

Evaluation of Organic Soybean Rust Treatments for Organic Production —Neely-Kinyon Trial, 2005

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Introduction

Asian soybean rust, which arrived in the U.S. in 2004, has the potential to be the single most important impediment to economical organic production in the U.S., with the economic impact of ASR in organic systems ranging from \$30 to \$120 million in yield loss, upon its arrival in organic soybean areas. The fungus (*Phakopsora pachyrhiz*) survives year-round in warm areas, such as the southern United States. During a growing season, the pathogen is disseminated by northward seasonal wind.

Dry conditions across the U.S. in 2005 kept soybean rust to southern climates again, but concern has been expressed about future movement from over-wintering sites in Florida. Iowa State University has been awarded a grant from USDA to investigate “Strategies for Management of Asian Soybean Rust in Organic Systems,” which includes treatments allowable under certified organic conditions. Trials were established in 2005 in an area of Florida where rust is present to examine the effect of these treatments. Concurrently, trials have been established in Iowa, Pennsylvania and Michigan to examine yield effects of these treatments under non-rust conditions.

Materials and Methods

In the soybean rust treatment trial, Schillinger XP30Y soybeans were planted at the Neely-Kinyon Farm on May 27, 2005, at 200,000 seeds/acre. Plots measuring 5 x 15 ft. with a

one-row border on both sides and a three-foot border at each end were laid out in a completely randomized design. There were three replications of the following treatments: MicroAF™ (TerraMax, Inc., Cottage Grove, MN) at 1 gallon/acre, Sonata® (AgraQuest, Inc., Davis, CA) at 1 gallon/acre, and AgriCoat Natural IV™ (AgriCoat LLC, Soledad, CA) at 12 oz/acre. All treatments were compared with a control. Treatments were applied on July 15, 2005, at the R-1 stage. Soybeans were harvested on October 11.

Results and Discussion

Soybean rust was not observed in the trial plots in 2005. The treatments had no significant effects on yield or grain quality (Table 1). We will continue to test products and in 2006, monitor treatment effects on other soybean diseases, in the event of no rust appearing.

References

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Table 1. Yield and grain quality in soybean rust treatment trial, Neely-Kinyon, 2005.

Treatment	Yield (bu/acre)	Protein (%)	Oil (%)	Fiber (%)	Carbohydrates (%)	Moisture (%)
AgriCoat Natural IV TM	44.88	37.27	18.43	4.60	21.70	10.60
MicroAF TM	45.98	37.17	18.23	4.60	22.00	10.27
Sonata®	46.21	37.23	18.23	4.60	21.97	10.27
Control	46.72	37.23	18.30	4.60	21.90	10.23
LSD 0.05	NS	NS	NS	NS	NS	NS