

## Evaluation of Soybean Fungicides in 2006

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### Introduction

Management of foliar diseases of soybean was not a common practice in Iowa or in the Midwest prior to the 2005 growing season. However, with the introduction of Asian soybean rust, caused by *Phakopsora pachyrhizii*, to the United States, fungicide applications may become an additional but necessary input in Midwestern soybean production.

This report details the efficacy of fungicides, registered for use against Asian soybean rust, on fungal foliar diseases, and white mold, of soybean during the 2006 growing season.

### Material and Methods

Three fungicide trials comprising several fungicides from BASF, Bayer, Dow, DuPont, Cheminova, Schaeffer, Syngenta and Valent were established at the ISU Northeast Research Farm, Nashua, IA, in the 2006 season. Soybean varieties Asgrow 2106RR<sup>®</sup> in Trial 1, Pioneer 92M40RR<sup>®</sup> in Trial 2, and Pioneer 92M91RR<sup>®</sup> in Trial 3 were planted (196,433 plants/acre) on May 10, May 9, and April 28, 2006, respectively, into no-till cornstalks. Each plot consisted of six rows, with two rows unsprayed border. Rows in plots were 30 in. apart. A randomized complete block design with four replications was used, with 23, 20, and 24 treatments in Trials 1, 2 and 3, respectively. All initial treatments were applied at R3 (please see details given below each table) and later fungicide applications were applied as protocol for individual treatments. Disease assessments

were made three and seven weeks after spraying (Aug. 16 and Sept. 12, respectively). All treatments were compared with an unsprayed control. The middle four rows of each plot (10 ft × 30 ft long) were mechanically harvested on September 29, 2006 for Trials 1 and 2 and October 6, 2006 for Trial 3. Plot yields (bu/ac), the incidence (%), and severity (%) of foliar diseases and white mold were recorded.

### Results and Discussion

No disease was observed at the first evaluation (Aug. 16). In the second evaluation (Sept. 12), foliar diseases observed included downy mildew and frogeye leaf spot. Foliar symptoms of sudden death syndrome (SDS) also were evident. Frogeye leaf spot and downy mildew were observed in Trial 1, but not in Trial 2 and 3, while SDS was observed in Trial 2 and 3, but not in Trial 1. White mold also was observed in the three trials. The severity and incidence for each disease are shown in Tables 1–3.

In Trial 1, downy mildew incidence was high (75–100%), and severity ranged from 17 to 52% among treatments, while frogeye leaf spot incidence was moderate to high (57–100%) and severity ranged from 17 to 45%. In Trial 2, sudden death syndrome incidence was very low (0–0.3%), but severity of diseased plants ranged from 11 to 97%. A very low incidence of white mold (0.02–2.44%) was recorded in all trials. There were no differences among fungicide treatments for any of the diseases observed, except for the incidence of white mold in Trial 2.

Yield of the plots ranged from 41 to 64, 55 to 67, and 68 to 77 bushels/acre, in Trials 1, 2, and 3, respectively. Treatment differences in yield were observed in Trial 1 between the unsprayed check and several sprayed plots, but no

differences in yield were found for yield in Trials 2 or 3.

It is anticipated that the experiment will be repeated in the coming seasons, or at least until we know if Asian soybean rust will be a frequent production risk to Iowa soybean growers.

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