Removal of Phosphorus in Bermudagrass Fertilized with Varying Nitrogen Rates - Year 2. (C06-coblentz094044-Poster)

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Abstract:

Common bermudagrass was harvested from two producer sites (Latta and Stephens) with high soil-test phosphorus (P) to assess the effects of N fertilization on P removal in bermudagrass forage. Ammonium nitrate was applied in split applications each year at rates totaling 0, 56, 112, 168, 224, 280, or 336 kg/ha of actual N. At the Stephens site in 2000, cumulative dry matter (DM) yield increased linearly ($P < 0.0001$) from 5087 to 9751 kg/ha with N fertilization rate. Mean concentrations of P in these forages declined linearly ($P < 0.0001$) with N fertilization rate, but removal of P still increased linearly ($P < 0.0004$) with N fertilization, reaching a maximum of 30.0 kg P/ha. At the Latta site, means for DM yield and P removal in 2000 and 2001 increased linearly ($P < 0.0001$) with N fertilization. The maximum removal of P was about 51 kg P/ha. During 2000, there was no relationship ($P > 0.1$) between concentration of P and N fertilization rate, but concentrations of P declined in linear ($P < 0.0001$) and quadratic ($P = 0.044$) patterns during 2001. Removal of P is improved with N fertilization, but the use of this technique for mining P from the soil may be limited by concurrent reductions in the concentration of P in the forage.

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