

# PLANT DISEASE AND INSECT ADVISORY



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## Wheat Disease Update Bob Hunger, Extension Plant Pathologist

### **Virus diseases:**

The primary virus disease currently showing-up across Oklahoma is caused by the **barley yellow dwarf virus (BYDV)**. In fields and plots where I have seen BYDV, the plants are showing the characteristic changes in color (yellowing or purpling or death from the leaf tips down to the base of the leaves) (see **Figure 1**). However, the plants are usually only slightly stunted. Hence, although there will be some yield reductions due to the aphid:BYDV complex, they won't be as severe as when widespread infections occur early in the fall.



Figure 1. Field and leaf views of **barley yellow dwarf virus** symptoms.

The other virus that has been found frequently this past month is **wheat streak mosaic virus (WSMV)**. For a complete description of WSMV, see the April 20, 2004 Disease & Insect Advisory (vol. 3, no. 7) at: <http://entopl.okstate.edu/Pddl/2004/PDIA3-7.pdf>.

Over the last couple of weeks we have received a few samples that exhibited symptoms similar to WSMV, but tested negative for this virus. These plants may have been infected with another virus called the **High Plains Virus (HPV)**. HPV also is transmitted by wheat curl mites, and hence, the pattern of infection of HPV in a field is quite similar to WSMV. Symptoms of HPV on wheat also are somewhat similar to those produced by WSMV, but instead of the streaking and “green islands” commonly seen with WSMV (**Figure 2**), symptoms caused by HPV tend to be more of a generally yellowing of the wheat (see **Figure 3**). HPV is a disease more commonly associated with corn (see **Figure 4**) than with wheat, but we have found HPV in wheat in Oklahoma in the past, and recently Dr. Charlie Rush (Wheat

Pathologist for Texas A&M University at Bushland, TX) indicated to me that he had found both WSMV and HPV in many Texas wheat fields. Watch for further updates as I get more information on the status of HPV in Oklahoma & Texas over the next week or two.



Figure 2. Symptoms of **wheat streak mosaic virus** on wheat.



Figure 3. Symptoms of **high plains virus on wheat** (photo courtesy of Dr. Stan Jensen, University of Nebraska).



Figure 4. Symptoms of **high plains virus on corn** (photos courtesy of Dr. Stan Jensen, University of Nebraska).





**Leaf rust:**

**In Oklahoma**, the incidence and severity of leaf rust is increasing. I have seen intermediate levels of leaf rust on flag and F-1 leaves in plots around Stillwater and Perkins. In a few fields or plots, I've seen severities as high as 70-90S. Given our weather for the last week and in the forecast for the next 3-5 days, I would expect even more leaf rust to appear.

**In Texas**, Dr. Art Klatt (OSU wheat breeder) reported severe leaf rust in breeder plots located near Castroville, TX (southern TX). Listed below are his severity ratings for several varieties.

Jagalene – 80S  
Overley – 100S

Trego – 80S  
Intrada – 100S

Cutter – 20MS to 80S  
Ogallala – 10MR-MS

Hence, it appears there is plenty of leaf rust in Texas to serve as inoculum for wheat in Oklahoma, Kansas and further north.

**In Kansas**, Dr. Jim Stack (Wheat Extension Pathologist at KSU) issued a report on April 23 of light leaf rust being observed.

**Stripe rust:**

**In Oklahoma** – very little observed – stripe rust should not be of major concern this year in Oklahoma.

**In Texas** – Much less of a concern than in 2003.



**Powdery mildew:**

Powdery mildew (PM) continues to be severe on susceptible varieties in Oklahoma. I have had a few reports of PM being observed on heads and awns. Major yield reductions from PM in Oklahoma have not been documented over the years unless PM is severe on the flag leaves, and even in those few instances where PM occurred on the flag leaves and heads, yield decreases were not statistically significant. Hence, applying a fungicide with the sole purpose of controlling PM should be carefully considered before being implemented. Also remember that the latest any fungicide can be applied in Oklahoma is at growth stage 10.5, which is when heads are fully emerged (i.e., before flowering). Much of the wheat in Oklahoma is past this stage.

**Tan spot/Septoria:**

I have not heard or seen of any significant reports of either tan spot or septoria for several weeks now. However, if wet & cool weather continues, the incidence of these two diseases could increase.



### **Root rots:**

Root rots have been found in several wheat samples submitted to the Diagnostic Lab. In none of these cases were the root rots the primary cause of the symptoms, but their presence indicates that there may be some sterile white-heads showing up as the season progresses. For example, **dryland root rot** (see **Figure 5**) caused by the fungus *Fusarium* was isolated from a sample from southwestern OK, and **strawbreaker** (also called **footrot** or **eyespot** – see **Figure 6**) caused by the fungus *Tapesia* (formerly called *Pseudocercospora*) was isolated from several samples collected in northern Oklahoma (Cherokee area).



Figure 5. Symptoms of **dryland root rot** on base of wheat stem.



Figure 6. Lodging due to **strawbreaker (eyespot or footrot)** of wheat and associated lesions on stem bases.

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