

Influence of broadcast and in-the-furrow starter phosphorus and potassium fertilization on corn grain yield, early growth, and nutrient uptake. (S08-mallarino083345-Poster)

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Abstract:

Starter fertilization is often used to stimulate early growth and yield of corn. Nine replicated trials were established in Iowa farmers' fields during two years to evaluate the corn response to liquid starter applied to the seed furrow without or in addition to broadcast P-K fertilization. Three fields were managed with no-till. Treatments were a control, starter (2-6-11 kg/ha N-P-K), broadcast P-K equivalent to expected P-K removal in grain by the 2-yr corn-soybean rotation, and starter plus broadcast P-K. A high N rate was applied uniformly. Fertilization increased yield ($P < 0.05$) in four sites with soil P Optimum or less (< 20 mg/kg, Bray-P1) and in one no-till site testing high in P and Optimum in K. The fertilized treatments did not differ ($P < 0.05$). Early growth and P or K uptake were greater when starter was applied. Yield response to starter is unlikely in soils with P higher than Optimum or when it is applied to low-testing soils in addition to recommended broadcast P-K rates for the corn-soybean rotation. A small amount of starter often achieves a similar yield response than a larger broadcast rate, but will not maintain desirable soil-test values.

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Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 4:00-6:00 pm
Poster Board Number: 2127

Keywords:

Fertilizer placement, Starter fertilizer, Phosphorus, Potassium