



First Hollow Stem Update

By Dr. Jeff Edwards, OSU Small Grains Extension Specialist.

Warm weather since our last newsletter has fueled wheat growth and development. Hollow stem measurements taken on February 21 at Stillwater, OK show that, at this location, many of the most popular wheat varieties in Oklahoma are at first hollow stem (Table 1). As stated in the last newsletter, wheat at this location was planted early with high N application rates and is probably as advanced as any wheat in the state.

Brad Tipton, Canadian county ag. educator, measured hollow stem at our El Reno, OK variety trials this week. Wheat at this location is not as developmentally advanced as at the Stillwater location, and only two varieties are at first hollow stem (Table 1). This location was planted on September 20 but due to deep planting and high-temperature germination sensitivity, most varieties did not emerge until around October 1.

Gary Strickland, Jackson county ag educator, reported no varieties at first hollow stem at our Olustee variety trial last week. This is quite a contrast to our Stillwater data; however, the Olustee trial was sown on October 15, 2004 and had 143 lb/ac of NO₃-N at planting. So, the differences between sites highlights the influence planting date and local environmental conditions can have on development of first hollow stem.

Differences among locations emphasize the fact that it is important to scout your own fields for first hollow stem and make decisions based upon your findings.

Table 1. Average hollow stem measurements taken at Stillwater, OK on February 15 and 21 and El Reno, OK on February 22, 2005.

Variety	Stillwater		El Reno
	Feb. 15	Feb 21	Feb 22
----cm of hollow stem [†] ----			
2137	0.6	0.8	0.1
2145	1.2	1.7 [‡]	0.8
2174	0.5	0.7	0.1
AP502CL	0.7	1.8	0.3
Avalanche	0.9	1.7	n/a [§]
Custer	1.2	1.9	0.6
Cutter [‡]	2.2	- [¶]	1.9
Deliver	0.7	1.6	0.2
Endurance	0.7	1.1	0.1
Fannin	1.9	-	2.7
Ike	0.2	0.3	n/a
Intrada	1.8	-	n/a
Jagalene	1.4	1.7	0.8
Jagger	1.5	-	1.0
Lakin	0.3	0.5	n/a
Ok101	1.0	1.6	0.2
Ok102	0.5	0.6	0.1
Overley	2.3	-	0.8
Stanton	0.6	0.8	n/a
Sturdy2K	0.1	0.5	0.1
TAM110	1.1	1.8	n/a
TAM111	0.5	0.7	n/a
Thunderbolt	0.6	1.5	0.5
Trego	0.6	0.7	n/a

[†] Varieties are considered to be at the First Hollow Stem stage of growth once 1.5 cm of hollow stem is observed. Research has shown this is the optimal timing for removal of cattle from wheat pasture.

[‡] Varieties at or past First Hollow Stem are shaded.

[§] Variety not grown at this location

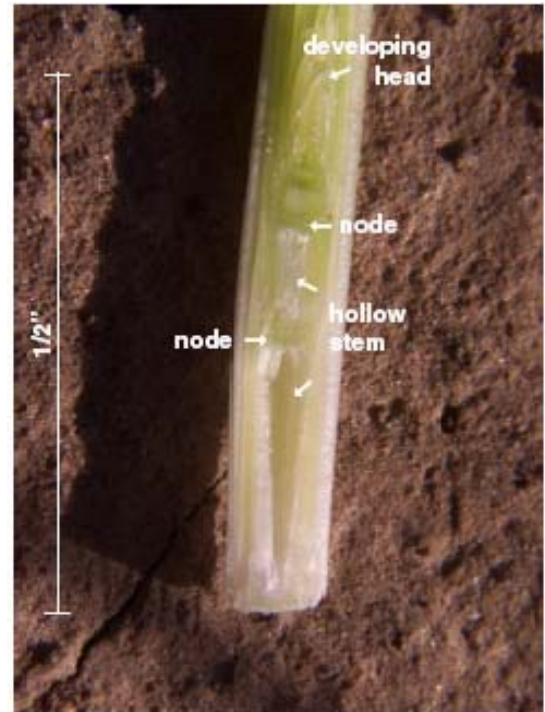
[¶] Once a variety has 1.5 cm of hollow stem, measurements are no longer taken.

So is first hollow stem 1.5 cm or ¼ inch?

By Dr. Jeff Edwards, OSU Small Grains Extension Specialist

There has been some discussion concerning exactly when first hollow stem occurs. Well, according to published literature, first hollow stem occurs when there is ¼ to ¾ of an inch of hollow stem below the growing point. In our research at OSU we split the middle and consider a variety to be at first hollow stem when 1.5 cm (approx. ½ - 5/8 inch) of hollow stem is visible below the growing point.

However, this is a case where practicality must take precedence over scientific exactness. That is, when 1.5 cm of hollow stem is visible you are at the critical stage and cattle should be removed immediately. Now, those of you familiar with the stocker cattle enterprise realize that cattle generally cannot be removed immediately. For this reason, you have often heard your extension educator state that first hollow stem occurs at ¼ inch of hollow stem below the growing point, and I agree. As demonstrated by Stillwater data listed in Table 1, hollow stem can progress very rapidly under favorable growing conditions; therefore, if you use the ¼ inch (approx. 1 cm) threshold it will buy you a couple of days buffer that is required to find a home for cattle currently on wheat pasture.



