

Wheat Disease Update – 9 May 2019

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This past week in addition to looking at wheat around Stillwater, Dr. Tom Royer (OSU Entomologist) and I were at field days on Monday (6-May) near Kildare in north-central OK (Kay County) followed by a stop at the Experiment Station near Lahoma (15 miles west of Enid) and another field day near Cherokee in Alfalfa County (north and west of Enid and about 20 miles south of KS). That was followed on Tuesday by a field day at Kingfisher (about 25 miles northwest of Oklahoma City) and field visits northwest of Kingfisher near Loyal. Across these areas wheat ranged from heading to full kernel formed (watery to start of milky). In southwestern OK, wheat ranges from $\frac{1}{4}$ kernel to milky whole kernels with the dough stages approaching quickly.

In southwestern OK, leaf rust, stripe rust and *Septoria tritici* blotch have become severe according to both Heath Sanders (SW OK Area Extn Agronomy Spclt) and Gary Strickland (Extn Educator; Jackson Cnty). Gary indicated that this is only the second time he has seen *Septoria tritici* blotch severe on flag leaves. Leaf rust also is severe as shown in the photo in Figure 1 from Don Atkinson (Wheat Squared; <https://www.wheatsquared.com/>). Both Heath and Gary also indicate they have started to see more powdery mildew in fields, but have found it severe on the mid and lower leaves in only one field.

Figure 1. Severe leaf rust on wheat in southwestern OK near Altus (Don Atkinson; <https://www.wheatsquared.com/>)



In north-central OK near Kildare, wheat was mostly clean with *Septoria tritici* blotch being the most noticeable disease on lower leaves. No significant stripe or leaf rust was observed, and powdery mildew could be found but was sparse. By contrast, wheat at Lahoma showed significant leaf and stripe rust with leaf rust being the most prevalent. However, whereas the rusts could be found in many of the wheat breeding nurseries, both rusts were lacking in the large variety trial with stripe rust being present at only a low severity. In some varieties and breeder lines, leaves were quickly deteriorating. At Cherokee, heavy rain on Sunday had saturated the area and more rain fell on Wednesday. Rust was light in the variety trial with stripe rust again being the most prevalent albeit again at a low incidence and severity. At Kingfisher on Tuesday, leaf rust (Figure 2) was the most prevalent foliar disease with *Septoria tritici* blotch also present on lower foliage. In a field near Loyal, OK, Dr. Royer found a high incidence of armyworms especially along the field's edge. As he moved into the field, the incidence of worms dropped, but he felt like a field such as this was approaching the spray threshold and should be watched closely to monitor if the spray threshold was reached. For more information on armyworms in wheat, including threshold numbers and control options, see [Pest eAlert Vol 18, No. 14, EPP-7094 "Common Small Grain Caterpillars in Oklahoma"](#) and [CR-7194, "Management of Insect and Mite Pests in Small Grains."](#)

Figure 2. Foliar diseases on wheat leaves at the Kingfisher variety trial on 5-7-2019. The leaf in the upper photo shows a susceptible reaction to leaf rust while the leaf in the lower photo shows leaf rust pustules as well as *Septoria tritici* blotch causing the irregularly shaped yellow and dead tissue lesions.



In addition to army worms, a physiological leaf spot (PLS) was observed on wheat leaves around Kingfisher and Loyal. As indicated in my last update (<http://entopl.okstate.edu/pddl/2019/PA%2018-16.pdf>), PLS has been observed in a number of fields across several varieties. There can be many causes of PLS, one of which is chloride deficiency. Chloride deficiency tends to be variety specific. Years ago in Oklahoma, the varieties 'Payne', 'Cimarron' and 'Century' all would show PLS due to chloride deficiency. Cimarron and Century both had Payne as a parent in their pedigree. Hence, although chloride deficiency can cause a PLS, there are other causes as well, and this year I believe that the PLS being observed is too widespread and across too many varieties to be attributed to only a deficiency of chloride. For more information on chloride and its role in PLS, see Kansas State University's recent extension publication MF 2570; Chloride in Kansas: Plant, Soil and Fertilizer Considerations (Dorivar A. Ruiz Diaz), which can be found at: <https://www.bookstore.ksre.ksu.edu/pubs/MF2570.pdf>

A report of increasing foliar disease also came in from Lanie Hale (Wheeler Brothers; west central OK) who reported,

"In my last report April 26, I told you I found 3 fields with rust. Those 3 fields were out of a total of 23 fields scouted. Those 3 fields have been sprayed. Yesterday, May 6th, I looked at the 20 fields where I found no rust April 25th. 11 of those 20 had stripe rust and/or leaf rust. Since the 30 day window is upon us, the farmers are spraying all 20 fields. In the fields I looked at yesterday, I would estimate 75-80% of the flag leaves had some kind of dis-coloring issue ranging from light flecking to stripe rust, leaf rust, Tan Spot, or Septoria tritici blotch. (1&2) I noticed many of the stems have dark spots below the flag leaf; (2) I'm assuming that is also Septoria tritici blotch. Several fields had small circular spots that appear to be Barley Yellow Dwarf Virus hot spots. (3) The head count in all the fields I've scouted,

regardless of the location, is tremendous. If we can maintain the flag leaf health we have today, yields and grain quality will also be tremendous.”

These and additional reporting by Josh Bushong (NW OK Area Extn Agronomy Spclt) all indicate that foliar wheat diseases, especially *Septoria tritici* blotch, leaf rust, and stripe rust are increasing greatly in incidence and severity across Oklahoma. With continued wet and cool weather, the incidence/severity of these diseases will continue to increase across northern OK and the OK panhandle. The spraying window across much of Oklahoma is now getting quite tight, and a producer needs to be certain to follow the fungicide label regarding when a fungicide can be applied in order to be in compliance with the label. For more information on applying fungicides and their relative effectiveness in managing foliar diseases, see OCES Current Report (CR-7668) that can be found at: <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-4987/CR-7668web2019.pdf>

Finally, in addition to the rusts, *Septoria tritici* blotch and powdery mildew, other diseases that have been observed include an occasional loose smutted head (Figure 3) as observed by Zack Meyer (Sales Agronomist with CHS) near Hennessey, OK. I also have seen an occasional head of loose smut this year in various fields. It merits to mention that if you see loose smut or common bunt in a field, do not save seed from that field for planting the next year as that will lead to increasing that smut or bunt. If that field is planted again in wheat, be sure to plant seed treat at a high rate with a fungicide effective against the bunts and smuts. Barley yellow dwarf also has been seen in various fields and trials around the state but is much less prevalent than typical as are the mite-transmitted viruses, especially wheat streak mosaic virus.

Figure 3. Loose smut (photo to the left) observed on a wheat head by Zack Meyer (Sales Agronomist with CHS) near Hennessey, OK. Common bunt (stinking smut) in the head of wheat (middle photo; Bill Bockus, KSU) and healthy and common-bunted wheat seed (photo to the right).



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