Reducing Soil Phosphorus by Hay Harvest. (S11bell141605-Poster)

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Abstract:

Build-up of soil P due to long-term application of poultry litter may increase P runoff and lead to water eutrophication. Plant uptake of P and harvest removal reduces soil P. This study is examining the potential of hay harvest to remove P from a Coastal Plain soil (Ruston series; fine-loamy, siliceous, thermic Typic Paleudult). Triplicate 0.004 ha plots of bermudagrass (Cynodon dactylon (L.) Pers.) were fertilized with litter at 0, 5, 10 and 20 Mg ha-1 from 1996 to 2001. No litter was applied in 2002. Yields and tissue P were measured. Bray 2 P in surface (0 to 15 cm) soil was measured annually. Plots were seeded with ryegrass (Lolium multiflorum Lam.) in Fall 2001, fertilized with N, and yield and tissue P determined. Regression of P removed in bermudagrass hay (1997 to 2001) on litter rate and Bray 2 P showed that P removed was significantly related to litter rate but not soil P. Similar results were obtained for ryegrass harvest. Maximum average (20 Mg ha-1 plots) removal of P in bermudagrass was 12.5 kg per cutting. Removal of P in ryegrass was 10.5 kg ha-1 per cutting. Assuming an average of four harvest of each forage, nearly 100 kg P ha-1 may be removed from this soil per year.

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