HiMag was developed for the purpose of minimizing the effects of grass tetany in cattle (*Bos baurus*) and sheep (*Ovis aries*). Grass tetany is characterized by hypomagnesemia resulting from low Mg concentrations in the herbage or reduced absorption of Mg by the grazing ruminant (Butler, 1963; Kemp et al., 1957; Martens et al., 1983). It has also been demonstrated that the $K/(Ca + Mg)$ ratio should be kept below 2.2 in the herbage being grazed to reduce the hazards of grass tetany (Crawford et al., 1998; Kemp et al., 1957).

When HiMag was compared with 'Au Triumph' (Pedersen et al., 1983), Kentucky-31, 'Martin', and 'Mozark', it was found to have 22% more Mg, 18.5% more Ca, and 9% more P (Crawford et al., 1998). The mean tetany ratio was 1.34 for HiMag and 1.65 for the other three cultivars. Blood serum levels of Mg in grazing cattle were inconsistent (Crawford et al., 1998). Blood serum levels from steers grazing HiMag in the fall were 8% higher than the three check cultivars, but were not different compared to the checks in the spring. For grazing cattle during the fall, blood serum Mg for HiMag was not different from the check cultivars, but approached significance ($P = 0.09$) during the spring calving season. For most grazing seasons, the check cultivars and HiMag consistently had tetany ratios below 2.2. Animal grazing preference for HiMag was less than for endophyte-free cultivars of Kenhy and Kentucky-31, similar to 'Barcel' and 'Stargrazer', and greater than Missouri-96 and Mozark (Shewmaker et al., 1997). Sheep and goat (*Capra hircus*) preference rankings for HiMag hay were similar to cattle rankings of grazed tall fescue cultivars (Burns et al., 2001). HiMag contains moderately high concentrations of soluble carbohydrates leading to its desirable palatability (Mayland et al., 2000). We conclude that HiMag is a good germplasm source for altering certain mineral concentrations in tall fescue.

Small quantities (100 g) of seed of HiMag are available to breeders and geneticists. Written requests should be addressed to the corresponding author. Recipients of the seed are asked to make appropriate recognition of the source of HiMag if it is used in the development of a new cultivar, germplasm, or genetic stock.

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References


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