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Effects of Fungicides Seed Treatments on Seedling Diseases and Yield of Soybeans

Abstract

The objective of the study was to evaluate the effects of fungicide seed treatments on soybean seedling diseases caused by *Fusarium* spp., *Phytophthora* spp., *Pythium* spp., and *Rhizoctonia solani* and yield.

Keywords

Plant Pathology

Disciplines

Agricultural Science | Agriculture | Plant Pathology

Effects of Fungicides Seed Treatments on Seedling Diseases and Yield of Soybeans

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Introduction

The objective of the study was to evaluate the effects of fungicide seed treatments on soybean seedling diseases caused by *Fusarium* spp., *Phytophthora* spp., *Pythium* spp., and *Rhizoctonia solani* and yield.

Materials and Methods

To understand the effect of fungicides in controlling seedling diseases of soybeans, an experiment was conducted at the Northern Research Farm, Kanawha, during the 2005 growing season. Syngenta provided the treated seed, S24-K4. The experimental layout was a randomized complete block design. Each of eleven treatments, including an untreated control, was planted in four replications in 6 rows, 17 ft long and 30 in. apart. Fungicide treatment details are provided in Table 1. The planting date was May 3, 2005. Plant count as

plants/acre was recorded at 50% (May 25) and at 100% (June 1) emergence and again at midseason (July 22). Root and shoot biomass was recorded from samplings of five plants from the first and sixth rows in each plot at V4 stage. Five plants were collected, the roots were washed in running water, and dry weights of root mass and shoot were recorded separately as well as combined. Vigor rating and disease scores were on a 0–100% scale. The central four rows of all plots were mechanically harvested on September 30, 2005. Plot yields (bushels/acre) adjusted to 13% grain moisture were recorded.

Results and Discussion

Summarized in Table 1 are the results of the 2005 study. No seedling diseases were observed during the growing season. Treatment differences were not very conclusive; hence, it is suggested that the experiment be repeated in the coming season.

Acknowledgments

We would like to thank Syngenta for its support.

Table 1. Evaluation of fungicide seed treatment on seedling diseases and yield of soybeans during 2005 at the Northern Research Farm, Kanawha, IA.

Trt#	Treatment details	Product/ AI rate	Stand count (plants/acre)			Dry weight (g)			Yield bu/acre
			50% emergence	100% emergence	Midseason	Root (A)	Stems + leaves (B)	A + B	
1	Check noninoculated		129143a ¹	148232dc	148232dc	0.8175ba	2.7525ba	3.5700ba	70.435ba
2	Check inoculated		124146a	147592d	147592d	0.8000ba	2.8975ba	3.6975ba	71.075ba
3	Apron Maxx RFC	6.25	131321a	152652bac	152652bac	0.8175ba	2.7175ba	3.5350ba	72.635ba
4	Apron Maxx RFC	6.25	126452a	151884bdac	151884bdac	0.8125ba	3.0825ba	3.8950ba	72.185ba
5	CGA301940 Apron Maxx RFC	2.00 6.25	132474a	148680bdc	148680bdc	0.8875ba	3.4150a	4.3050a	74.675a
6	CGA301940 Apron Maxx RFC	2.00 6.25	130936a	153805a	153805a	0.8925ba	2.9375ba	3.8300ba	67.503b
7	CGA301940 CRUISER 5 FS Apron Maxx RFC	50.00 6.25	130680a	150090bdac	150090bdac	0.7725ba	2.9325ba	3.7050ba	72.958ba
8	CGA301940 CRUISER 5 FS	3.00 50.00							
8	STP 15185	7.00	113897a	151820bdac	151820bdac	0.8000ba	2.8750ba	3.6750ba	72.615ba
9	STP 15391	0.02	125940a	152588bac	152588bac	0.7425ba	2.4750b	3.2150b	69.695ba
10	STP 15142	4.00	124146a	153037ba	153037ba	0.9325a	3.3225a	4.2550a	69.075ba
11	STP 15131	90.00							
11	STP 15142	4.00	120431a	148424dc	148424dc	0.6925b	2.7350ba	3.4275ba	70.923ba
	STP 15126	46.80							
	STP 15199	5.00							
LSD (P<0.05)			21507	4541.3	4541.3	0.2235	0.7874	0.8896	5.6576

¹Entries with the same letters do not vary significantly (P<0.05).