

Effect of supplementation of area specific mineral mixture on reproductive performance of crossbred cattle: A field study

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A large number of livestock in the tropics suffer from deficiencies or imbalances in mineral nutrition. Livestock is mainly maintained on grazing without access to mineral supplement (McDowell et al., 1993). Dietary deficiencies result in failure of the mineral homeostasis mechanism affecting the productive and reproductive potential of the animal. The present experiment was conducted to study the effect of supplementation of specific deficient minerals in the form of area specific mineral mixture (ASMM) in crossbred cattle with reproductive disorders, maintained under a semi-intensive management system in Chittoor district of Andhra Pradesh State, India, under field conditions.

Crossbred animals (40) with different reproductive disorders (anoestrous cows, repeat breeding cows and anoestrous heifers) were selected from two adopted villages. Blood mineral profiles of animals were studied and deficiencies were identified. The deficient minerals (Ca, P, Cu, Zn and Mn) were supplemented in the form of area specific mineral mixture (ASMM) for 90 days. Blood samples were collected from animals before and after supplementation of ASMM and analyzed for different minerals (Ca, P, Cu and Zn) and hormones (estrogen and progesterone).

There was significant ($P<0.05$) improvement in plasma mineral content of anoestrous cows, repeat breeding cows and anoestrous heifers. Estrogen and progesterone content also indicated significant ($P<0.05$) elevation. Among the animals under study, 60% of anoestrous cows, 62% of repeat breeding cows and 59% of anoestrous heifers responded to supplementation. There was 60% overall response due to supplementation of ASMM, indicating a beneficial effect of mineral supplementation on reproductive performance (Maurice, 2003). The present results support the findings of Prasad et al., (2007) regarding improvement in general health condition of the cows after area specific mineral mixture supplementation.

It can be concluded that supplementation of specific deficient minerals in the form of ASMM can improve mineral status and hormonal profile of animals, enhancing reproductive efficiency in crossbred cattle maintained under semi-intensive management systems.

References

- Boland, M.P. (2003). Trace minerals in production and reproduction in dairy cows. *Advances in Dairy Technology*. 15: 319-329.
- McDowell, L.R., Conard, J.H. and Glen, H.F. 1993. *Minerals for Grazing Ruminants in Tropical Regions*. Animal Science Department, Centre for tropical Agricultural, University of Florida. The U.S. Agency for International Development and Caribbean Basin Advisory Group (CBAG).
- Prasad, C.S. and Gowda, N.K.S. (2005). Impotence of trace minerals and relevance of their supplementation in tropical animal feeding system: A review. *Indian Journal of Animal Sciences*. 75 (1): 92-100.