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STRIPE RUST THREAT ELEVATED FOR 2006

Don Hershman —UK Plant Pathologist

The 70 bushel per acre wheat yield average for Kentucky in 2005 was possible, in part, due to the overall lack of disease pressure in most wheat fields last year. One disease that was of considerable concern in some fields, however, was stripe rust. For reasons I will describe below, the threat to the 2006 wheat crop is high and there are already reports of significant stripe rust activity in Louisiana.

Stripe rust, caused by the fungus *Puccinia striiformis*, is historically a cool climate disease. Beginning in the 1990's, we began to see a significant increase in stripe rust activity throughout the Midsouth. Last year, some fields in Kentucky would have been seriously damaged by the disease if a foliar fungicide had not been deployed. In addition, stripe rust was present at significant levels in some wheat fields in Illinois and Missouri.

The increased activity of stripe rust in the middle of the country is apparently the result of new races of the stripe rust fungus blowing into the U.S. from Mexico. Research done by Dr. E. Milus with the University of Arkansas indicates that these new races tend to be active at higher temperatures than is usual for *P. striiformis*. All evidence suggests that these new races are now established in the lower Midsouth, and that we may be dealing with stripe rust on a more regular basis, much like we do with leaf rust (caused by *P. recondita*). Like leaf rust, stripe rust overwinters in wheat in areas that have had a mild winter and/or where

infected leaves are protected by snow cover. In my opinion, the probability that stripe rust has successfully overwintered in Kentucky is quite high considering the mild winter we have just experienced. This is the reason for the elevated stripe rust risk to our wheat crop at this time.

Many currently available soft red winter wheat varieties have good to excellent resistance to stripe rust; others are highly susceptible. Stripe rust ratings were made in Kentucky in 2005 and this information can be gleaned from the 2005 Kentucky Small Grain Variety Performance Test publication available at your local county Extension office, or on-line at www.uky.edu/ag/WheatVarietyTest. Obviously, all variety selection decisions were made last fall, and the base level of stripe rust susceptibility has been established. Nevertheless, for planning purposes, it is prudent to know how susceptible the wheat varieties you planted are to stripe rust. If you planted a highly resistant variety, you probably have little risk of having a stripe rust problem this spring. On the other hand, if you planted a variety which is susceptible to stripe rust, your crop could be at great risk.

In susceptible varieties, overwintered stripe rust first develops in lower leaves of plants in "hot spots" scattered in a field. These hot spots can be seen from a distance when the disease is severe. However, careful scouting is needed to detect infections in the early stages. Look for bright yellow pustules usually arranged in conspicuous stripes,

running parallel with the leaf veins. Later, as the season progresses, infections will appear in the upper leaves and will not be restricted to hot spots. Deterioration of a crop can occur rapidly once stripe rust begins to move outside of the hotspots.

The time to deploy a fungicide to a stripe rust-susceptible variety is when the disease is building up in hot spots. Many fungicides applied at this stage will do a great job in checking the spread of stripe rust. However, if you wait until spread has already taken place outside the hot spots, then the chances of success are significantly reduced. Below are partial results of a stripe rust fungicide test I conducted at the UKREC in Princeton last spring. As you will see, all fungicides worked quite well when applied before significant stripe rust was evident. stripe rust was evident.

Fungicide	Rate/A	Timing	Mean* % of Flag Leaf with Stripe Rust at Soft Dough Stage
Non-Treated	NA	NA	35.0a**
Headline + 0.125% induce	6.9 fl oz	Beginning flowering	1.0b
Tilt	4.0 fl oz	Beginning flowering	1.3b
Folicur	4.0 fl oz	Beginning flowering	2.8b

*Average of five reps ** P = 0.05 (student-Newman-Keuls)
 Variety was P25R35 planted on October 13, 2004.



2006 ANNUAL UK WHEAT FIELD DAY

- When:** **May 16, 2006 (Tuesday)**
- Time:** **9AM—12 Noon**
 Lunch Provided by Ky Small Grain Grower’s Assn.
- Where:** **UK Research & Education Center, Princeton**

MARK YOUR CALENDARS AND PLAN TO JOIN US

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