatment (CON) or subcutaneous injection of VITAL-E® Newborn (ADE, Stuart Products, Inc.; 50,000 IU retinyl-palmitate, 50,000 IU vitamin D₃, and 500 IU RRR-α-tocopherol/mL). Minnesota calves received either no treatment (n = 8) or 5 mL of VITAL-E Newborn (n = 8) within 24 hours of birth and serum samples were collected at 0, 2, 7, 50 and 210 days of age. Florida calves received either no treatment (n = 7) or 4 mL of VITAL E-Newborn (n = 9) within 24 h of birth and serum samples were collected at 0, 25, 50 and 180 days of age.

Results: Data shown for 0, 2, and 7 d of age from calves in the Minnesota herd. Click on links for further content.

Conclusion: Newborn beef calves are often deficient in vitamins D and E with concentrations of 25(OH)D and α-tocopherol below 20 ng/mL and 2 μg/mL of serum. Supplementation of newborn beef calves with VITAL-E Newborn increased serum 25(OH)D and α-tocopherol concentrations, which may serve to improve health of the young calf.

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References
