Controlling wheat foliar diseases

Gary P. Munkvold
Iowa State University, munkvold@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
http://lib.dr.iastate.edu/cropnews/1831

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 Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user.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/.
Controlling wheat foliar diseases

Abstract
Although the rains have not been enough to start any major epidemics of foliar diseases on wheat, now is the time to start scouting in case of any local outbreaks. Several foliar diseases that are caused by fungi, including Septoria leaf blotch, powdery mildew, and tan spot, can affect wheat. There are also three different rust fungi that can infect wheat. Leaf rust, *Puccinia recondita*, is the most common rust disease and has the most destructive potential of the foliar diseases.

Keywords
Plant Pathology

Disciplines
Agricultural Science | Agriculture | Plant Pathology
Controlling wheat foliar diseases

Although the rains have not been enough to start any major epidemics of foliar diseases on wheat, now is the time to start scouting in case of any local outbreaks. Several foliar diseases that are caused by fungi, including Septoria leaf blotch, powdery mildew, and tan spot, can affect wheat. There are also three different rust fungi that can infect wheat. Leaf rust, *Puccinia recondita*, is the most common rust disease and has the most destructive potential of the foliar diseases.

Many of the decisions regarding wheat disease control (cultivar selection, crop rotation, seed treatment, tillage, and planting date) are made prior to planting. But what about diseases developing now? Powdery mildew is usually the first to appear; patches of cottony white or tan mycelium can be seen on the surface of the lower leaves. Rust can be expected to follow soon after.

If foliar diseases develop this year, there is a possibility of controlling them with a fungicide. Because of the expense, however, it is not generally profitable to use fungicides routinely on wheat. There are several criteria that must be evaluated to decide if a fungicide is warranted.

**Yield potential and price**

Usually, 45-50 bushels per acre yield potential is considered the minimum for profitable fungicide use, but with current wheat prices this figure might be higher. Many Iowa fields can yield in this range or higher (average yield last year was 54 bushels). A fungicide application costs about $15-17 per acre, unless it is Quadris or Stratego, which are more expensive. At $2.75 per bushel you would need about a 6-9 bushel yield response to break even. This level of response is likely if the variety is moderately susceptible and a disease threshold (described below) is reached by head emergence.

**Susceptibility**

Susceptible varieties are obviously at a higher risk for disease losses and therefore better candidates for fungicide application. You should know something about susceptibility based
on past experience, or information from seed company representatives or university publications. The Iowa State University/Iowa Crop Improvement Association Crop Performance Test for winter wheat [2] has ratings for powdery mildew and leaf rust. This type of information also is available from other states with greater wheat production, such as Kansas [3].

**Disease severity**

Scouting should begin just prior to flag leaf emergence, when the stems are rapidly elongating, which usually occurs in early May. The flag leaf is very important in providing carbohydrates to the developing grain, so it must be protected. Examine the upper two leaves or the flag leaf on 100 plants at 20-30 locations throughout the field. A "field" should be an area no larger than 50 acres that is managed uniformly and has fairly uniform soil and drainage characteristics. Scouting should be done every 4 days or so.

**Thresholds**

Disease thresholds for fungicide application have not been determined in Iowa wheat, but other states have established thresholds. Fungicide application is warranted on susceptible varieties if the leaves you examine have an average of 1 percent of the leaf area diseased. This percentage is equivalent to about 1-3 powdery mildew or Septoria pustules per leaf, or about 10-20 rust pustules per leaf (on the flag leaf or the second leaf). You should consider rainfall forecasts as well as scouting information in your decision. High rainfall favors more severe diseases. Also, intervals between scouting can be longer if weather is very dry. The earliest effective fungicide application should occur at growth stage 8, or flag leaf emergence.

**Fungicides**

Current fungicide options for wheat include propiconazole (Tilt), mancozeb (Manzate 200, Pencozeb, and Dithane), azoxystrobin (Quadris) or trifloxystrobin/propiconazole (Stratego). In Iowa, Tilt and Stratego can be sprayed only until flag leaf emergence. Disease symptoms may not reach thresholds until after the window for Tilt or Stratego application. In this case, a Quadris application would be the best option. Quadris can be applied up to 45 days preharvest for grain. If only one application will be made, it is best to apply at flag leaf emergence (any of the fungicides) or head emergence (if Quadris is used), depending on disease levels. Always check fungicide labels to ensure that the intended use is consistent with the label.

This article originally appeared on pages 55-56 of the IC-488 (6) -- April 29, 2002 issue.

**Source URL:**

**Links:**