



Pest e-alerts



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Vol. 11, No. 17

<http://entopl.okstate.edu/Pddl/>

Apr 9, 2012

Wheat Disease Update

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Thursday and Friday (Apr 05-06) I visited variety trials/demos or fields at Kingfisher (50 miles west and 20 miles south of Stillwater), Minco (40 miles south of Kingfisher), Apache (25 miles north of Lawton), Lawton, Snyder (35 miles west of Lawton), multiple fields east and west of Frederick/Manitou area (20 miles south of Snyder), Altus, Granite (30 miles north of Altus), and multiple fields located 20 miles north of Clinton. Wheat was mostly in the heading to flowering range with the

exception of the fields north of Clinton, which were in the boot to just heading range (mostly later planted). Below are observations by disease.

Leaf rust was at a very low incidence along the entire route with only widely scattered pustules observed.

Barley yellow dwarf spots were seen occasionally at nearly every stop, but BYD was not as widespread or severe as I have seen it in trials here at Stillwater.

Powdery mildew was not found at any stop – I just realized that I really wasn't looking for PM, but if it had been heavy I can't imagine I would have missed it.

Stripe rust could be found at nearly every location as widely scattered short stripes. I found one large (5 ft X 10 ft) "hot spot" at Kingfisher, but didn't find any at Minco and very little north of Clinton. In most cases where stripe rust was found, sporulation also was found. However, in southwestern OK, it was apparent that in many of the stripes the pustules had "deactivated" or "shut off" due to the hot temperatures two weeks ago, but were starting to activate (sporulate) again since the start of the wet and cool weather this past week. At no location did I see heavy, widespread stripe rust. Mark Gregory (Southwest OK Area Extension Agronomist) visited most

of the southwestern fields with me and afterwards traveled east on highway 70. Mark reported some heavy stripe rust on flag leaves in a trial close to I-40 along with some leaf rust.

Tan spot (TS), Septoria leaf blotch (SLB), physiological leaf spot (PLS): Several fields I visited exhibited symptoms of TS, SLB and/or PLS. Most of these were no-till fields with varying amounts of residue present. In some fields, numerous pseudothecia (resting bodies) of the tan spot fungus were found on that straw residue (Fig 1). In others, few (if any) pseudothecia could be found. Symptoms on leaves were most severe in the lower canopy where large blotches of dead leaf tissue, yellowing, and some spotting were observed (Fig 2). In the upper canopy, smaller spots typical of tan spot could be observed (Fig 3), but also small, dark-black lesions with white centers (Fig 4) also could be found.



Fig 1. Resting bodies of the tan spot fungus on wheat straw.



Fig 2. Tan spot - Septoria on lower leaf.



Fig 3. Tan spot lesions on upper leaves. (Photo: Stephen Wegulo, Univ of Neb.)



Fig 4. Black lesions with white centers - not typical of tan spot or Septoria leaf blotch.

In some of these fields, I believe that TS and or SLB are occurring, but there also is a greater incidence this year of PLS, which we have seen in previous years. PLS is not well understood, and can range from the look of the flecking caused by the onset of rust pustules (Fig 5) to those as described in the previous paragraph. These types of PLS have been seen in isolated

incidence over the years, particularly in Duster and Doans. However, over this past trip I observed PLS also in Billings, Jackpot, Fuller, Endurance, and Gallagher. Unfortunately, I am not having much success in identifying common factors. For example, I did not see any PLS at Kingfisher, saw mild flecking (the pseudo-leaf rust flecking type) on Billings, Duster, and Jackpot at Minco, saw the “leaf rust-type” PLS on Duster at Apache, and then saw some severe fields with the tan spot/SLB/PLS combination in several fields in southwestern OK. However, not all fields of Duster or other varieties showed this PLS or had it severely. For example, a field of Duster near Granite was outstanding with no (or very little) appearance of TS, SLB, or PLS. Why the difference?



Fig 5. Physiological leaf spotting on wheat that mimics the onset of leaf rust infection.

Although I do not have a full explanation for these occurrences, there are a couple factors that need emphasis.

1. First, much of the PLS that appears as small chlorotic (yellowish) circles that is being attributed to on-coming leaf rust, is not accurate. The best example of this was at the Apache trial, where there was this type of flecking on Duster, but no leaf rust or leaf rust-like flecks on Jagger or other leaf rust susceptible varieties. If this was “on-coming leaf rust,” Jagger and other leaf rust susceptible varieties would show severe leaf rust and/or leaf rust type flecking. In these cases, if a fungicide is applied, it is not being applied to protect against immediately imminent leaf rust.
2. The more severe PLS that is TS/SLB-like is more severe in no-till fields with high residue. It can also be found in fields with less residue and even conventionally tilled fields, but seems to not be as severe in those fields.

3. The PLS that is TS/SLB-like also seems to be associated with lower fertility, although in some cases this was difficult to determine.

I collected foliar and soil samples from many of the fields I visited the last two days and will make isolations to help determine the involvement of the pathogens causing TS/SLB, and, to see if any anomalies in the soil nutrition, especially as related to pH, salinity, and micronutrients such as chloride, are associated with the PLS fields.

Other reports from SW Oklahoma: Gary Strickland (Jackson County Extension Educator) 01-Apr: "I visited over 40 fields on Thursday and Friday of last week on the west side of the county and found no rust (leaf or stripe). Found some powdery mildew but very low in the canopy, minor in frequency and pressure. However, I did see several fields with barley yellow dwarf symptoms now appearing. Frequency within the fields is low to moderate but again found it in several fields. So far the only rust I have found is on the station (both leaf and stripe) in the wheat demo plots and on one farmer's field in the north central part of the county. However I just found a few spots low on the plant."

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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Robert E. Whitson, Director of Oklahoma Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President, Dean, and Director of the Division of Agricultural Sciences and Natural.