Wheat Production Newsletter

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Early heading and late freeze

By Jeff Edwards

The recent hot, dry conditions pushed the Oklahoma wheat crop (or what is left of the Oklahoma wheat crop) further along towards maturity. In most areas of the state we are at least two weeks ahead of normal in terms of heading date and wheat maturity.

As a consequence, the recent cold snap in the Panhandle may prove more damaging than what would typically be expected at this time of year. According to Mesonet data, temperatures dipped into the mid-to-upper 20's on April 26 and stayed below freezing for up to 5 hours (see figure below).

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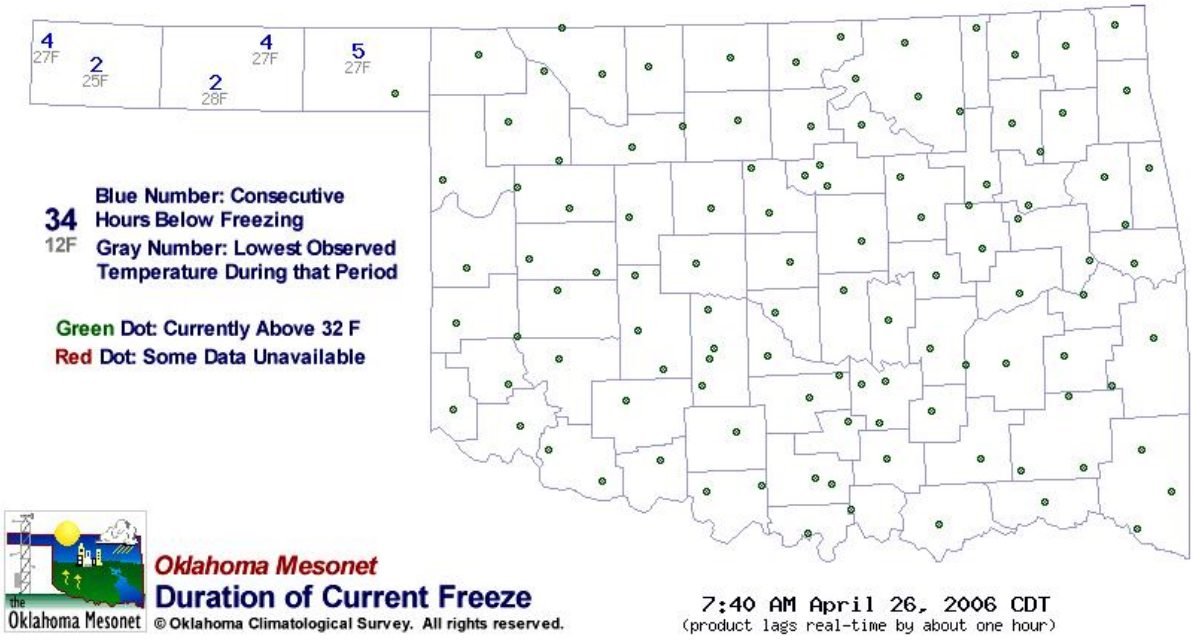
Whether or not this will result in actually freeze injury is yet to be seen. Wheat is most susceptible to freeze injury during heading and flowering. If we have suffered freeze damage, symptoms will likely include sterility and/or void or partially filled spikes. As mentioned in a previous newsletter, I feel the gold standard in extension publications on freeze injury is *Spring Freeze Injury to Kansas Wheat*. It can be found at http://www.oznet.ksu.edu/library/crpsl2/C646.pdf .



Harvesting tips for short, thin wheat

By Randy Taylor
Extension Engineer, Machinery Systems

Some wheat in the state will be shorter and thinner than usual resulting in difficult harvest conditions. As with any harvest, there is no substitute for preparation. Have the combine ready to harvest when the wheat is ready. A thin crop means that gathering will be difficult. A shorter crop means the header will need to be operated closer to the ground. Both of these items will create challenges, but some minor adjustments can improve harvest efficiency in these challenging conditions.

