

Wheat Update



April 2, 2010



Feeks 7.0, Second node visible



Feeks 8.0, Flag leaf visible

Most of the area wheat is in Feeks 7 – 8 (two nodes above ground to beginning of flag leaf emergence). Plants in most fields are reasonably well tillered, and yield potential is fair to good. Most plants are shallow rooted, as they have grown in saturated soils throughout the fall and winter months. Everything has been top dressed and we have now had adequate rainfall to move the nitrogen into the soil profile.

Low levels of stripe rust were observed last week in the lower canopy in susceptible varieties (Patton SRWW in our Royse City location). We have not seen any leaf rust yet, but expect it to be present in susceptible varieties as temperatures begin to increase. There have been reports of a race change in stripe rust but we have not yet observed it here.

Resistant varieties are the first line of defense against the rust diseases, however, since rust races can mutate from one year to another, there is no substitute for field scouting. Growers are urged to thoroughly scout all of their wheat fields over the next two to three weeks for the rust diseases. Leaf rust development is favored by average daily temperatures of 59° F to 71° F. Stripe rust spores, on the other hand, germinate most successfully at temperatures ranging from 41° F to 59° F. That is precisely the reason stripe rust is an early season disease in Texas, and leaf rust spores become more active later in the spring.

Foliar Fungicide Update

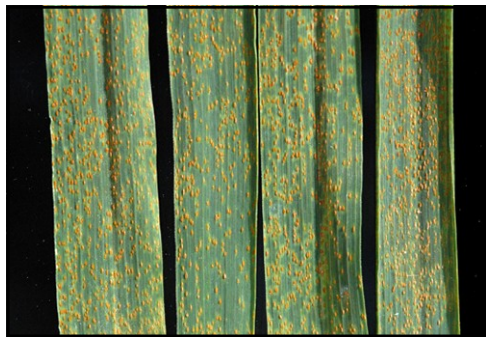
One of our primary research efforts includes the evaluation of foliar fungicides for the control of both stripe and leaf rust in soft red winter wheat. We conduct this work using highly susceptible varieties that often magnify the effects of fungicides on these diseases. For stripe rust, we conduct our tests on AgriPro Patton and Pioneer 25R78, two SRWW varieties that are highly susceptible to stripe rust but quite resistant to leaf rust. Our leaf rust research is conducted on Pioneer 25R49 and Pioneer 25R54, two SRWW varieties with poor leaf rust resistance but excellent stripe rust resistance.



The stripe pattern runs along the vascular bundles and resembles powdery stiches. Photo: Ronald French.

The primary purpose of these tests is to evaluate fungicide performance. Highly susceptible varieties make it easier to determine which fungicides perform best on both diseases. Research has shown that some materials are effective on both types of rust, while others are more effective on either stripe or leaf rust.

Foliar Fungicide Efficacy Studies for the Control of Stripe and Leaf Rust in Susceptible SRWWs (AgriPro Patton and Pioneer 25R54)



Dark orange pustules of leaf rust. Photo: James Kolmer

Leaf rust (*Puccinia recondita*) is a devastating foliar disease that infects both hard and soft red winter wheat in this region. The first line of defense to this disease is the development and introduction of resistant varieties. Over time, the leaf rust organism mutates to form new races that will threaten existing “resistant” varieties. The “fallback” position then becomes the application of a foliar fungicide to protect the yield during the grain filling period. Following is a summary of our 2005-2009 foliar fungicide research for the control of both rusts on a susceptible variety.

Table 1: Economic Evaluation of Selected Labeled Fungicides for the Control of Stripe Rust in Patton, a Highly Susceptible SRWW Variety. 2005 – 2009

Fungicide Treatment	AgriPro Patton			3 Year	3 year	Return Over
	2005	2007	2009	Average	Average	Fungicide Cost
Product oz/A	Bu/A				Bu Increase	\$ ¹
Folicur @ 4 oz/A	49.0	57.8	71.1	59.3	21.1	101.78
Quilt 10.5 oz/A	41.1	55.7	72.2	56.3	18.1	76.75
Quilt 14 oz/A	43.3	60.1	77.7	60.4	22.2	93.85
Tilt 4 oz/A	46.2	54.9	70.4	57.2	19.0	83.66
Nontreated	23.1	45.6	45.8	38.2	-	-

¹ Assuming \$5.25 wheat, a \$5.00 application cost, and foliar fungicide suggested 2009 retail prices. Actual fungicide prices may vary.

Table 2: Economic Evaluation of Selected Labeled Fungicides for the Control of Leaf Rust in Pioneer 25R54, a Highly Susceptible SRWW Variety, 2005 - 2009.

