

7-26-2012

Mid-season Soybean Disease and Fungicide Update

Daren S. Mueller

Iowa State University, dsmuelle@iastate.edu

Nathan R. Bestor

Iowa State University, bestor@iastate.edu

Follow this and additional works at: <http://lib.dr.iastate.edu/cropnews>

 Part of the [Agricultural Science Commons](#), [Agriculture Commons](#), and the [Plant Pathology Commons](#)

Recommended Citation

Mueller, Daren S. and Bestor, Nathan R., "Mid-season Soybean Disease and Fungicide Update" (2012). *Integrated Crop Management News*. 150.

<http://lib.dr.iastate.edu/cropnews/150>

The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit <https://crops.extension.iastate.edu/>.

Mid-season Soybean Disease and Fungicide Update

Abstract

While the hot, dry weather across the Midwest has affected soybean production, it has also negatively affected soybean diseases. In general, there is very little disease across Iowa in soybean. There have been a few fields with Septoria brown spot and Cercospora leaf blight, but it has been a quiet year for soybean diseases.

Keywords

Plant Pathology and Microbiology

Disciplines

Agricultural Science | Agriculture | Plant Pathology

Subscribe to Crop News

Archives

[2014](#)

[2013](#)

[2012](#)

[2011](#)

[2010](#)

[2009](#)

[2008](#)

[Previous Years](#)

ISU Crop Resources

[Extension Field Agronomists](#)

[Crop & Soils Info](#)

[Pesticide Applicator Training](#)

[Agronomy Extension](#)

[Entomology Extension](#)

[Plant Pathology Extension](#)

[Ag and Biosystems Engineering Extension](#)

[Agribusiness Education Program](#)

[Iowa Grain Quality Initiative](#)

[College of Agriculture and Life Sciences](#)

[ISU Extension](#)

Integrated Crop Management NEWS

-  PRINT STORY
-  EMAIL STORY
-  ADD TO DELICIOUS
-  ATOM FEED
-  FOLLOW ON TWITTER

Mid-season Soybean Disease and Fungicide Update

By Daren Mueller and Nate Bestor, Department of Plant Pathology and Microbiology

While the hot, dry weather across the Midwest has affected soybean production, it has also negatively affected soybean diseases. In general, there is very little disease across Iowa in soybean. There have been a few fields with Septoria brown spot and Cercospora leaf blight, but it has been a quiet year for soybean diseases.

That has not stopped the questions about foliar fungicides. With the price of soybean and fields being sprayed for spider mites or Japanese beetles, questions around “throwing in a fungicide” have been coming in.

Through funding from the soybean checkoff, we have completed 21 site years of trials looking at the responses to fungicides, insecticides and tank mixes of fungicides + insecticides. Except for a few site years, the soybeans have been mostly disease free. And many of the locations have had little or no insect pressure.

One thing is for certain, none of the previous trials have had any inkling of drought stress. Really, the only environmental stress we have seen in previous fungicide trials is too much moisture. Table 1 summarizes the response to fungicides and fungicides + insecticides. The products summarized in Table 1 include a strobilurin fungicide, which are Headline, Stratego YLD and Priaxor. The addition of a fungicide to an insecticide application has resulted in a lower yield response of 1.7 bu/ac.

Table 1. Mean yield response of fungicides alone (vs. control) and fungicide-insecticide tank mixes (vs. insecticide alone) applied at growth stage R3 in trials from 2008-2011 in Iowa.

	Cost per Acre	Yield Response (bu/ac)
Fungicide ¹	\$29.80	3.1
Fungicide + Insecticide ²	\$19.20 ³	1.7

¹ Fungicides used in analysis include Headline®, Stratego® YLD, and Priaxor.

² Insecticides used include Leverage® and Respect®.

³ Cost is product alone, assuming decision to tank mix with an application of insecticide.

Table 2 summarizes the economic response at \$10 and \$16 per bushel. Even considering a lower total application cost for fungicides as part of a tank mix, fungicides “thrown in” with insecticides only have a 46 percent chance of getting an equal return on your investment.

Table 2. Economical analysis of fungicides applied alone and fungicides

mixed with insecticides at growth stage R3 in studies conducted in Iowa from 2008-2011. Analyses are based on grain prices at \$10 and \$16 per bushel.

Treatment	Number of profitable sprays @ \$10/bu (%)	Economic Response ³ @ \$10/bu	Number of profitable sprays @ \$16/bu (%)	Economic Response ³ @ \$16/bu
Fungicide ¹	18/39 (46%)	\$2.50	23/39 (59%)	\$21.18
Fungicide + Insecticide ²	10/26 (38%)	\$-1.72	12/26 (46%)	\$8.75

1 Fungicides used in analysis include Headline®, Stratego® YLD, and Priaxor.

2 Insecticides used include Leverage® and Respect®.

3 Economic response is the profit per acre; cost for fungicide alone includes product and application and cost for fungicide + insecticide product alone, assuming decision to tank mix with an application of insecticide.

A final thought on fungicides: Remember to scout for frogeye leaf spot if you have made a fungicide application. We are monitoring for fungicide resistance for the frogeye leaf spot pathogen so if you suspect you have it, please send samples to our [Plant and Insect Diagnostic Clinic](#).

Charcoal rot

Even with rain last night across much of the state, one soybean disease that may be showing up is charcoal rot. Charcoal rot is caused by the fungus *Macrophomina phaseolina*. Infection can occur early in the growing season, yet symptoms may not become evident until mid- to late-season.

Identifying charcoal rot

There are a few characteristic symptoms to distinguish charcoal rot from other problems. Microsclerotia (see Figure 1) are probably the most characteristic sign. These structures are very dark and round and are how the fungus survives. The fungus infects roots and moves to stems, filling tissues with microsclerotia, which clog vascular tissue, causing wilting, yellowing, and stunting of the plant. And this is much more apparent in drought-stressed areas. A second characteristic is gray discoloration when you split the lower stems (Figure 2).



Figure 1. Black fungal structures called microsclerotia can be found in stem tissue infected by the fungus that causes charcoal rot. Photo by Alison Robertson.



Figure 2. Gray discoloration of stems is symptomatic of charcoal rot. Photo by XB Yang.

Even with these two signs of charcoal rot, this disease may still be hard to diagnose because general symptoms are similar to drought stress. As for management, foliar fungicides are not effective. The microsclerotia can survive for several years, so cultural practices are not effective. There is a limited selection of resistant cultivars and planting at lower populations to reduce competition for water among plants can help.

Daren Mueller is an extension specialist in the Department of Plant Pathology and Microbiology. He can be reached at 515-460-8000 or e-mail dsmuelle@iastate.edu. Nate Bestor is a research associate in the Department of Plant Pathology and Microbiology. He can be reached at 515-294-1741 or e-mail bestor@iastate.edu.

This article was published originally on 7/26/2012. The information contained within the article may or may not be up to date depending on when you are accessing the information.

Links to this material are strongly encouraged. This article may be republished without further permission if it is published as written and includes credit to the author, Integrated Crop Management News and Iowa State University Extension. Prior permission from the author is required if this article is republished in any other manner.