



# Pest e-alerts



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Entomology and Plant Pathology, Oklahoma State University  
127 Noble Research Center, Stillwater, OK74078  
405.744.5527

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## Wheat Disease Update

Bob Hunger, Extension Wheat Pathologist



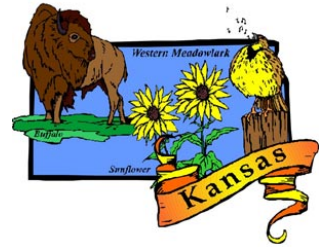
This past week I spent around Stillwater. Wheat here is mostly at mid-dough but quickly turning. Some wheat has started to lodge with the wet weather and wind. Head discoloration is becoming more common, with the likely causes related to Septoria/Stagonospora and/or black chaff. Leaves are pretty much gone due to a combination of many diseases. One set of leaf samples I isolated from revealed stripe rust pustules, pycnidia of septoria/stagonospora, spot blotch and tan spot. Lines or varieties that have stripe rust resistance typically show either leaf rust pustules or more green leaf if they also are resistant to leaf rust.

A producer in southwestern OK (Granite) indicated to me this past week that there is abundant head discoloration and wheat is lodging. Aaron Henson (Tillman Co. Ag Educator; south-central OK) told me this morning that if the weather turned dry and warm, he would guess wheat harvest would start within 5 days or so. He also has seen fields where wheat is lodging. Mark Gregory (SW OK Area Extn Agron Spec) indicated much the same for the SW district. In the panhandle, Mindy Hittle McNair (Texas Co. Ag Educator) indicated they have been cloudy and wet all week, wheat varies from flowering to soft dough, and that rust across the area is evident. This was confirmed by Dr. Bret Carver (OSU Wheat Breeder), who just returned from the panhandle yesterday. He indicated wheat at the Goodwell Station was mostly around the milk stage, and stripe rust was the most prevalent foliar disease but leaf rust was on the increase. He also indicated head discoloration and bacterial-like symptoms. Currently we are running samples from last week to confirm bacteria.

Please see a Disease Advisory sent out in 2007 for a complete description of causes of head discoloration <http://entopl.okstate.edu/pddl/pddl/2007/PDIA6-17.pdf>.

Finally, the diagnostic lab continued to receive samples testing positive for Wheat streak mosaic virus, with several also testing positive for High plains virus (Wheat mosaic virus) and/or Barley yellow dwarf virus. For information on mite-transmitted diseases, I refer you to [EPP-7328 Wheat Streak Mosaic, High Plains Disease, and Triticum Mosaic: Three Virus Diseases of Wheat in Oklahoma](#) available at <http://osufacts.okstate.edu>.

**Kansas:** Dr. Erick De Wolf (Extn Plant Pathologist); Kansas State Univ; 19-May-2015: "I spent this past week visiting fields and participating in programs in south central Kansas. The wheat in this part of the state is currently into the early stages of grain development but the kernels were not yet watery ripe. Stripe rust was severe at many locations with incidence near 100% and severity ranging from 20-80% depending on the variety. Severe disease during the early stages of grain development will likely have a significant impact on grain yield. Fields with severe damage to the flag leaves may experience more than 20% yield loss.



Varieties with the most stripe rust included Armour, Everest, Garrison, LCS Wizard, Ruby Lee, TAM 111 and WB Redhawk. Interestingly, varieties with a Jagger pedigree such as 1863, Danby, Fuller, and WB 4458 (Yr17) appeared to be moderately resistant. The varieties Oakley CL, Gallagher, WB Cedar and WB Grainfield also appear resistant or moderately resistant at this time. This pattern of susceptibility of these varieties indicates that the stripe rust population is similar to what was present in 2012.

Leaf rust was also present on many of the same locations I visited this week. In most cases, incidence of leaf rust was around 10-20% with severity less than 1% on the flag leaves. There was more leaf rust at the South Central Experiment Field located near Hutchinson in Reno county than at other locations. At this location, leaf rust severity was approaching 10-15% on the flag leaves of the susceptible variety Overley.

Reports from the central and western regions of the state also indicate that stripe rust has moved to the upper leaves in many fields. There are a few reports of severe disease on the flag leaves in some fields. The weather conditions this next week look conducive for continued spread of the rust diseases."



**Nebraska:** Dr. Stephen Wegulo (Extn Plant Pathologist); University of Nebraska; 20-May-2015: "Yesterday I found leaf rust in our research plots at Mead (Saunders County, about 30 miles north of Lincoln) in the lower canopy of cv. Overley. Incidence was trace and severity was less than 5%. Stripe rust is on the increase. At Mead yesterday, there were hotspots in cv. 2137 with some leaves entirely covered with pustules, and at the breeder nursery at Havelock Farm in Lincoln on Monday this week, I saw over 35% of an entire plot of a susceptible line covered with stripe rust pustules. Stripe rust is widespread in wheat fields in southwest, south central, and

southeastern Nebraska. I have not received reports from the Panhandle, but I suspect it is there. Weather conditions (cool, wet) continue to favor stripe rust development and spread. Wheat growth stage ranges from boot to full heading. Some fields will be flowering soon and we fear there may be significant Fusarium head blight due to excessive and frequent rainfall during the last two weeks preceding flowering.”

