

PLANT DISEASE AND INSECT ADVISORY



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Fusarium (Dryland) Root Rot Making Its Appearance in Oklahoma

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During this past week (April 5-7), at least six wheat samples were received that were nearly dead from Fusarium (dryland) root rot disease. These samples were from Canadian, Blaine, Washita, and Caddo counties, and represented many varieties.

In affected fields, there are some green tillers but many are turning yellow or are dead as can be seen in a photo taken by Roger Gribble (Figure 1). Here is what Roger had to say about these fields he has visited in Blaine County:

“I took some samples to Dr. Hunger on Thursday from Blaine County. The areas looked like greenbug spots and were increasing in size. No greenbugs were found. Extreme loss of tillers was seen and more tillers were showing yellowness and dryness. After looking at this field on Thursday morning, the more wheat I looked at, the greater number of the fields that were showing similar symptoms.”

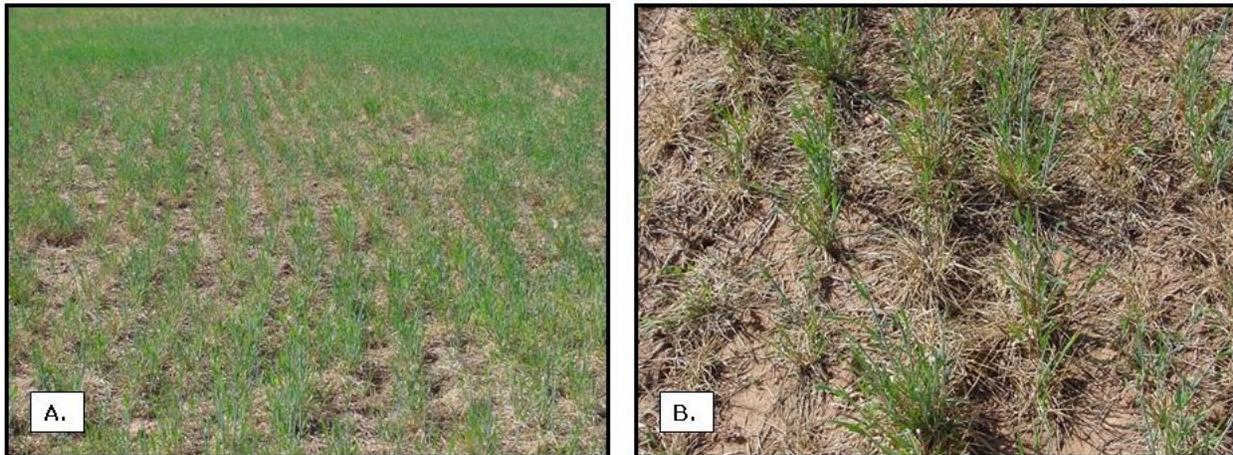


Figure 1. Views of a field in Blaine County with Fusarium (dryland) root rot. Note the thinness of stand in 1A. and the large amount of dead tillers and dead tissue at the base of the plants in 1B.

Examination of plants in the lab revealed a white hyphal growth and a reddish/purplish color in the dead leaf and tiller tissue around the crowns (Figure 2). Peeling back the leaf sheaths often revealed a reddish/purplish color. If the tiller was still alive and leaf sheaths were peeled back, the inner most stem tissue appeared partially white to cream colored, but also had some brownish discoloration and lesions present (Figure 3).



Figure 2. Wheat tillers killed by the fungus *Fusarium* (dryland root rot). Note the reddish/purplish color present on dead tissue that is consistent with the presence of *Fusarium*.

These symptoms are characteristic of the fungus *Fusarium*, which causes Fusarium root rot (also called dryland root rot). It is possible that other root rot fungi (for example, *Bipolaris* the cause of common root rot) also are present, but *Fusarium* is the most obvious. Usually root rot symptoms are not so strikingly obvious until wheat is headed. At heading, if there is drought stress on the wheat, the heads will turn white and either be sterile or have shriveled grain. This results from the plant not being able to transport water to the head because the water

movement system in the plant has been impaired or destroyed by the root rot infection in the lower part of the tillers or in the crown.

The root rot caused by *Fusarium* is favored by warm and dry conditions, which Oklahoma certainly had last fall and winter. Hence, an early planting date last fall coupled with the warm and dry weather this winter were ideal for *Fusarium* to invade wheat plants and cause this root rot. There's nothing that can be done at this point if you have a field showing a high incidence of these symptoms other than to graze-out the field. Again, here are a few additional comments from Roger:



“If producers visit with you about these fields, they need to have their crop insurance adjusters out as soon as possible. There won't be enough tillers to make hay and harvest will be out of the question due to loss of tillers. My best guess would be to graze those areas that are infested with the root rots.”

Figure 3. Individual wheat tiller that is still partially alive, but is infected with the fungus *Fusarium*. Note the brownish discoloration of the tiller and the reddish/purplish color present.

Update on wheat foliar diseases: Rust (both leaf and stripe rust) continue to be at extremely low levels in Oklahoma. As far as I know, stripe rust has yet to be found, and I've only heard of two reports of someone seeing a few leaf rust pustules.

Powdery mildew (PM) continues to be observed on mid to lower leaves, but around Stillwater I have not seen it on flag or F-1 leaves.

Here is a recent update from Arkansas (04/06/06; Sam Markell, Plant Pathology, University of Arkansas): Stripe rust has increased in the last week in Arkansas with reports of the disease in Southwest Arkansas (Lafayette County), East Central Arkansas (Arkansas County), and Northeast Arkansas (Lawrence County). While weather conditions do not strongly favor severe stripe rust, it is reasonably active at the present time. The site in Lawrence County suggests that stripe rust is occurring in more locations and further north than originally thought in Arkansas.

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