

Wheat Disease Update – 20 March 2020
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It's been wet across most of Oklahoma except in the far northwest and panhandle. Overall the wheat crop is looking good, but foliar diseases appear to be building in southern Oklahoma and Texas. On 17-March, Dr. Amir Ibrahim (Regents Professor, Small Grains Breeder/Geneticist, Texas A&M University, College Station, TX), reported that he, “. . . visited the naturally inoculated Rust Evaluation Nursery at Castroville, TX on March 17, 2020. The nursery is about 196 miles from Texas A&M main campus in College Station. Wheat growth stages range from Feekes 6 (first node detectable at base of stem) to 10.5 (ears fully emerged but not yet flowering). Stripe rust does not seem to be active due to warming temperatures. Leaf rust is moving up the canopy of susceptible wheat (Figure 1).”

Figure 1. Leaf rust on the mid canopy of Jagalene hard red winter wheat at Castroville, TX (far southern Texas) on 17-March-2020. (photo credit: Dr. Amir Ibrahim, Texas A&M University)



Foliar disease incidence also is increasing in south-central OK as reported by Josh Anderson (Senior Research Associate, Noble Research Institute, Ardmore, OK), who indicated he was starting to see more diseases late last week (12-March; Figure 2)

Figure 2. Diseases and pests observed by Josh Anderson (Senior Research Associate, Noble Research Institute, Ardmore, OK). **Left photo** – Leaf rust on triticale. **Center photo** – Stripe rust on wheat. **Right photo** – Aphids (most likely bird cherry-oat) in lower canopy of wheat or triticale.



By contrast, Dr. Brett Carver (Wheat Breeder/Geneticist, Oklahoma State University) visited one of his trials near El Reno in central OK and found nothing but green, lush wheat – no diseases.

Around Stillwater, no leaf rust has been seen, but a very few leaves infected with stripe rust were observed on 6-Mar-2020 by Dr. Amanda de Oliveira Silva in her variety demonstration strips just west of campus (Figure 3). These are early-season infections of young wheat plants, and at this incidence do not indicate severe stripe rust is on the horizon. The stripe rust pathogen requires moisture and cool temperature to infect, produce spores and spread, and with this low in Oklahoma and apparently in Texas as well, it is unlikely that stripe rust will be a significant disease in Oklahoma this spring. Amanda also noted a few spots of powdery mildew in her variety demo. This disease is favored by high humidity and cool temperature, and could continue to spread with the type of weather we currently are experiencing. However, I have not had other reports of powdery mildew from across the state and have not seen it elsewhere around Stillwater.

Figure 3. Stripe rust as observed by Dr. Amanda de Oliveira Silva (Oklahoma State University) in the Stillwater variety demonstration strips on 6-Mar-2020.



Samples submitted to the Plant Disease and Insect Diagnostic Lab have increased as several samples were received this week for diagnosis. These samples represent a mixture of symptoms including those caused by abiotic (wet soil/cool temperature, nutrients, etc) and biotic (leaf spot diseases and possibly barley yellow dwarf) factors. To date, all these samples tested for viruses (*Wheat streak mosaic virus*, *High plains virus*, and *Barley yellow dwarf virus*) have tested negative. Other samples have leaf spots on the older/lower leaves, but I have not been able to isolate the fungi that cause tan spot or Septoria/Stagonospora leaf blight. Hence, I suspect that most of the spots on the lower/older leaves of these samples are the result of these leaves aging and dying and then being colonized by weakly pathogenic fungi such as *Alternaria*, *Bipolaris*, or maybe even *Ascochyta*. I'm sure tan spot and Septoria/Stagonospora are out there, but the field to look for these leaf spot diseases would be a no-till field with abundant wheat straw from the previous year.

So, in summary, it appears that foliar diseases including powdery mildew, leaf spot diseases (especially in no-till fields with wheat residue), and stripe rust are present in Oklahoma. Their increase during the coming weeks will depend on a favorable environment with mild temperature and moisture. Leaf rust has not yet been reported, but likely will make an appearance in the not-to-distant future as it is now beginning to be observed in south Texas.

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