



# Pest e-alerts



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Wheat Disease Update – 05 April 2017  
Bob Hunger, Extension Wheat Pathologist

Yesterday (04-April) wheat in my foliar fungicide trial at the Plant Pathology Farm located just west of Stillwater appeared to be at GS 10 to 10.1 (head in the boot to awns just emerging from the boot). The field was too wet to go out into, which seems to be the situation around much of the state (with more rain coming today and tonight). Leaf rust can be found, but I have not seen any stripe rust. Powdery mildew is heavy on lower leaves and spreading to mid-level leaves in wheat that has a heavy canopy. Dr. Misha Manuchehri (Ast Prof & Weed Scientist, OSU) reported finding some heavier leaf rust in her experimental plots at Perkins, OK (about 15 miles south of Stillwater), but no or little leaf rust in surrounding trials/fields (Figure 1A). Heath Sanders (Area Extn Agron Speclst, SW District) indicated to me on 04-Apr that wheat varied from boot to heads emerging across SW Oklahoma depending on planting date and management (primarily grazed or not grazed). He has seen some leaf rust on lower leaves, but what has caught his attention more is the level of powdery mildew on lower and mid-level leaves in some wheat fields (early planted and not grazed). This powdery mildew observation fits with what I have seen and with a photo received by Josh Bushong (Area Extn Agron Speclst, NW District) (Figure 1B). Dr. Stephen Marek and his student Salome Suarez took a trip last Thursday to SW OK on a tan spot scouting trip and found plenty of tan spot in no-till fields. He also found light leaf rust in some fields (Figure 1C), but again, no stripe rust. Aaron Henson (Extn Educator, Tillman County, southcentral OK) indicated quite a bit of the wheat in his area is headed and that he had seen some light leaf rust before the recent rains, but no stripe rust.

The take-home message from these reports is that with the recent and forecast rain, foliar diseases (especially leaf rust and powdery mildew) likely will be increasing over the next couple of weeks. Be prepared to apply a fungicide if necessary to protect a high yielding field, especially if that field is not highly resistant to leaf rust (and perhaps at least moderately resistant to powdery mildew). Although a few citings have been made, it does not appear that stripe rust will be much of a disease factor this year. Josh Bushong observed some active stripe rust in central OK near Hennessey (Kingfisher County; Fig 2A), and Dr. Manucherhi found some stripe rust in southwest OK near Altus (Jackson County) in the “telial” stage (Figure 2B).

The telial stage indicates that warm/hot temperature has caused the stripe rust fungus to go from the active state (Figure 2A) to a more dormant state (Figure 2B).

Figure 1. (A) Leaf rust pustules found on wheat in experimental trials near Stillwater, OK; (B) Severe powdery mildew as observed on lower and mid-level leaves in wheat in Custer County; (C) Scattered leaf rust pustules on a wheat leaf in southwestern Oklahoma.

