



Disease Update in Wheat

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There are three major foliar leaf diseases that commonly occur in Texas wheat fields, including Leaf Rust, Stripe Rust, and Powdery Mildew. On any given year, some regions of the state will usually have economically damaging levels of one or more of these diseases. In most years, significant Leaf Rust or Stripe Rust can be observed in the Blacklands and Northeast Texas. However, high rainfall across much of the state in the 2004-05 season has resulted in foliar diseases throughout much of the state. Below is an update on Leaf Rust, Stripe Rust, and Powdery Mildew and some management options.

Leaf Rust is considered a warm-season pathogen, with optimum reproduction temperatures above 70^o F. However, concerning levels of Leaf Rust have been observed this spring across much of the Blacklands, and Southern Rolling Plains of Texas. We can assume this is due to a warmer than normal winter/spring temperatures and wet conditions. Leaf Rust is being observed 4-6 weeks earlier this year (2005) than in the past. This means that management decision regarding Leaf Rust need to be considered much earlier this year. This means that plenty of Leaf Rust spores will be spreading to North Texas. Reports from LSU also indicate a tremendous amount of Leaf and Stripe Rust present in Louisiana.

Stripe Rust has been observed in several locations in the southern and central Blacklands of Texas. However, the Stripe Rust does not seem as widely distributed as the Leaf Rust. We have also observed Stripe Rust on varieties that were resistant last year, including Cutter and Jagalene.

Powdery Mildew has been observed in some fields in Williamson County and a few other locations. Fortunately, we have not observed the level of Powdery Mildew that occurred in 2004.

Factors to Consider for Managing Foliar Diseases in Wheat:

1. Variety resistance is the most economical management option. However, there have been several changes in the Leaf and Stripe Rust races the past couple of years. These race changes have resulted in the loss of resistance in many wheat varieties. Varieties that were rated “resistant” in 2003 and 2004 are not longer resistant to the predominant Leaf Rust races, especially in Hard wheat varieties.
2. Fungicides are an effective management option for Leaf Rust, Stripe Rust, and Powdery Mildew. However, the economical threshold is a not “black or white” and is dependent

on numerous factors, including yield potential, disease pressure, varietal resistance, grain price, and future weather.

General Comments about Fungicides:

- Fungicides protect yield, not enhance yield. If your field does not have good yield potential (>40 bushels), then a fungicide application probably will not be economical (**Table 1**).
- Fungicides typically provide a 10- 25% yield protection from Leaf Rust (**Table 2**). The yield protection may be higher for Stripe Rust.
- Fungicides should provide 2-3 weeks of protection from the foliar diseases.
- Protecting the flag-leaf is the highest priority, because 60-80% of grain yield comes from the flag-leaf.
- Early-season fungicide applications are likely not feasible, except under very heavy disease pressure.

Small Grains web-site:

- <http://croptesting.tamu.edu/> - this is a new web-site that covers most aspects of the Small Grains, including variety yields, weed management, entomology, and plant pathology.

Table 1. Labeled Fungicides for Foliar Disease Management:

| Fungicide | Rate (oz/A) | Leaf rust control | Stripe Rust control | Chemical family |
|-----------|-------------|-------------------|---------------------|--------------------------|
| Headline | 6 to 9 | Good | Good | strobilurin |
| Quadris | 6.2 | Good | Good | strobilurin |
| Quilt | 14 | Good | Good | strobilurin/ triazole |
| Propimax | 4 | Good | Good | triazole |
| Stratego | 10 | Good | Good | Strobilurin/ triazole |
| Tilt | 4 | Good | Good | triazole |

Table 2. Estimated yield losses from Leaf Rust. Kansas State University

| Rough Estimate of Percent Yield Loss For Different Leaf Rust Severities | | | | | |
|---|----------------------------|-----|-----|-----|------|
| Growth Stage | Rust Severity on Flag Leaf | | | | |
| | 10% | 25% | 40% | 65% | 100% |
| Flowering | 10 | 15 | 20 | 30 | 35 |
| Milk | 2 | 5 | 8 | 14 | 20 |
| Soft Dough | 1 | 3 | 4 | 7 | 10 |
| Hard Dough | 1 | 1 | 2 | 3 | 5 |

If you have any questions or comments regarding the current wheat crop, please give me a call.

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