First hollow stem stage of growth.

Oklahoma Wheat Disease Update

By Dr. Bob Hunger, OSU Extension Wheat Pathologist

The following is a brief summary from observations I made in plots west of Stillwater on 16 Feb 2005 and that I have heard from producers and/or colleagues in other states during the last 6-8 weeks. For a more detailed version of this update including photographs and disease descriptions, go to the Entomology and Plant Pathology Disease and Insect Advisory. This electronic publication is available within 1-2 days after the distribution of the shortened version below and can be found at:

<http://www.entopl.okstate.edu/Pddl/advisory.htm>

Wheat Soilborne Mosaic Virus (WSBMV) & Wheat Spindle Streak Mosaic Virus (WSSMV):

Symptoms of the WSBMV and WSSMV are now quite obvious in my soilborne/spindle streak nursery just west of Stillwater, and in Dr. Jeff Edward's variety-demo plot (also on the west side of Stillwater). Hence, I'm sure that symptoms of these viruses are also appearing in fields in Oklahoma where a susceptible variety is planted. These symptoms should become even stronger and more apparent as the wheat begins its flush of spring growth because plants of susceptible varieties will remain stunted and yellow while plants of resistant varieties will grow quickly and be deep green in color.

Remember that WSBMV and WSSMV are two different viruses that are both transmitted by a soilborne fungus called *Polymyxa graminis*. Seedlings typically are infected by the fungus in the fall during wet and cool weather, with the virus being brought into the seedling by the fungus. During the fall, winter, and early spring the virus replicates and spreads through the plant with symptoms becoming apparent in late February and March.

WSBMV is the more prevalent of these two viruses in Oklahoma. Symptoms of WSBMV include stunted and yellow-looking (chlorotic) plants that upon close examination reveal a mosaic-type pattern in the leaves. Symptoms of WSSMV are much the same except that upon close examination of foliage a pattern of chlorotic "spindles" can be observed. The temperature range that favors expression of

WSSMV (46-54 F) is lower than that of WSBMV (50-68 F), so symptoms of WSSMV usually are observed earlier than those of WSBMV. These two viruses can co-infect plants, so although symptoms are diagnostic, they can be confounded. There are many varieties resistant to WSBMV and WSSMV, so significant losses from these two virus diseases can be avoided.

For the reaction of specific varieties to these viruses and other diseases, please go to:

<http://www.wit.okstate.edu/varietyinfo/april2004wvcc.html>



Wheat Soilborne Mosaic Virus

Wheat leaf rust: I have observed sporulating pustules of leaf rust on many of the varieties in Dr. Edward's variety-demo plot during both January and February.

Hence, I think it is safe to say that leaf rust survived the winter in much of Oklahoma. I have only seen these pustules on the lower (older) leaves of susceptible varieties that had a lot of growth and hence were well protected. In later planted plots where the plants were smaller and there was not a heavy and thick canopy, I did not find any leaf rust.

In contrast, Rex Harrington (Research Associate in Soil & Crop Sciences at Texas A&M University) found abundant leaf and stripe rust in plots located in south-central Texas near College Station on February 10. In a more recent update (February 16), Rex

reported finding abundant leaf rust in nurseries near Luling, TX (approx 70 miles east of San Antonio) but light and scattered leaf rust in nurseries near Castroville, TX (west of San Antonio). By comparison, Rex did not find any stripe rust near Luling, but saw many leaves with stripe rust near Castroville. He also received a wheat sample with stripe rust pustules that came from near McGregor, TX (west of Waco).

Reports from Dr. Stephen Harrison (Agronomy Dept. at Louisiana State University) during January and February have indicated that both wheat leaf rust and wheat stripe rust are quite active around Baton Rouge.

Powdery mildew: In addition to the leaf rust I found in the variety-demo near Stillwater, I also found a few pustules of powdery mildew on the lower (and hence older) leaves of susceptible varieties. These were old looking lesions and were quite sparse. Hence, I would suspect that powdery mildew also survived the winter, and may become more prevalent with the coming temperatures increases and spring moisture.

Upcoming events

Demonstrations of hand-held sensor based nitrogen recommendations will be conducted at various locations in southwest Oklahoma over the coming weeks. Locations and times are as follows:

Thursday, February 24: Hinton - 10 am
El Reno (Banner Rd.) - 1 pm
Minco - 3 pm

Wednesday, March 2: Mangum – 9 am
Hammon – 12:30 pm
Custer City – 3 pm

Friday, March 4: Grandfield - 10 am
Chattanooga - 11:30 am
Elgin – 2 pm

Tuesday, March 8: Waurika – 11 am

Contact your county agent for more information on exact locations and times.

May 20, 2005 – Lahoma field day, Lahoma Research Station

Special thanks to contributors

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