Reduction of High Soil Test Phosphorus by Crop Removal. (S11-eghball140104-Poster)

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Abstract:

Soils with high phosphorus (P) level can contribute to excess P in runoff. The objectives of this study were to evaluate crop P removal effects on soil P reduction and to evaluate various corn hybrids and soybean varieties for differences in P removal. Soil with varying P level as a result of beef cattle feedlot manure or compost application was cropped to corn for four years without any P addition. In other studies under various water and N regimes, corn hybrids and soybean varieties were evaluated for grain P concentration and P removal. Four years of corn production without P addition reduced surface soil (0 to 15 cm) P level from 265 mg kg-1 to 171 mg kg-1. Based on a decay equation, it would have required 10 years of crop P removal to reduce the soil P level to the original 69 mg kg-1 before treatment application. The rate of decrease in soil P was greater when soil P was higher and reduced with decreasing soil P level. There was as much as 35% difference among corn hybrids for grain P removal. Soybean grain P concentration was nearly twice that for corn but grain P removal was less for soybean than for corn. Crop P removal can significantly reduce soil P level with time.

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