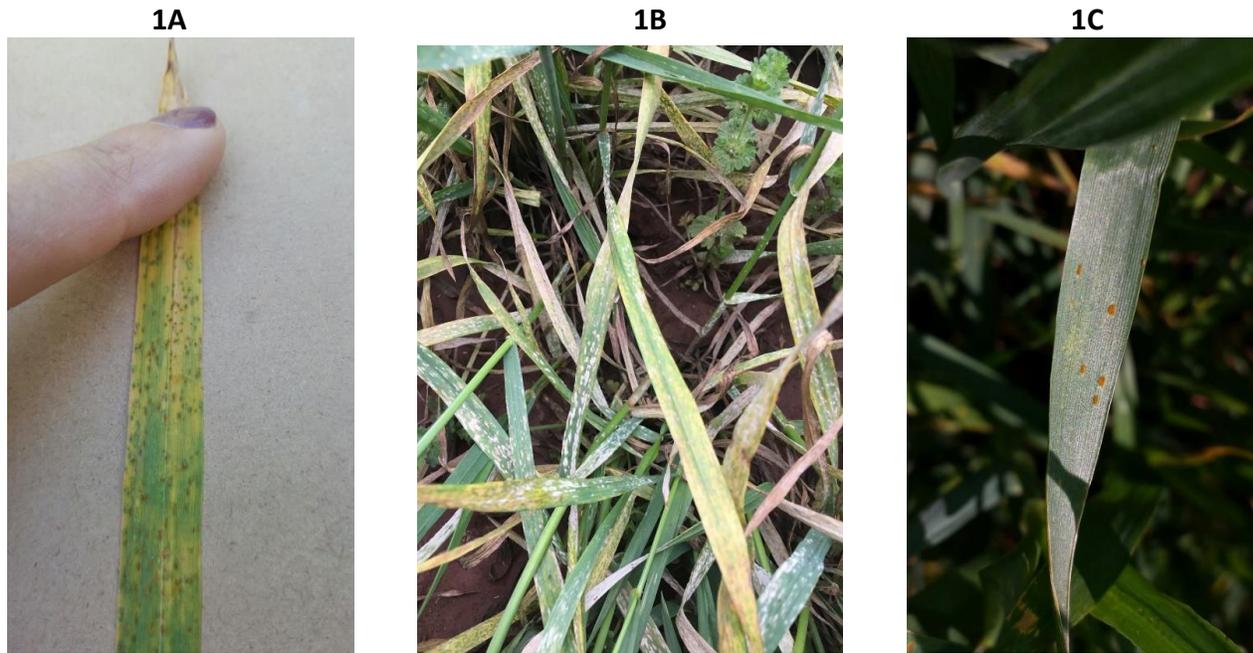
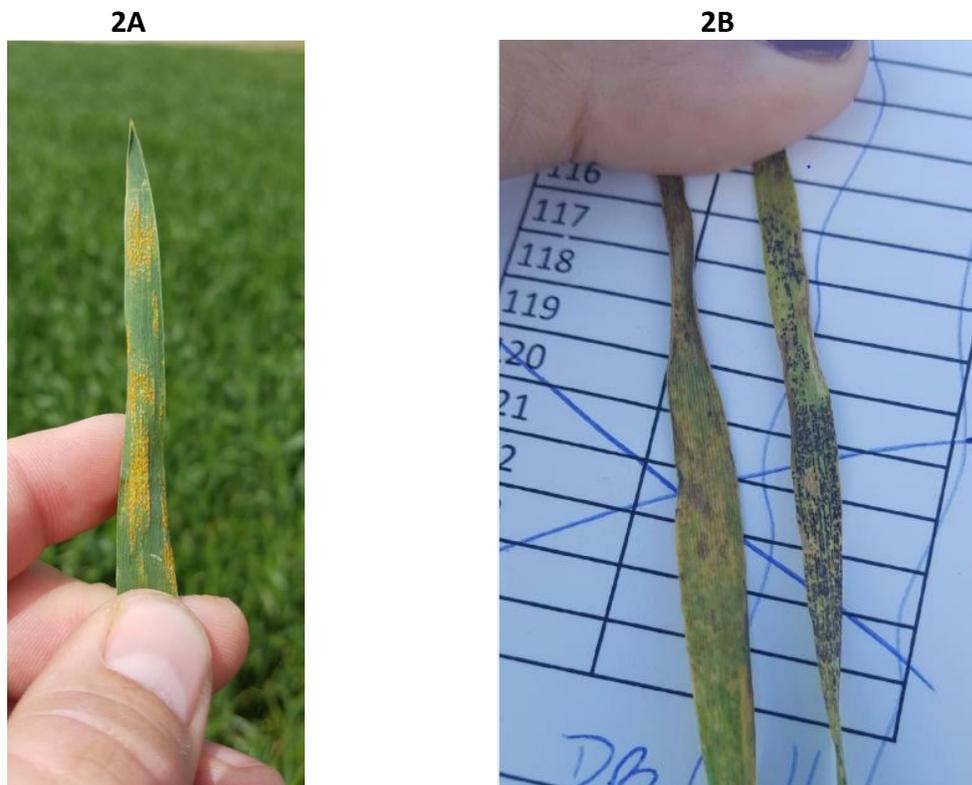


Figure 2. (A) Stripe rust active pustules found on wheat near Hennessey in central OK; (B) Stripe rust “dormant” pustules (telia) found in southwest OK.



