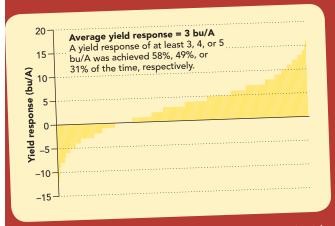
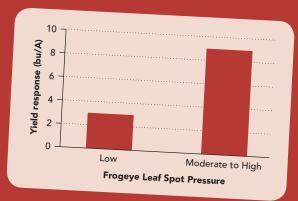
Foliar Fungicides for Disease Control



Summary of University of Illinois foliar fungicide research trials on soybean from 2005 to 2008 conducted at different locations throughout the state (Each bar represents the average yield difference between an untreated control and either Headline or Quadris fungicide applied at the R3 growth stage; data courtesy C. A. Bradley and W. L. Pedersen).

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Comparison of average yield responses from foliar fungicides (Quadris or Headline applied at the R3 growth stage) in Southern Illinois University and University of Illinois research trials with low frogeye leaf spot disease pressure versus moderate to high disease pressure on susceptible varieties (Data courtesy J. P. Bond and C. A. Bradley).

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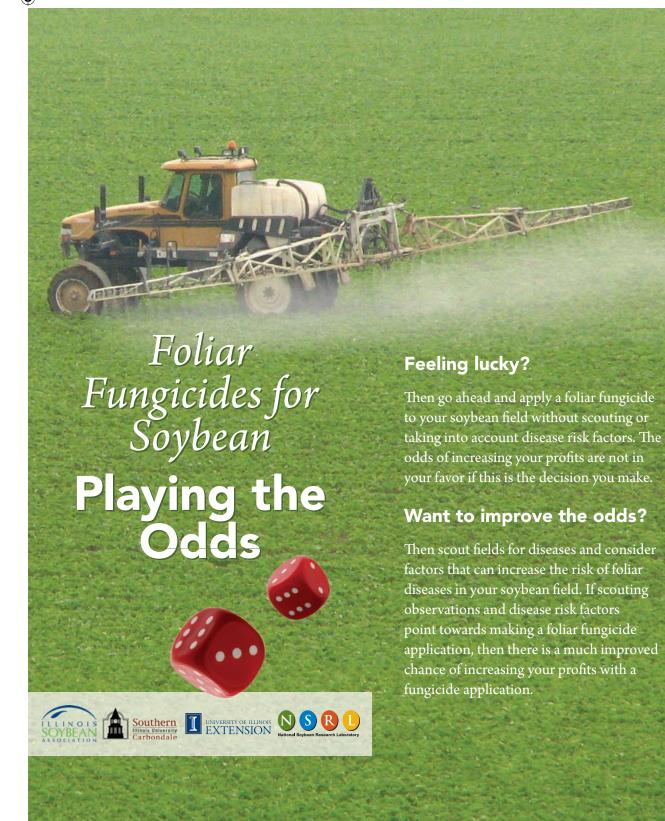






University of Illinois Integrated Pest Management: www.ipm.illinois.edu

Integrated Pest Management—Pest Information Platform for Extension and Education (IPM—PIPE) Soybean Rust: www.sbrusa.net





Which foliar diseases are important?

Soybean fields in Illinois are never disease-free, but not all diseases are equal in their potential to reduce soybean yields. Common foliar diseases such as bacterial blight and Septoria brown spot can be observed in almost every soybean field at some point in time during the season. Other foliar diseases such as frogeye leaf spot and downy mildew are observed less frequently, but can be common in some years under certain conditions. Of these diseases, foliar fungicides are never effective in controlling bacterial blight and generally ineffective in controlling downy mildew. Foliar fungicides can be effective in controlling frogeye leaf spot and Septoria brown spot. For these two diseases, frogeye leaf spot is generally considered the most important due to its ability to cause yield losses to soybean. Septoria brown spot can also reduce soybean yield, but this usually only occurs in seasons with excessive rainfall. Soybean rust, another important foliar disease, has been detected in Illinois late in the growing seasons of 2006 through 2008, but has not caused yield loss in Illinois because of its late arrival to the state in those years.



Septoria brown spot



Frogeye leaf spot



Soybean rust

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Soybean rust photo by Daren Mueller, lowa State University

Know the soybean foliar disease risk factors

Different factors can increase the risk of foliar diseases appearing in a soybean field. These risks are:

- 1. Susceptibility level of soybean variety. Soybean varieties can differ in their susceptibility to foliar diseases. Information about a variety's susceptibility to some diseases may not be easily available, but a variety's susceptibility to frogeye leaf spot, in particular, can generally be obtained from the seed company (especially for maturity group III and IV varieties). Another resource in finding out about a particular variety's response to diseases is available from the Varietal Information Program for Soybeans (VIPS) database available at www.vipdiseases is available from the Varietal are more susceptible to fungal foliar diseases will have a greater response to a foliar fungicide when diseases are present.
- **2. Previous crop.** Because many foliar pathogens survive in soybean stubble, the risk of foliar diseases increases when soybean is planted back into a field that was planted to soybean the previous year. The more soybean stubble present on the soil surface, the higher the risk of foliar diseases.
- 3. Weather. Rainy and humid weather is generally the most favorable for foliar disease development. Conditions that keep soybean leaves wet for an extended period of time favor infection by fungal pathogens and disease development. In the absence of rain periods, cloudy days and extended dew periods can increase disease spread and severity. Hot and dry conditions are not favorable for foliar diseases, and the diseases will be suppressed as long as these conditions persist.
- **4. Soybean rust risk.** The risk of soybean rust is not affected by the variety planted, as all varieties are susceptible; nor is the risk affected by previous crop, as the pathogen must blow up from the southern U.S. to affect Illinois fields. The risk of soybean rust can be assessed by accessing the IPM PIPE website (www.sbrusa.net). This site provides maps showing where soybean rust has been detected in the U.S., Mexico, and Canada. Maps are developed from monitoring data collected from sentinel plots.

Scouting for foliar diseases

When soybean plants begin to bloom, plants should be examined for symptoms in at least one area in a field for every 10 acres. Foliar diseases often appear first in lower areas and areas protected from the wind and the sun (near trees or buildings). Examining leaves with a hand lens can help in disease identification and in determining if symptoms are caused by a biotic pathogen or an abiotic stress.

Putting it all together to make a decision

Base your decision to apply a fungicide on the presence of disease risk factors and on disease scouting observations. Remember that you are much more likely to increase your profits with a foliar fungicide application if you use the fungicide for disease control purposes. If the decision is made to apply a fungicide, then choose the best product available based on which diseases are present and the level of disease pressure. Check with University and Extension sources or your local agronomist for information on which foliar fungicide products are available for use on soybean.

Application basics of foliar fungicides on soybean

Achieving the best coverage with a foliar fungicide will allow the product to work most effectively. It is important to select nozzle tips that will deliver droplets between 200 to 300 microns in diameter. It is also important to follow manufacturers' recommendations for spray volume. Generally, a minimum of 15 gallons per acre and 5 gallons per acre are recommended for ground and aerial applications, respectively. Research in Illinois indicates that, in general, a single application of an efficacious fungicide at the R3 growth stage (beginning to form pods) may be as effective in controlling foliar diseases as two sequential applications at the R3 and R5 (beginning to form seeds) growth stages.