Adjustment Tips for an Efficient Harvest:

1. **Cutter Bar Angle.** Tilt the cutter bar or header up so that the skid plates are exposed and the header can be operated closer to the ground without gathering dirt into the header. For common combinations of feeder house length and tire size, the best adjustment is often near the upper end of its range. Tilting the cutter bar up too far will not allow the cutter bar to cut low enough.
2. **Accumulators.** Check the gas charge of the header accumulator. A properly charged accumulator allows more effective use of the header skid plates when harvesting short crops. Conversely, a flat accumulator will result in high forces on the feeder house and header pivot areas.
3. **Header Lateral Leveling.** Level the header from side to side before harvest. Check tire inflation pressure before leveling.
4. **Reel Speed and Position.** High reel speeds will shatter grain while slow reel speeds will cause poor feeding. Operate the reel at a speed that is fast enough and a height that is low enough that the crop gently moves onto the cutter bar. Reel speed should be slightly faster than ground speed. In short crops, moving the reel down and forward will help move the crop across the cutter bar. Be careful not to move it to far forward or the crop will feed in bunches. Make sure the reel is level relative to the cutter bar.
5. **Pickup Reel Adjustment.** Tine pitch should be adjusted to hold the crop against the cutter bar then sweep it into the cross auger. In extreme short, thin wheat, it may be necessary to cover tines with plywood or other material to make a solid bat.
6. **Cutter Bar Fore/Aft Position.** Some headers have two or more positions for the cutter bar. If this is the case, the forward position allows the reel to be operated lower so that it can sweep the cutter bar without contacting the cross auger.
7. **Knife Condition.** Thin crops require a clean cut for best feeding so pay attention to knives and cutter bar condition. Make sure knife hold downs are adjusted properly and all knife sections are sharp and not broken. Make sure that you have spare knife sections available in the field.
8. **Finger Timing.** The amount of extension on the fingers in the center of the auger is not adjustable, but the timing is. Finger extension timing should be retarded (fingers extending later) for thin crops. If fingers are operated in the normal position, they may not positively convey the light wheat to the feeder house chain. This will result in bunchy feeding. If timing is changed, check the clearance between fingers and the platform floor.

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Harvesting tips (continued)

9. **Strippers.** Check the operator's manual for the recommended clearance between auger flighting and strippers. As you make this adjustment, be sure to allow clearance for the auger runout induced by solar heating that occurs while the combine is parked (especially on wide headers).
10. **Ground Speed.** With a thin crop there will be a tendency to operate faster in an effort to keep the machine full. However, driving too fast will result in poor cutter bar performance and increase header losses. Driving too fast will drag the crop under the cutter bar before it can be cut.
11. **Hydrostat Durability.** Operating a combine in road gear with the hydrostat pulled back to a low setting results in high pressure in the hydrostatic system. A better option is to run in a lower gear with a higher hydrostat setting.
12. **Adjustments for Low Test Weight.** If poor weather conditions persist, this year's wheat crop may have a low test weight and that means it will be harder to clean. Pay close attention to fan settings and sieve openings. Use only enough fan blast to keep the layer of material on the cleaning shoe suspended. More air will increase grain loss.
13. **Operator's Manual.** There is no better place to find information about combine and header adjustment than the operator's manual. Operator's manuals provide adjustment procedures and troubleshooting charts that are specific for a piece of equipment. If you cannot find your operator's manual, check with your local dealer. Many companies are also putting operator's manuals on the internet.

Wheat Streak Mosaic and High Plains Viruses Appearing in Oklahoma

By Bob Hunger

During the past 7-10 days several wheat samples submitted to the Plant Disease and Insect Diagnostic Laboratory exhibited symptoms indicative of wheat streak mosaic virus (WSMV – Figure 1A.) and/or the high plains virus (HPV – Figure 1B.). Both viruses are transmitted by the wheat curl mite. WCMs have a wide host range including wheat, corn, and many grassy weeds.

Mites that have survived the summer on volunteer wheat, corn, or weeds spread to emerging wheat in the fall, feed on the young wheat, and transmit WSMV/HPV to the wheat. Only rarely are symptoms of WSMV/HPV (see Figure 1) seen in the fall, but as soon as temperatures begin to warm in the spring, symptoms begin to appear.

Symptoms follow the infestation path and severity of the mites, which spread by the wind. Often fields are infected from a fence row, so infected plants are more common near that fence row and become less as one walks deeper into the field. On occasion, I have seen consistent infection over large fields (Figure 2).

Figure 1.

Symptoms of wheat streak mosaic virus (1A.) and high plains virus (1B.) on wheat

(photo of high plains virus courtesy of Dr. Stan Jensen, University of Nebraska).

