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Evaluation of Omega 500F and IKF-5411 for the Control of Sclerotinia Stem Rot of Soybean and Yield Response

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Abstract

In general, the foliar, stem, and root diseases of soybean are important components of yield loss in Iowa soybean fields. Except for seed production, prior to 2005 foliar diseases were not of a major concern to soybean production in Iowa and much of the north central region states of the United States. Since the report of Asian soybean rust in South America in 2001 and then in the United States in 2004, attention on fungicide applications in soybean production has increased.

Keywords

Plant Pathology and Microbiology

Disciplines

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Evaluation of Omega 500F and IKF-5411 for the Control of Sclerotinia Stem Rot of Soybean and Yield Response

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Introduction

In general, the foliar, stem, and root diseases of soybean are important components of yield loss in Iowa soybean fields. Except for seed production, prior to 2005 foliar diseases were not of a major concern to soybean production in Iowa and much of the north central region states of the United States. Since the report of Asian soybean rust in South America in 2001 and then in the United States in 2004, attention on fungicide applications in soybean production has increased.

Material and Methods

The experiment was a randomized complete block design with four replications at the ISU Northeast Research and Demonstration Farm, Nashua. The field was oats in 2011. On May 20, NK Brand S25-R3RR was planted at 188.8K plant population/acre in 30-in. row spacing (plots 15 ft × 50 ft). Roundup WeatherMax was used preemergent and postemergent for weed control. Fungicides

were sprayed at R1-R2 growth stage (July 9) with a CO₂ backpack with a 10 ft hand boom and XR8003 tips. On July 25, 1.5pt/acre Lorsban 4E was sprayed to plot area for spider mite control. Pre-spray diseases was recorded on July 17, subsequently post spray diseases was recorded at weekly intervals up to August 29. The center four rows (10 ft × 45.5 ft plot distance) of each plot was harvested on September 16.

Results and Discussion

Downy mildew (Figure 1) and Soybean Vein Necrosis-associated Virus (SVNaV) a new foliar disease (Figure 1) were observed in this experiment. Percent increase in yields of fungicides sprayed plots over unsprayed control was up to 17 percent (Table 1). Due to dry weather in 2012, white mold and sudden death syndrome diseases were not observed. Products tested in this study do not imply endorsement of one product over another, nor did discrimination intended against any similar products tested in our studies

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We thank ISK Biosciences in testing their products on soybean diseases and their funding support to carry out the experiments at the ISU Northeast Research Farm.

Table 1. Evaluate two rates of Omega 500F and two rates of IKF-5411 alone and in tank mixes for control of Sclerotinia on soybean.

Products tested	Application		Downy mildew		SVNaV ¹		Yield	% yield change over control
	Rate/Ac	Time	Inc%	Sev%	Inc%	Sev%	Bu/ac	
IKF5411	17 oz	R1-R2	10-15	10-15	5-10	1-5	59.1	17.3
Omega 500F	1 pt	R1-R2	10-15	10-15	5-10	1-5	55.7	10.5
Omega 500F + Topsin	0.75 pt + 15 oz	R1-R2	10-15	10--15	5-10	1-5	55.1	9.4
IKF5411 + Topsin	17 + 15 oz	R1-R2	10-15	10-15	5-10	1-5	54.3	7.8
IKF5411 + Domark	17 + 3oz	R1-R2	10-15	10-15	5-10	1-5	54.1	7.4
Omega 500F+Domark	0.75 pt + 3 oz	R1-R2	10-15	10-15	5-10	1-5	52.9	5.0
Omega 500F	0.75 pt	R1-R2	10-15	10-15	5-10	1-5	51.1	1.6
IKF5411	22 oz	R1-R2	10-15	10-15	5-10	1-5	50.9	1.2
Unsprayed control			10-15	10-15	5-10	1-5	50.4	0

Mean of four replications each with 45.5 ft long × 10 ft wide plots.

¹Soybean Vein Necrosis-associated Virus (SVNaV) it is a new foliar disease.



Figure 1. Downy mildew and Soybean Vein Necrosis-associated Virus (SVNaV).