Factors Influencing Mineral Content and Utilization of Tropical Forages by Ruminants.

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Abstract:

A study was conducted to evaluate the effect of season (wet/dry) and age of regrowth (3,6,9,12 weeks) on the mineral contents of two common browses - Gliricidia and Leucaena. Another study evaluated effect of season, age of regrowth (2,4,6,8, 10,12 weeks) and fertilizer application (with/ without) on the mineral contents of Guinea grass and giant star grass.

With both browses and grasses, significant age of regrowth by season effects were observed, with K and P contents declining with age while Na, Ca and Fe contents increased, during either season. Fertilizer application in the grasses resulted in increased content of K and P while Ca and Mg contents declined. The herbage K, P and Cu contents were lower during the dry season while Zn, Fe and Mn contents were higher. Despite these fluctuations, the forages contained adequate amounts of all minerals for livestock requirements except for P, Na, Zn and Cu which were marginal to deficient. A subsequent study showed that P supplementation to lambs fed on Guinea grass hay improved both their performance and bone quality.

Since these forages rapidly become fibrous, the effect of fiber level on mineral utilization was evaluated in 3 studies. Using the nylon bag technique, a higher rumen mineral release of 22.0% was obtained in 6 week old forage regrowth compared to that of 14.3% got in the more fibrous 12-week old regrowth. Mineral availability and absorption declined ($P<0.01$) as dietary fiber level increased. The results indicated dietary fiber to be one of the main factors influencing utilization of minerals by ruminants. Thus particular attention should be paid to mineral status of ruminants when feedstuffs such as standing hays or crop residues with high fiber content are fed.

Keywords: Forages/ tropical forages/ ruminants

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