

Advances in Equine Nutrition

Volume II

Edited by

J.D. Pagan



NUTRITIONAL STATUS OF BROODMARES AND FOALS ON COMMERCIAL FARMS IN ONTARIO

L.S. HUBER^{1,3}, J.C. PLAIZIER¹, B.W. MCBRIDE¹, G.L. ECKER² AND A.F. CLARKE³

¹*University of Guelph, Guelph, Ontario*

²*Equine Performance Group, Puslinch, Ontario*

³*Equine Research Centre (Guelph) Inc., Guelph, Ontario*

The trace minerals copper and zinc are required for normal growth, development and immune function. The objective of this study was to monitor the trace mineral status of broodmares in gestation and to determine influences on colostrum and foal serum. Eighty-one Thoroughbred and Standardbred broodmares on nine commercial breeding farms in Ontario were monitored monthly during the last trimester and during parturition. Blood samples for copper and zinc analyses were obtained at each visit and from foals at birth. Colostrum samples were analyzed for protein, immunoglobulin G (IgG), copper and zinc. The digestible energy, crude protein, copper and zinc daily intakes of the mares were estimated. Thoroughbreds and Standardbreds had a mean colostrum copper content and standard error of 0.71 ± 0.04 and 0.61 ± 0.03 mg/l, respectively. Mean broodmare serum copper levels showed a decrease during gestation. These values were in the low range of adequate serum levels for adults. Foaling month significantly ($P \leq 0.005$) affected mare serum copper levels. Mare serum copper levels and colostrum copper concentrations were positively correlated ($P \leq 0.05$). Both were positively correlated to estimated dietary protein ($P \leq 0.05$, $P \leq 0.05$) and energy intake ($P \leq 0.05$, $P \leq 0.05$), respectively. Foal serum copper levels at birth were positively correlated to colostrum IgG ($P \leq 0.05$) and protein ($P \leq 0.05$). There was an increase in mare serum zinc levels during gestation but these levels were dependent upon farm. Differences in mare colostrum copper levels could be due to farm management or genetic differences between breeds. Dietary and (or) farm management practices could influence the serum copper and zinc status of broodmares.