I also should reiterate that the Plant Disease and Insect Diagnostic Lab has received quite a few wheat samples over the past two weeks that have tested positive for either wheat streak mosaic (WSM) and/or barley yellow dwarf. The number of positive samples for WSM especially has seemed somewhat high for this early in the spring. In talking to producers or educators that submitted these samples it seems as though they typically are associated with volunteer wheat not being controlled in the field, or in a neighboring field. For more information on mite-transmitted wheat viruses such as WSM, please see OSU Fact Sheet EPP-7328 (Wheat Streak Mosaic, High Plains Disease, and Triticum Mosaic: Three Virus Diseases of Wheat in Oklahoma) available at <http://pods.dasnr.okstate.edu/docushare/dsweb/HomePage>

**Reports/excerpts of reports from other states:**

Dr. Erick DeWolf, Extension Plant Pathologist, Kansas State University, April 4, 2017: “Stripe rust was reported in Southeast Kansas today (April 4th). This is the first report of stripe rust in Kansas for the 2017 growing season. The find was made by Josh Coltrain, KSU Agronomy Agent in the Wildcat Extension District. The stripe rust was found in Montgomery county that borders OK in the Southeast corner of the state. The wheat variety was “Everest” which is known to be susceptible to stripe rust. The crop was planted in September (early for this part of the state) and is now at the heading stages for growth. The weather conditions have been highly conducive for the disease in recent weeks and wheat growers in the state should intensify their scouting efforts. As of late-March, reports of pests and diseases included active brown wheat mites in many fields in Oklahoma as well as in some fields in southwest Kansas, symptoms of wheat streak mosaic in some counties in west central Kansas, barley yellow dwarf virus in central and south central Kansas, and tan spot in some fields in south central Kansas.”

Dr. Kirk Broders, Plant Pathologist, Department of Bioagricultural Sciences & Pest Management, Colorado State University, April 1, 2017: “This years first wheat disease newsletter is coming a later than last year for several reasons, but the primary one is wheat disease in Colorado have been sparse. I was able to visit several wheat fields in Colorado along I-70 as well as along Hwy 34 on March 29 and 31. The rains have provided much needed moisture to the crop and overall the wheat is looking good. However, with the rain and moisture also comes the increased likelihood of foliar diseases caused by fungi such as stripe rust, powdery mildew and tan spot. In regards to stripe rust, there is no evidence the fungus survived the winter in Colorado and there have been few reports from south of us. So far this season, there has been sporadic reports of stripe rust from Texas, Louisiana, Mississippi and most recently from Oklahoma and further east in North Carolina and Virginia. However, there does not seem to be significant levels of pathogen inoculum, which bodes well for us in Colorado as it should require more time for the pathogen to reach Colorado. That being said with cooler temperature and more moisture in the forecast for much of the Central Plains next week, these conditions could give stripe rust the jump start it needs. I will continue to keep you posted on the progress of stripe and leaf rust in the central plains. The other foliar fungal diseases commonly survive in wheat residue and crops planted into a previous wheat crop are at a greater risk for disease development if the weather stays wet and overcast. Given all these considerations, I do not recommend an early season fungicide application as there is simply very low fungal pathogen pressure. The only exception might be wheat planted into wheat. I recommend these fields be scouted over the next couple weeks, to see if any disease develops after these rain events.

The diseases I did notice sporadically throughout the eastern Colorado, were viral diseases. I found both Wheat Streak Mosaic Virus (WSMV) and Barley Yellow Dwarf Virus (BYDV) in several fields. The incidence was lower than what has been reported in central and

southwestern Kansas, where the disease seems to be particularly widespread. We may start seeing more symptoms of virus infection as the wheat breaks dormancy and starts growing more quickly. Many of these viral infection likely occurred last fall after the wheat germinated, and then we continued to have very mild temperatures until late November. This allowed the insects that vector both of these viruses to be more active in the fall for a longer period of time resulting in a greater number of infections in some areas. Once wheat is infected with either WSMV or BYDV there is no chemical treatment that can eliminate the pathogen. In fields where virus diseases are present it will be important to ensure volunteer wheat and weeds are managed, as these represent “green bridges” for the wheat curl mite, which vectors WSMV, to survive from one wheat crop to the next.”

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### **Plant Disease and Insect Diagnostic Laboratory**

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