Fungicide Treatment	AgriPro Patton			3 Year Average	3 year Average	Return Over Fungicide Cost
	2005	2007	2009			
Product oz/A	Bu/A				Bu Increase	\$ ¹
Folicur @ 4 oz/A	62.9	56.3	97.8	72.3	12.5	56.63
Quilt 10.5 oz/A	63.6	57.7	97.6	73.0	13.2	51.02
Quilt 14 oz/A	63.9	62.3	96.6	74.3	14.5	53.43
Headline 6 oz/A	65.0	62.2	95.4	74.2	14.4	54.43
Tilt 4 oz/A	61.3	53.1	95.3	69.9	10.1	36.94
Nontreated	47.6	49.8	82.0	59.8	-	-

1 Assuming \$5.25 wheat, a \$5.00 application cost, and foliar fungicide suggested 2009 retail prices. Actual fungicide prices may vary.

Economic Evaluation of Tebuconazole for the Control of Foliar Plant Diseases in Five Commercially Grown SRWW Varieties in Northeast Texas

A parallel research initiative is to evaluate the profitability of foliar fungicides on commercially grown SRWW varieties. For these studies, we are evaluating fungicide profitability on Pioneer 25R47, Pioneer 25R57, Terral LA 841, AgriPro Coker 9553, and AgriPro Magnolia. The following tables summarize yield responses and economic returns for these varieties from our 2009 studies.

Table 3: Economic Evaluation of Tebuconazole on Five Commercially Grown Varieties in the Northern Texas Blacklands. Royse City, TX 2009.

Variety	Leaf Rust Infection	Sprayed	Unsprayed	Difference	Return over Fungicide Cost
	%	Bu/A			\$
Magnolia	20.8	93.3	94.7	-1.4	-16.35
Pioneer 25R47	3.7	89.8	78.8	+11.0	48.75
Coker 9553	36.7	84.2	81.9	+2.3	3.08
Pioneer 25R57	38.3	80.7	77.7	+3.0	6.75
Terral LA841	0.3	73.5	63.9	+9.6	41.40
Average	-	84.3	79.4	+4.9	16.73

Assuming \$5.25 wheat, tebuconazole (Folicur®, TebuStar®, Monsoon®, and Onset®) @ \$4.00 per acre and an application cost of \$5.00 per acre

Table 4: Economic Evaluation of Tebuconazole on Five Commercially Grown Varieties in the Northern Texas Blacklands. Leonard, TX 2009.

Variety	Glume Blotch Infection %	Sprayed Bu/A	Unsprayed Bu/A	Difference	Return over Fungicide Cost \$
Magnolia	18.7	66.2	65.4	0.8	-4.80
Pioneer 25R47	6.5	68.3	67.7	0.6	-5.85
Coker 9553	12.8	68.8	73.3	-4.5	-33.63
Pioneer 25R57	20.0	57.0	56.2	0.8	-4.80
Terral LA841	21.5	68.6	65.7	2.9	6.23
Average	-	65.8	65.7	0.1	-8.47

Assuming \$5.25 wheat, tebuconazole (Folicur®, TebuStar®, Monsoon®, and Onset®) @ \$4.00 per acre and an application cost of \$5.00 per acre

Highlight Summary - Fungicide Profitability Study

- At the Royse City location, a positive return on fungicide investment was achieved on Pioneer 25R47, Pioneer 25R57, Coker 9553, and Terral LA 841. We lost money by spraying Magnolia, even though a light leaf rust infection was observed on the flag leaf.
- Light to moderate leaf rust infection levels were observed at the Royse City location. Leaf and stripe rust levels in Pioneer 25R47 and Terral LA 841 were very low. The yield increases in the sprayed Terral LA 841 and Pioneer 25R47 are likely due to control of glume blotch, *Stagnospora nodorum*.
- Rust disease pressure was very low at the Leonard location and it was not profitable to spray a fungicide on any of the five selected varieties, except Terral LA 841.
- ***When both locations are averaged together, a low cost fungicide (Folicur®) was marginally profitable in 2009 on the most commonly grown varieties in this region. Tebuconazole (sold as Folicur, TebuStar and Monsoon) will effectively do what most other fungicides do for around 25 percent of the cost.***

James Swart, Entomologist (IPM)
Texas AgriLife Extension
James_Swart@tamu-commerce.edu

Dr. Curtis Jones, Blacklands Agronomist
Texas AgriLife Extension &
Texas A&M University-Commerce
Curtis_Jones@tamu-commerce.edu