Pest e-alerts

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Wheat Disease Update

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Oklahoma: 28/29 Apr; Dr. Bob Hunger, Extension Wheat Pathologist, Oklahoma State University: Plots, trials and fields around Stillwater reveal wheat to be in early flowering to early berry formation. This was true of wheat I've visited over the last week from Stillwater down through central OK over to southwestern OK (Granite area). Wheat looked excellent between Stillwater to Granite. Prevalence and severity of stripe and leaf rust vary from location to location. For example, stripe rust in the mid/lower canopy in the variety demo at Stillwater is starting to become inactive and is being replaced by leaf rust on the mid/upper leaves. However, most flag leaves are still clean. In contrast, Dr. Brett Carver indicated to me yesterday that susceptible entries in breeder plots at Marshall (about 35 miles west of Stillwater) had a high incidence and severity of stripe rust. On my trip to Granite, OK (about 150 miles west and slightly south of OKC) on 27-28-Apr, I saw little stripe or leaf rust in the variety demo just west of Oklahoma City, but stripe rust was severe on Jagger and Jagalene at Granite and light to intermediate on other Jagger derivatives such as Overley, Fuller and OK Bullet. On other varieties such as Endurance, Duster, Fannin, and Doans, stripe rust was light. Leaf rust was sparse in the Granite area but appeared to be starting to replace the stripe rust. By contrast, Dr. David Worrall (Agripro wheat breeder, Vernon, TX) reported that stripe rust had defoliated Jagger, Jagalene and derivatives in the Vernon area, and that although it had taken about a week longer, stripe rust on many other varieties also was greatly increasing. My take on this is that although the stripe rust pathogen has adapted to the resistance in Jagger and Jagalene, there is some other resistance factor in related varieties that is delaying the development of stripe rust. Resistance in other varieties such as Endurance and Duster, which is not related to Jagger, is reacting similarly as we have seen in the past. Perhaps the level of protection provided by these and other varieties will lessen the affects of stripe rust as temperatures begin to warm and stripe rust is replaced by leaf rust to which many of the other varieties should be resistant. Finally, Roger Gribble (Area Extension Agronomist – northwestern OK) indicated to

me yesterday that across northwestern OK stripe rust is prevalent in Jagger/Jagalene/Fuller but sparse in other varieties.

The only other disease I've seen this past week with widespread incidence is barley yellow dwarf (BYD). Many fields show areas with flag leaf discoloration consistent with BYD. However, there usually was no or only little stunting associated with this discoloration indicating that infection most likely occurred in the spring rather than in the fall.

26-Apr; J. Terry Pitts, Area Extension Pest Management Specialist (southwestern OK): "Mark, Michael and I had our wheat plot visit yesterday. We saw high amounts of leaf rust with limited stripe rust. It would have been best to spray for leaf rust last week and stripe rust now. There is some septoria and evidence of past mildew on the leaves. We will be covering Jackson and Harmon Co this week. Mark indicated that Gary was seeing a lot of stripe rust in Jackson Co."

Arkansas: 27/28-Apr; Dr. Gene Milus, Wheat Pathologist, University of Arkansas: "Stripe rust is going strong now. We got about 2 inches of rain over the weekend after a long warm, windy spell. Night temps are in the low 40s, and there is heavy dew in the morning. Our biggest problem is still a shortage of wheat acres. We are supposed to have 200,000 acres, but no one I know has found all of these acres yet. The small acreage with mostly moderately resistant varieties will slow the stripe rust epidemic. Today (28-Apr) I surveyed plots and fields near Newport (80 miles north of Little Rock), Lonoke and Brinkley (east of Little Rock), and Stuttgart. This area is in the Delta and Grand Prairie regions of east-central Arkansas and major row crop areas. Most wheat has flowered. Diseases were almost nonexistant. Found 3 young stripe rust pustules near Newport, scattered BYD, and some Septoria and Stagonospora on the lowest leaves. The area is unusually dry for this time of year, and lack of moisture likely is the main reason for absence of diseases. Rain is expected Friday to Sunday.

