Soybean Inoculant

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Objective

The objective of this research is to determine if the use of inoculate on soybean seed will improve the yield of soybeans when planted after corn in a corn-soybean-wheat rotation.

Background

Cooperator:	County Farm	Fertilizer:	100 lb/A 0-40-0 and 125 lb/A 0-0-45, broadcast
County:	Darke		
Nearest town:	Greenville	Tillage:	No-Till
Soil Type:	Miami silt loam/ Eldean loam	Herbicides:	PRE: Roundup Ultra Max 26 oz/A POST: Roundup Ultra Max 26 oz/A
Previous Crop:	Corn	Variety:	Croplan 3276
Drainage:	Subsurface	Row Width:	30 inches
Soil Test:	pH 6.9, P 35 ppm, K 160 ppm	Planting Rate:	187,000 seeds/A
		Harvest Date:	October 3, 2001
		Planting Date:	April 30, 2001

Methods

Two treatments consisting of planting the soybeans with inoculate and planting without inoculate were replicated six times in a completely randomized block design. Inoculate used was the recommended rate of the powdered form of USDA Inoculate. Inoculate was kept cool until used. Seed without inoculate was planted before inoculated seed was added to the planter. Each individual treatment strip consisted of twelve 30-inch rows and was approximately 4/10 acre in size. The seeds were planted using a Buffalo slot planter with Kinze brush-type seed meter units. Soil conditions were very good at planting. There was adequate rainfall to germinate seed uniformly. Entire strips were harvested for yield results. Harvest moisture was determined using a field moisture tester. A weigh wagon was used to determine weight of grain harvested in each plot. Yields were adjusted to 13% moisture.

Results

Table 1. Soybean Yields

Treatment	Yield (bu/A)
Inoculated Soybean Seed	62.3
No Inoculate	61.9
F	< 1
LSD (0.05)	NS
CV (%)	2.3

Summary and Notes

There were no significant differences when comparing yields of soybeans treated with USDA inoculate to non-treated seed. Much research shows that the use of inoculate on soybean seed improves yield significantly, even when soybeans are included in a rotation. Results in this trial did not substantiate that because of an already high yield environment, good crop rotation that includes soybeans, or poor inoculate. Soybeans were planted into relatively dry soil, but soil moisture conditions improved to adequate within the next week. Above-normal temperatures allowed the seed to germinate and start growing quickly. Moderate temperatures and adequate growing conditions throughout the growing season allowed for optimum conditions for soybean nodulation to occur.

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