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# Advances in Equine Nutrition

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# THE EFFECT OF DIETARY SELENIUM SOURCE AND LEVEL ON BROODMARES AND THEIR FOALS

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Fifteen pregnant mares were blocked by foaling date and randomly assigned to one of three selenium (Se) supplements: 1 mg Se/d (I1) or 3 mg Se/d (I3) as sodium selenite, or 3 mg Se/d (O3) as Se-enriched yeast (Alltech, Inc., Nicholasville, KY). Mares received their treatments daily for approximately 55 d pre-foaling and 56 d post-foaling. Blood samples were taken from each mare prior to supplementation and at 2 wk intervals throughout the study, including at time of foaling. A single colostrum sample was taken from each mare prior to the foal suckling. Blood samples were obtained from foals at 12 h, 2, 4, 6, and 8 wk post-foaling. Serum and colostrum samples were assayed for IgG concentration. Mares were weighed approximately 1 wk prior to foaling. Mares and foals were weighed 12 h post-foaling, and at 2 wk intervals for 56 d. Se amount or form did not affect colostrum IgG concentration or foal serum IgG concentration at 12 h. To adjust for pre-treatment differences in IgG concentration among groups, mare IgG data were analyzed for treatment differences using the initial IgG concentration as a covariate. Mare IgG concentrations were not affected by treatment at 4 or 2 wk pre-foaling, or at foaling. Failure of passive transfer occurred in two foals in treatment I3, and a third foal in this group did not complete the study. Consequently, serum IgG data from the remaining foals in group I3 and all foals in group O3 were combined and compared to foals in group I1. Foals from mares receiving 3 mg Se/d (either I3 or O3) had higher concentrations of IgG at 2 wk ($P<.05$), and at 4 and 8 wk ($P<.1$) compared to foals from mares receiving I1. Average daily gain of foals (1.5 kg/d for O3, 1.4 kg/d for I3, and 1.4 kg/d for I1) was not affected by treatment ($P>.1$). Placental weight and time to placental expulsion were not affected by Se amount or form. Supplementing mares with 3 mg Se/d may be beneficial by increasing foal IgG concentrations during the first few months of life when foals are most vulnerable to disease.



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