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Periodic variation in soil, forage and serum minerals of dry cattle in Punjab, Pakistan

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ABSTRACT

An investigation was conducted to evaluate the nutrient level of grazing livestock as influenced by the sampling periods in Punjab state district Sargodha, Pakistan. Twenty composite soil and pasture and twenty five blood samples were collected at two different sampling periods during December 2010 to March, 2011, respectively. Higher soil content of all elements except iron was observed during December than those found in March at the 2nd harvest during this period but all mean values were above the critical levels investigated for soil for the requirements of forage crops. Forage, potassium, magnesium and copper levels did not differ between samplings. Calcium, sodium, zinc, manganese, cobalt and selenium were higher during December, while reverse was true for forage iron reflecting the soil iron contents. The sodium, manganese, iron and selenium in forage were found to be deficient than the requirements of livestock during both sampling times in this investigation. From the four minerals assessed in the serum calcium, magnesium and zinc levels were high after the December in March. The macro mineral which were found to be moderately deficient at this animal farm are sodium and magnesium. Micro elements most likely to limit livestock production efficiency are copper, zinc, manganese and cobalt. Specific mineral supplementation should be supplied containing copper and zinc, as both pasture and blood plasma samples exhibited their deficiency. The present investigation suggests the requirement and provision of an appropriate specificity tailored mineral mixture to ruminants in this specific studied area. The objective of this study was to determine deficiency or excess of various minerals to have the knowledge of the status of different mineral elements for supplementation if necessary.

KEYWORDS

Soil; Forage; Serum; Ruminants Productivity; Punjab; Pakistan

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