



Pest e-alerts



Entomology and Plant Pathology, Oklahoma State University
127 Noble Research Center, Stillwater, OK 74078
405.744.5527

Vol. 16, No. 16

<http://entopl.okstate.edu/pddl/pdidl>

4/14/2017

Wheat Disease Update – 13 April 2017
Bob Hunger, Extension Wheat Pathologist

As expected, over the last week the disease situation has change significantly. Wheat around Stillwater is mostly nearing complete heading to starting of flowering (Feekes' GS 10.1 to 10.5.1). In Jackson County (far southwestern Oklahoma), Gary Strickland (Extn Educator; Jackson County) indicated he has seen wheat as far along as ¼ berry, but most of the wheat is in flowering. Across southwestern Oklahoma, Heath Sanders (Area Extn Agron Speclst, SW District) indicated wheat he has seen mostly is in the flowering stage. Wheat at the Lahoma Station (15 miles west of Enid) was mostly between heads emerging to 3/4ths emerged, and according to Greg Highfill (Extn Educator; Woods County) wheat in the Alva area (northwest OK) was mostly just emerging from the boot as of last Tuesday (11-Apr).

Around Stillwater, powdery mildew (PM) is the primary foliar disease, but it is staying low in the canopy. A sparse scattering of stripe rust can be found, but it is extremely sparse. Leaf rust also is sparse, but is at a higher level than stripe rust. Barley yellow dwarf (BYD) symptoms are common, but it seems to me there seems is more yellowing than can be totally attributed to BYD (but I'm not sure of the cause).

Gary Strickland indicated that leaf rust is predominate in **southwestern OK**, but that stripe rust also can be found. He also is seeing widespread BYD symptoms and higher levels of tan spot (in no-till fields) up higher on the canopy than he has observed in previous years. Southwestern OK has received more moisture over a longer period of time than the rest of Oklahoma, which explains the higher incidence of foliar diseases. Gary did not see many aphids over the fall and winter, and so like me, he is surprised at the amount of BYD symptoms. Heath Sanders indicated he has seen a lot of powdery mildew but again, so far restricted to the lower canopy. He does feel that the PM has resulted in thinner wheat in some fields due to secondary tiller death/sloughing, which PM can do. He also indicated as did Dr. Brett Carver (OSU Wheat Breeder) that wheat at the Chickasha Station (about 50 miles southwest of OKC – **central OK**) is showing severe levels of leaf rust and (especially) stripe rust (Figure 1). In more **northwestern/north-central OK**, only light levels of stripe and leaf rust were observed at the Lahoma Station, and Greg Highfill indicated that the variety trial near Alva, OK was "clean." He did indicated that west of Alva he had received reports of light levels of stripe rust.

The other disease that is definitely making a presence this year is wheat streak mosaic (WSM). So far the lab has received 16 samples that have tested positive for *Wheat streak mosaic virus* (Figure 2). These samples have primarily come from central and west-central Oklahoma, and typically have been associated with lack of controlling volunteer wheat in the field itself or in an adjacent field. Controlling volunteer wheat prior to the emergence of seedling wheat in the fall is critical to limiting WSM. Once infection occurs, especially if it is a fall infection, wheat likely will be damaged in the spring (Table 1). For more information on mite-transmitted wheat viruses such as WSM, please see OSU Fact Sheet EPP-7328 (Wheat Streak Mosaic, High Plains Disease, and Triticum Mosaic: Three Virus Diseases of Wheat in Oklahoma) available at <http://pods.dasnr.okstate.edu/docushare/dsweb/HomePage>

Figure 1. Stripe rust and leaf rust on wheat in experimental trials at the Experiment Station at Chickasha, OK (photo courtesy of Dr. Brett Carver).



Figure 2. A commercial field of wheat showing severe WSM symptoms (A), a close-up view of WSM on an individual leaf (B), and a photo of the field immediately adjacent to the commercial wheat field in which abundant volunteer wheat had not been controlled until spring (C).

