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A Comparison of Soybean Seed Treatments

Abstract

Seed treatment options are available to manage various fungi, insects, and nematodes that can damage soybeans before, during, and after emergence. These treatments are potentially beneficial for stand establishment and for protection against soybean cyst nematode (SCN). However, these seed treatments represent an additional cost to the producer.

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A Comparison of Soybean Seed Treatments

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Introduction

Seed treatment options are available to manage various fungi, insects, and nematodes that can damage soybeans before, during, and after emergence. These treatments are potentially beneficial for stand establishment and for protection against soybean cyst nematode (SCN). However, these seed treatments represent an additional cost to the producer.

This study was initiated to compare the effects of a fungicide only treatment, a fungicide-insecticide-nematicide treatment, and an untreated control on SCN soil populations and grain yield.

Materials and Methods

Soybean variety Stine 19RA02 was planted May 11, 2011 at 152,000 seeds/acre. Each plot was four 30-in. rows wide and 50 ft long. The experimental area was corn in 2010.

Tillage, planting, and pest management operations were typical of soybean production practices in northern Iowa.

Treatment 1 is a combination of an insecticide, a nematicide, two fungicides, and a biological fungicide. Treatment 2 is a combination of two fungicides. The seed treatments were applied with commercial seed treatment equipment (Table 2).

Each plot was sampled on June 28 and September 30 for beginning and ending soybean cyst nematode numbers per one-half cup of soil.

The plots were harvested on October 1, 2011. Soybean grain yield results are reported in Table 1.

Results and Discussion

Treatment 1 had greater SCN eggs per half cup at the end of the growing season and a greater difference between early and late season assessments, despite including a nematicide.

There were no differences in grain yield between treatments in this study ($P = 0.63$).

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Table 1. Soybean Cyst Nematode (SCN) response and yields of treatments in a seed treatment trial at Northern Iowa Research Farm.

Treatment ^a	SCN Initial	SCN Final	SCN Change ^b	Yield ^c
1	275	950	675A	58.3A
2	175	325	150B	55.9A
3	125	375	250B	54.3A

^aTreatment 1 = Poncho/Votivo/Trilex 2000/Allegiance/ Yield Shield; Treatment 2 = Trilex 2000/ Allegiance; and Treatment 3 = untreated control.

^bSCN Final – SCN Initial; values with the same letter are not statistically different at alpha=0.1.

^cYields listed as bushels/acre standardized to 13 percent moisture; values in the same column with the same letter are not statistically different at alpha=0.1.

Table 2. Descriptions of the components of the seed treatments used in this experiment.

Component	Active ingredient	Pesticide type
Poncho	clothianidin	insecticide
Votivo	<i>bacillus firmus</i>	nematicide
Trilex 2000	trifloxystrobin	fungicide
Allegiance	metalaxyl	fungicide
Yield Shield	<i>bacillus pumilus</i>	fungicide