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2005 trials: Efficacy of soybean rust fungicides on other fungal diseases in Iowa

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Abstract

During the 2005 growing season, fungicide efficacy trials were done at the Iowa State University Southeast Research and Demonstration Farm near Crawfordsville and the Northeast Research and Demonstration Farm at Nashua. The introduction of Asian soybean rust into the United States necessitated these experiments since fungicide applications are the only management tool available for this disease.

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2005 trials: Efficacy of soybean rust fungicides on other fungal diseases in Iowa

by Alison Robertson, John Shriver, Shrishail Navi, and X. B. Yang, Department of Plant Pathology

During the 2005 growing season, fungicide efficacy trials were done at the Iowa State University Southeast Research and Demonstration Farm near Crawfordsville and the Northeast Research and Demonstration Farm at Nashua. The introduction of Asian soybean rust into the United States necessitated these experiments since fungicide applications are the only management tool available for this disease. No Asian soybean rust was found in Iowa during 2005; however, the trials were used to determine the efficacy of fungicides, labeled for Asian soybean rust, against other fungal diseases that occur in Iowa. Treatment details are given in [Table 1](#). Data on the severity (%) of fungal diseases, phytotoxicity, and plot yields (bu/acre) were collected. All treatments were compared with an unsprayed control.

Results and Discussion

At Crawfordsville, brown spot and frogeye leaf spot were observed and the severity of each disease for each treatment was assessed ([Table 1](#)). Brown spot severity was low and ranged from 3.5 to 10 percent among the treatments. No differences between the unsprayed control and various treatments were observed. Although frogeye leaf spot severity was in the range of 0 to 20 percent, fungicide applications significantly reduced disease severity with the exception of Heads Up® and Folicur® (4 oz/acre) applied at growth stages R1 and R5. Phytotoxicity was observed in 10 treatments with the application of tebuconazole or metconazole at growth stage R3. It is probable that hot, dry conditions at the time of application predisposed the soybeans to damage. The yield of the treatments varied from 56.3 to 72.8 bu/acre; however, no statistical difference between the yield of all treatments was detected.

At Nashua, brown spot and white mold were observed. The severity of brown spot and the incidence of white mold were assessed ([Table 1](#)). Brown spot severity ranged from 5 to 20 percent among the treatments, compared to 10.6 percent for the unsprayed control. A very low incidence of white mold (0-2.5 percent) was recorded (data not shown). Treatment differences in white mold control were not conclusive due to low disease severity at the site; however, it is unlikely that differences occurred. No phytotoxicity was seen, possibly because the climatic conditions at Nashua were cooler and wetter than at Crawfordsville. Yield ranged from 70.4 to 77.7 bu/acre. There were no significant differences in yield

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between the unsprayed check and the sprayed plots. It is anticipated that the experiment will be repeated in the 2006 season.

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