Comparison of Manure and Fertilizer Placement on Corn and Soybean Yields and Soil Test P. (S08-schmitt182859-Oral)

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Abstract:

Calcareous soils with low soil available phosphorus (P) common in western Minnesota make optimizing crop yields a challenge. To evaluate P management systems on crop production, a project was initiated in a corn-soybean rotation with three P management factors examined in a factorial design: source (fertilizer/swine manure), placement (broadcast/subsurface banding), and rate (crop removal/twice crop removal). Two experimental areas were set up in a rotation with both crops grown each year. Compared to an unfertilized control, fertilizer P increased corn and soybean grain yields 38% and 28%, respectively. Manure P resulted in 46% (corn) and 35% (soybean) grain yield increases. Greater yields from manure P can be partially attributed to higher than expected P concentrations in the manure. Placement of P had little effect on yield. Increased P rate resulted in increased grain yield of both crops, with 75-80% of the overall yield increase measured with the lower P rate.

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