**South Dakota:** Dr. Emmanuel Byamukama (Extn Plant Pathologist); South Dakota State Univ, 22-May-2015: “Country Pride Coop Agronomist found stripe rust in one winter wheat field near Winner, Tripp County. Stripe rust was at low incidence and severity. Several winter wheat fields in central South Dakota were scouted but no stripe rust or other rusts were seen. It has been relatively cooler and wet the last several days and these conditions are conducive for stripe rust to develop. Winter wheat is mainly at boot or headed. This is a critical stage of wheat development. Scouting and applying a fungicide to protect the flag leaf is recommended.”



**Mississippi:** Dr. Tom Allen (Extn Plant Pathologist); Delta Res & Extn Ctr, Stoneville, MS: “Have been meaning to send a rust update for several weeks now. Leaf rust has been the more predominant wheat rust throughout MS this season. Over the past month I have observed leaf rust from as far south as Beaumont, MS (generally east and south of Hattiesburg, MS) and as far north as Shelby, MS (about 80 miles south of Memphis, TN on the western side of MS, less than 25 miles east from the river). Light stripe rust has been observed at a few variety trial locations, but I can’t stress how light the infection levels have been. At locations

where stripe rust was observed the same variety in the OVT contained stripe rust which I believe was Progeny P410. From the commercial wheat crop standpoint stripe rust has been extremely light this year even though AR had several counties reporting the disease throughout the winter months.

Samples of both leaf and stripe rust were submitted for race typing. Additional samples may be collected this week as weather permits. The central MS Delta received between 4 and 6 inches of rain between Friday (5/15) and Monday (5/18). In general, the wheat crop is behind normal maturity due to a wetter than normal winter. Fusarium head blight has been the main concern and appears to have been more of an issue in the early-maturing varieties on a statewide basis. However, due to low commodity prices many farmers chose not to apply a fungicide this year.”

**Pacific Northwest:** Dr. Xianming Chen (USDA-ARS Research Scientist); Pullman, WA, 21-May-2015: “Yesterday, we were checking wheat and barley fields in eastern Washington. Winter wheat ranged from late jointing (Feekes 8) to flowering (Feekes 10.5) and mostly in boot to heading (Feekes 10 - 10.1) stages. Spring wheat and barley ranged from tillering (Feekes 2) to middle jointing (Feekes 7) stage. Most



fields had good moisture, thanks to the rains and showers since the last week, which ended the long period of dry conditions after early April.

Stripe rust of wheat was widespread. In commercial winter wheat fields, we found stripe rust in around 20% of about 80 fields checked in areas from Colfax to St. Johns and Lamont in Whitman County and from Horse Heaven Hills in Benton County to Walla Walla and Waitsburg in Walla Walla County. In general, stripe rust incidence and severity were low. It took time to find one to five leaves usually with one stripe in a commercial field in most of the areas. In fields near Walla Walla, rust was relatively easy to find, and several leaves with multiple stripes could be found in small hot spots. Most rust was on top leaves (infection occurred in the spring), and few spots had rust from bottom leaves (initial infection occurred last fall). Compared to commercial fields, rust was much easier to find in experimental fields. For example, stripe rust developed to 100% incidence (all plant had rust), 30 to 60% severity (percentage of leaf surface covered with rust pustules) on flag leaves, and 60-100% severity on lower leaves. For spring crops, we were able to find stripe rust on susceptible varieties of both wheat and barley in our nursery near Walla Walla and a commercial field of spring wheat near Waitsburg. Stripe rust was found on goat grasses near and in wheat fields in the Lamont area, more easily found than on wheat plants. In addition to stripe rust, significant barley yellow dwarf was found in a winter wheat field near St. John in Whitman County and severe physiological leaf spot was found in several fields in several winter wheat fields in the Walla Walla area.

The relatively low levels of stripe rust in commercial fields compared to experimental nurseries were mainly due to resistance in commercial varieties and widely use of fungicides at the time of herbicide application. The long period of dry weather conditions in April and the first two weeks of May slowed rust development. Without the dry period, stripe rust could have been much severe.

Since the last update, stripe rust has been reported in southern Idaho and northeastern Oregon (such as Hermiston)."



**Wisconsin:** Dr. Damon Smith (Ast Professor – Field Crops); Univ of Wisconsin; 20-May-2015: “Winter wheat plots were examined this week by my graduate student, Brian Mueller, near Sharon, WI (far southern Wisconsin). Flag leaves had recently emerged and wheat looked very good in this location. No rust or other diseases were observed in this part of the state. Further north, we examined winter wheat fields near Arlington, WI. No rust or other diseases were observed here either. Many varieties had fully emerged flag leaves and will soon be in the 'boot' stage. We will continue to scout wheat in these locations and farther north.

Additionally, Adrian Barta of the Wisconsin Department of Agriculture and Consumer Protection found Stem rust aecia developing on common barberry in south-central Wisconsin.

He visited 16 grain fields in the last week (13 wheat, two rye and one barley) in the same area of the state found no rust.”

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**Dr. Richard Grantham - Director, Plant Disease and Insect Diagnostic Laboratory**

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