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WSMV and HPV (continued)

In these cases, the source of the mites was always an adjacent field where volunteer wheat or corn was present over the summer, and this field served as a source of mites to infect the emerging wheat over a long period of time in the fall. In cases where WSMV infection occurred in the fall, that wheat will yield nothing or very little; however, yield losses due to WSMV also can be significant when infection occurs in the spring. Yield losses from HPV in wheat are less clear because (as far as I know) in Oklahoma we have only found HPV in combination with WSMV.

There is very little, if any, difference in reaction of commercial wheat varieties to WSMV/HPV. Hence, control of WSMV/HPV depends on limiting the over-summering and fall infection of emerging wheat by the WCM. Planting late in the fall helps to achieve this, but to some extent the effectiveness of late planting is also related to the severity of the winter, that is, late planting will not help as much in a year with a mild fall and winter.

Another control that helps to reduce WSMV/HPV is to control volunteer wheat. The WCM has a life span of about two weeks. Hence, destroying volunteer wheat at least two weeks prior to emergence of seedling wheat will help to reduce the infestation of emerging wheat with WCMs. This also applies to planting wheat in a field where corn has been grown, that is, be sure at least 2 weeks (3 weeks is better) elapse between the time when the corn is completely dead and the time when the seedling wheat emerges.

Figure 3. Early planted, dryland wheat field (foreground) with significant damage from wheat streak mosaic and high plains virus. Compare to late planted, irrigated wheat field in the background. Photo courtesy of Dr. C. Rush, Texas A&M Univ., Bushland, TX.

Other diseases: On a trip I took on April 18th, I saw wheat as far along as ⅓-½ berry in plots near Perkins, OK. Plants here were extremely stressed with flag leaves curled-up. About the same thing was observed here at Stillwater and in the Kingfisher variety trial, but the wheat was not quite that far along. At Lahoma, it also is dry, but the flag leaves are still fairly flat. I saw no rust of any kind on any of the wheat I looked at either in research plots or in fields I stopped and examined. Symptoms indicative of barley yellow dwarf virus were seen at most locations. Additionally, powdery mildew was observed on lower leaves at most of the locations. However, all flag leaves and F-1 leaves were clean.

In terms of samples sent to the lab and phone calls:

- Additional reports and samples have come in that continue to show Fusarium (dryland) root rot.
- Wheat samples also have been received that had symptoms of wheat streak mosaic virus (WSMV) and/or high plains virus (HPV). Brian Olson (Plant Disease Diagnostician) tested these samples and found them to be positive for the presence of WSMV and HPV. Three of these samples were from Beaver County and tested positive for both viruses.
- A few samples also have tested positive for barley yellow dwarf virus, and I have seen symptoms of BYDV at several locations in the state including plots located near Stillwater, Perkins, Kingfisher, and Lahoma.

Reports from other states:

Kansas (Jon A. Appel, Plant Pathologist, Kansas Department of Agriculture) 21-April-2006:
I just saw leaf rust for the first time this season. Trace (a few pustules) in Harper and Sumner counties in south central Kansas. Wheat is under extreme drought stress and at head to early flower. No other rusts observed. Nothing last week in southeast Kansas.

Upcoming Events

April 27 – Woods county wheat field day. 6 PM at Wes Mallory's farm.

May 4 – Canadian county wheat field day. 10 AM at junction of Banner Road and I-40. Lunch and tour of replicated plots at Don Bornemann's will follow.

May 9 – Caddo county wheat field day. 5:30 at Paul Jackson's farm at Apache.

May 11 – Grady county wheat field day at Minco, OK. Tour will begin at 11 AM at the Minco demonstration plots. Contact the Grady county extension office for more information.

May 16 – Beckham county Wheat field day. 9 AM at Carl Simon's farm just north of Elk City.

May 19 – Wheat field day at the North Central Research Station in Lahoma, OK.

May 22 – Grant/Garfield county field day. Tour will start at the Lamont variety trial on Kirby Brothers' farm at 10 AM. Contact the Grant or Garfield county extension offices for more information.

May 23 – Balko wheat field day at 9 AM. Contact the Beaver County Extension Office for more information.

May 23 – Hooker wheat field day at 1:30 PM. Contact the Texas County Extension Office for more information.

June 1 – Field day at the Oklahoma Panhandle Research and Extension Center at Goodwell, OK. Contact the OPREC for details.

NEW PUBLICATION AVAILABLE!

Dr. Chad Godsey has started an outstanding new publication called the *Cropping Systems Newsletter*

The first issue is attached to the email distribution of this newsletter. For more information or to subscribe send an email to Dr. Godsey at chad.godsey@okstate.edu

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