(A)



(B)



(C)



Table 1. Effect of time of infection by *Wheat streak mosaic virus* on the severity of wheat streak mosaic (WSM) and yield of three wheat varieties. [Taken from Hunger, et al. 1992. Effect of planting date and inoculation date on severity of wheat streak mosaic in hard red winter wheat cultivars. Plant Disease 76:1056-1060.]

<u>Wheat variety & time of infection</u>	<u>WSM severity (0-3)^A</u>	<u>Yield (bu/acre)^B</u>
Chisholm – fall infected	2.7	19*
Chisholm – spring infected	1.3	42*
<u>Chisholm – not infected</u>	<u>0.0</u>	<u>51</u>
Tam 108 – fall infected	1.7	25*
Tam 108 - spring infected	0.7	48*
<u>Tam 108 – not infected</u>	<u>0.0</u>	<u>63</u>
Siouxland – fall infected	3.0	14*
Siouxland – spring infected	1.0	40*
<u>Siouxland – not infected</u>	<u>0.0</u>	<u>41</u>

^A Severity rated on a scale of where 0=no symptoms, 3=severe symptoms of WSM.
^B Values followed by an asterisk differ significantly from the “not-infected” treatment.

Reports/excerpts of reports from other states:

Dr. Erick DeWolf, Extension Plant Pathologist, Kansas State University, April 4, 2017: “The Kansas wheat crop is currently at the boot and heading stages of development in the Southeast corner of the state. The Central and Western regions of the state are between jointing and flag leaf emergence.

Stripe rust was found in more fields this week with multiple reports in Southeast and South Central regions of the state. Most reports have come from the southern tier of counties bordering Oklahoma (see that attached map). The disease was present in a lower and middle canopy; however, a few fields had infections of stripe rust on the leaf just below the flag leaf (F-1). The disease was found primarily on the cultivar “Everest” which is known to be susceptible to stripe rust in previous years. Weather conditions the past two weeks was very conducive for further spread of stripe rust with cool temperatures and frequent rainfall. Therefore, additional finds of the disease are very likely. The severity of the disease and risk of yield loss will be influenced by weather conditions over the next month. Continued cool, wet weather will increase the risk of a severe problem with stripe rust in Kansas. However, multiple days with high temperatures above 80 F, particularly with night time temperatures above 60 F, could slow the development of the disease. Leaf rust was also reported this week south central Kansas. The disease was at low levels but it is significant to leaf rust prior to heading in this region of the state. Many popular varieties are susceptible to leaf rust including WB4458, T158, TAM111, TAM112, and Winterhawk. Growers should not overlook the potential threat of leaf rust in their fields.”

Plant Disease and Insect Diagnostic Laboratory

The pesticide information presented in this publication was current with federal and state regulations at the time of printing. The user is responsible for determining that the intended use is consistent with the label of the product being used. Use pesticides safely. Read and follow label directions. The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

Oklahoma State University, in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, and Title IX of the Education Amendments of 1972 (Higher Education Act), the Americans with Disabilities Act of 1990, and other federal and state laws and regulations, does not discriminate on the basis of race, color, national origin, genetic information, sex, age, sexual orientation, gender identity, religion, disability, or status as a veteran, in any of its policies, practices or procedures. This provision includes, but is not limited to admissions, employment, financial aid, and educational services. The Director of Equal Opportunity, 408 Whitehurst, OSU, Stillwater, OK 74078-1035; Phone 405-744-5371; email: eeo@okstate.edu has been designated to handle inquiries regarding non-discrimination policies; Director of Equal Opportunity. Any person (student, faculty, or staff) who believes that discriminatory practices have been engaged in based on gender may discuss his or her concerns and file informal or formal complaints of possible violations of Title IX with OSU’s Title IX Coordinator 405-744-9154.

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