

2nd International Conference on **Animal & Dairy Sciences**

September 15-17, 2014 Hyderabad International Convention Centre, India

Mineral interrelationship of soil, feeds and fodders and dairy animals in Mahaboobnagar district of Andhra Pradesh

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A survey was conducted to evaluate the mineral status of dairy animals of Mahaboobnagar district of Andhra Pradesh. Four villages were selected for the survey that truly represented the animal husbandry practices of the district. The soils in the surveyed villages were adequate in Ca, Mg, Mn, Fe and Co while deficient in P. About 32.5 % samples had Cu and Zn levels below the critical level. The supply of minerals from water was negligible. The dry and green roughages on average were deficient to marginally adequate in Ca (0.20–0.46%), adequate in Mg (0.19 – 0.36 %), Co (0.20 – 0.30 ppm), reasonable in Mn (24.78–155.74ppm) and quite excess in Fe (103.3 – 525.8 ppm), while deficient in Cu (1.52 – 9.91ppm) and P (0.12 – 0.32 %). The dry roughages were deficient in Zn (16.98 – 30.28 ppm), while greens were adequate. The brans were rich in P, Fe, Mn and Co; moderate in Cu, Zn and Mg, while maize grain was deficient in most of the minerals except P, Fe and Co. Ragi straw and horse gram were good sources of Ca. The blood hemoglobin content in animals was within the normal range of 8-12 g%. In spite of adequate intake of Ca, deficiency of Ca was observed in stall fed milch (20-25%) animals, due to high P intake and major supply of Ca was from paddy straw (46%). P deficiency was observed in animals maintained on dry roughages and grazing grass that were grown on P deficiency soils. Though the plasma Cu and Zn concentration was above the critical levels, its deficiency was observed in 12.5-41.02% and 15.79 - 29.62 %, respectively, among various categories of animals due to lower intake of these minerals compared to the requirement and interference with their absorption due to excess Fe in the diet. The plasma Mg, Mn, Fe, and Co levels in all categories of animals were well above the critical levels. Area specific mineral mixture could be formulated with CuSO₄, ZnSO₄ and calcite powder and fed at 30g daily to animals. To obviate P deficiency in grazing animals, supplementation of brans, chunies or oil seed cakes is recommended.

Keywords: Ca-Calcium, Mg-Magnesium, P-Phosphorous, Cu-Copper, Zn-Zinc, Mn-Manganese, Co-Cobalt, Fe-Iron, CuSO₄-Copper Sulphate, ZnSO₄-Zinc Sulphate.

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