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# Evaluation of Foliar Fungicides and Insecticides on Soybeans in Southeast Iowa

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# Evaluation of Foliar Fungicides and Insecticides on Soybeans in Southeast Iowa

## **Abstract**

Iowa State University assessed foliar fungicides and insecticides on soybeans at seven ISU locations across Iowa including the Northwest Farm (Sutherland), Northern Farm (Kanawha), Northeast Farm (Nashua), Curtiss Farm (Ames), Armstrong Farm (Lewis), McNay Farm (Chariton), and Southeast Farm (Crawfordsville) (Figure 1).

## **Keywords**

Plant Pathology and Microbiology

## **Disciplines**

Agricultural Science | Agriculture | Microbiology | Plant Pathology

# Evaluation of Foliar Fungicides and Insecticides on Soybeans in Southeast Iowa

## RFR-A1240

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Microbiology

### Introduction

Iowa State University assessed foliar fungicides and insecticides on soybeans at seven ISU locations across Iowa including the Northwest Farm (Sutherland), Northern Farm (Kanawha), Northeast Farm (Nashua), Curtiss Farm (Ames), Armstrong Farm (Lewis), McNay Farm (Chariton), and Southeast Farm (Crawfordsville) (Figure 1).

### Materials and Methods

The experimental design at each location was a randomized complete block with four replications. Details on variety and planting, applications, and harvest dates are listed in Table 1. Fungicides and insecticides were applied at growth stage R3 (beginning pod) at all seven locations. Disease was assessed when soybeans were at the R6 (full seed) growth stage. Diseases found included brown spot in the lower canopy and *Cercospora* leaf blight in the upper canopy. Only diseases that had more than 1 percent severity were analyzed and included in this report. Soybean aphid populations were observed between R3 and R6 and the IPM spray was timed according to soybean aphid count. None of the seven locations reached soybean aphid threshold. Total seed weight per plot and moisture was measured, seed weight was adjusted to 13 percent moisture, and yield was calculated.

### Results and Discussion

This season will be remembered for the extremely dry weather conditions across Iowa that were similar to 1988. Although it was abnormally dry across all of Iowa, there were parts that did receive timely rains.

Because of the dry weather conditions, very little foliar disease developed at any location. The only two fungal diseases identified in the plots were *Septoria* brown spot and *Cercospora* leaf blight. Neither disease was severe enough to affect yield at any location. Soybean vein necrosis virus was also identified at several locations.

Both fungicides and insecticides had minimal or no effect on seed moisture. Yields averaged between 33.9–64.6 bushels/acre. Yield responses to fungicide, insecticides, and fungicides + insecticides were minimal at all locations. There were some positive responses to some treatments at some locations, but nothing consistent. The average yield response for all fungicides across all locations was 0.9 bushels/acre. The highest average yield response from all locations for fungicides alone was Headline (3.2 bu/ac). Insecticides alone averaged 1.3 bushels/acre with no difference between the three insecticides. We did not see an additive effect for fungicides + insecticides as they averaged 1.5 bushels/acre across all seven locations. See Table 2 for details on yield responses at this location. Results of the other locations are available in additional reports.

### Acknowledgements

We thank the ISU Research Farm personnel who assisted with application of treatments. This project was partially funded by the Iowa Soybean Association and soybean checkoff.

**Table 1. Cultivar, planting date, application date, and harvest date for seven fungicide and insecticide trials.**

| ISU Farm       | Cultivar      | Planting date | Application date | Disease assessment date* | Harvest date |
|----------------|---------------|---------------|------------------|--------------------------|--------------|
| Armstrong Farm | Pioneer 93M11 | May 10        | July 25          | August 21                | October 4    |
| Curtiss Farm   | AG2431        | May 11        | July 24          | August 29                | September 22 |
| McNay Farm     | Pioneer 93M11 | May 10        | July 30          | August 21                | September 26 |
| Northeast Farm | AG2431        | May 12        | July 27          | August 24                | September 29 |
| Northern Farm  | Stine 19RA02  | May 11        | July 16          | August 22                | September 29 |
| Northwest Farm | Kruger 1901   | May 11        | July 25          | August 22                | September 27 |
| Southeast Farm | Pioneer 93Y22 | May 18        | July 26          | August 23                | October 29   |

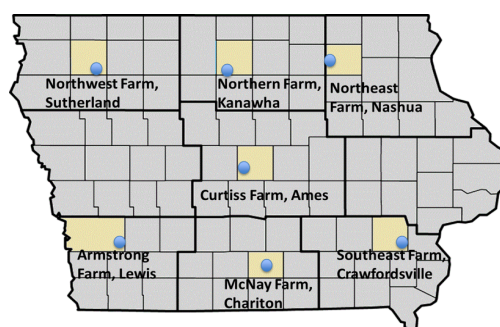
\*R6 growth stage

**Table 2. Treatments and rates of products evaluated for management of foliar disease<sup>c</sup> and yield response at the ISU Southeast Farm in Crawfordsville, Iowa.**

| Treatment                            | Rate (oz/ac) | Moisture (%) | Yield (bu/A) |
|--------------------------------------|--------------|--------------|--------------|
| Untreated control <sup>d</sup>       | ---          | 12.1         | 48.5         |
| Evito                                | 2            | 11.8         | 47.8         |
| Stratego YLD                         | 4            | 12.1         | 49.9         |
| Aproach                              | 6            | 12.0         | 49.2         |
| Topguard                             | 7            | 12.1         | 48.8         |
| Domark                               | 4            | 12.2         | 48.6         |
| Domark <sup>b</sup>                  | 5            | 12.1         | 48.7         |
| Headline                             | 6            | 12.2         | 47.4         |
| Quadris                              | 6            | 12.1         | 47.2         |
| Belay <sup>b</sup>                   | 4            | 12.1         | 48.6         |
| Leverage <sup>a</sup>                | 2.8          | 12.1         | 51.1         |
| Fastac <sup>b</sup>                  | 3.2          | 11.8         | 48.4         |
| Stratego YLD + Leverage <sup>a</sup> | 4 + 2.8      | 12.3         | 50.2         |
| Stratego YLD + Asana <sup>b</sup>    | 4 + 9.6      | 12.1         | 48.6         |
| Aproach + Asana <sup>b</sup>         | 6 + 9.6      | 12.1         | 51.9         |
| Topguard + Declare                   | 7 + 1        | 12.1         | 48.0         |
| Headline + Fastac <sup>b</sup>       | 6 + 3.2      | 12.2         | 47.7         |
| Priaxor + Fastac <sup>b</sup>        | 4 + 3.2      | 12.1         | 47.3         |
| Quilt Xcel + Warrior T <sup>b</sup>  | 10.5 + 1.5   | 12.1         | 50.9         |
| Overall LSD <sup>c</sup> (0.05)      | ---          | NS           | NS           |
| CV (%)                               | ---          | 1.8          | 6.3          |

<sup>a</sup>Applied with COC 1 percent v/v.<sup>b</sup>Applied with Non Ionic Surfactant (NIS) 0.25 percent v/v.<sup>c</sup>Data not presented because percent disease averaged less than 1 percent for most treatments.<sup>d</sup>Soybean aphid threshold was never reached so the IPM treatment became an additional untreated control.<sup>e</sup>Least significant difference comparing all treatments.

NS – not statistically significant.

**Figure 1. Map of field locations for the 2012 fungicide and insecticide study.**