STRIPE RUST ALERT! At least two new races of the stripe rust fungus appear to be in Arkansas and are causing severe stripe rust on several varieties that were resistant in previous years. One widespread race overcomes the resistance in Armor Renegade, but this race appears to be different from the race that overcomes the resistance in 26R87. This conclusion is based on observations in demo plots planted by Pioneer Hi-Bred International, Inc. and Lance Kirkpatrick, county agent in Logan County. In these plots, Renegade has severe stripe rust throughout the entire 1.2-acre strip, but 26R87 is clean except for one big hot spot of stripe rust that can be seen from the road. This hot spot was about 20 feet in diameter last week and appeared to be spreading quickly. Weather for the next few days will be favorable for stripe rust, and stripe rust likely will continue to spread quickly in fields of susceptible varieties.

Other diseases Barley yellow dwarf (BYD) appears to be widespread, but it is too early to estimate its impact on yield across the state. Plants with stiff, upright, yellow (or purple) leaves likely are affected by BYD. Plants with noticeable stunting likely will have a significant yield and test weight loss compared to nearby healthy plants. Nothing can be done about BYD now. Downy mildew is noticeable in wet spots with poor drainage. Look for stunted plants with yellowish, thick, leathery leaves. These plants either will develop no heads or twisted heads with no grain (crazy top). Nothing can be done about downy mildew now. Some leaf blotch and powdery mildew were observed, but these diseases do not appear serious at this time. No leaf rust or stem rust has been reported so far in Arkansas."

Kansas: 28-Apr; Dr. Erick DeWolf; State Extension Specialist, Kansas State University: "The wheat in south central and central Kansas is now moving through the boot and heading stages of development. North Central and Northwestern Kansas is at or near the flag leaf emergence stages of growth with some early fields likely in the boot stage of development. Stripe rust continues to be observed at low levels in south central, central and north central Kansas. A few reports also suggest that disease can also be found at low levels in parts of western Kansas. My observations this week suggest that the incidence of stripe rust is generally less than 5% with severity still near 1 – 5%. The disease has been observed in the mid-canopy with most infections occurring on the f-2 and f-1 leaves. Some research plots in south central Kansas now have small foci of severe infection or "hot-spots" suggesting that two or more cycles of infection have already occurred. These foci are generally 1-2 feet in diameter, but are likely to expand significantly during the next 2-3 weeks. Leaf rust has also been observed at low or moderate levels in central Kansas. The most recent observations came from Reno county where Bob Bowden, USDA-ARS reported low to moderate levels of leaf rust in the variety Fuller. The disease incidence on Fuller was >20% in the lower canopy; however, the severity was still low. The variety PostRock was also affected by leaf rust at this location. These reports indicate that races of leaf rust that can overcome the resistance genes in Fuller and PostRock are present in Kansas. These races have been present in the state before, but tended to arrive late in the season diminishing the potential for yield loss. The arrival prior to heading is cause for concern. No reports of stem rust to date in Kansas."

Nebraska: 28-Apr; Dr. Stephen Wegulo, Plant Pathologist, University of Nebraska: "On April 26, leaf rust was found in Nuckolls County in south Central Nebraska by grower Ken Herz at trace levels of incidence and severity. Nuckolls County is among the tier of counties that border Kansas. Wheat in this area is around the Feekes 7 to 8 growth stage. This is one of the earliest dates leaf rust has been found in Nebraska in recent years. We usually see it for the first time during the growing season around mid May. The weather has been conducive to the development of rust and other foliar

diseases of wheat. Given the unusually high levels of rust in the southern states and the recent reports of both leaf and stripe rusts in Kansas, it is not surprising that rust is showing up in Nebraska this early. I will provide a more detailed report after I tour fields later this week or early next week.

This afternoon (Thursday April 29) I confirmed stripe rust on a wheat sample from Johnson County in southeast Nebraska.

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