

# WHEAT PRODUCTION NEWSLETTER



Oklahoma State University Small Grains Extension  
[www.wheat.okstate.edu](http://www.wheat.okstate.edu)

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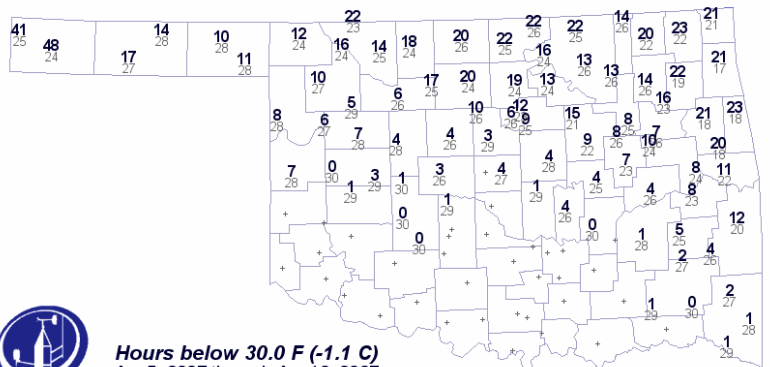
## Freeze injury update

Temperatures dipped well into the 20's in many areas of Oklahoma over Easter weekend. This has made for a week of uncertainty and uneasiness for Oklahoma wheat producers. In this issue of the WPN we will discuss how cold it got and what effect the cold temps had on the wheat crop and the wheat market.

The rules of thumb for freeze injury to wheat are that 30 °F for two hours will injure emerged wheat heads and 28 °F for two hours will injure wheat in the boot. However, it is extremely important to remember that predicting wheat freeze injury is not an exact science.

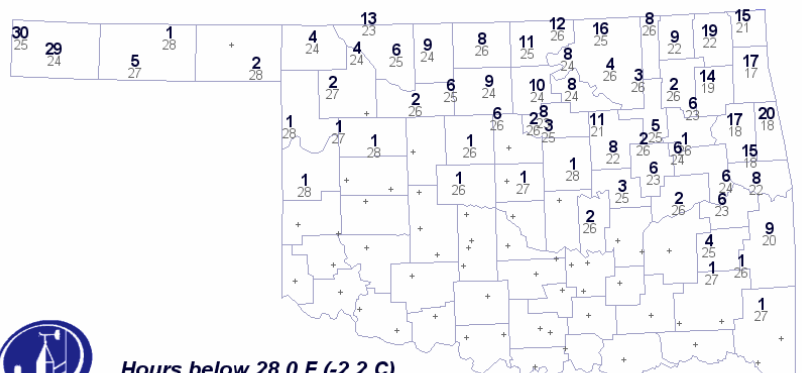
Mesonet data show that most areas north of I-40 in Oklahoma reached the 30 °F for at least 2 hours over the five-day period from April 5 to April 10 (see top figure to the right). Mesonet data also indicate that much of northcentral and northeastern Oklahoma broke the 28°F threshold for more than two hours (bottom figure to the right). These temperatures were certainly cold enough to inflict injury to our wheat crop and it appears that some damage did occur.

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**Hours below 30.0 F (-1.1 C)**  
 Apr 5, 2007 through Apr 10, 2007  
 with minimum temperature observed

Image created 09:20 CDT Apr 10, 2007  
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 The Oklahoma Mesonet is a partnership effort of Oklahoma State University and the University of Oklahoma.



**Hours below 28.0 F (-2.2 C)**  
 Apr 5, 2007 through Apr 10, 2007  
 with minimum temperature observed

Image created 09:20 CDT Apr 10, 2007  
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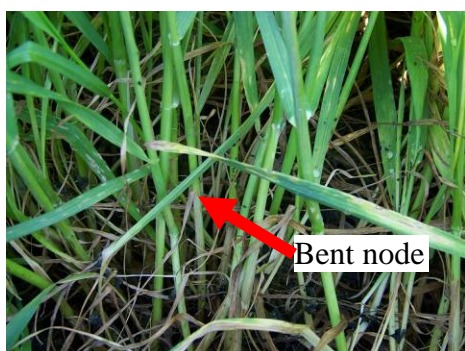
Hardest hit was northeastern Oklahoma. Area agronomist Bob Woods reported severe lodging and brown heads in the Webers Falls area (see pictures to the right). Wheat is not likely to recover from injury this severe, even if favorable weather conditions persist for the remainder of the year.



Lodged wheat near Webers Falls, OK



Wheat heads already turning brown from freeze injury in NE OK



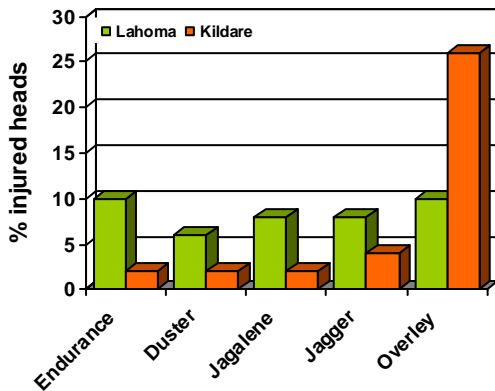
Bent nodes and lodging near Kremlin, OK

Next hardest hit would be northcentral Oklahoma. Areas east of Enid and north of Hwy. 412 received the most damage in this region, but few fields will be a complete loss. The extent of freeze injury in this region is variable and depends on several factors. Most important among these are variety and planting date.

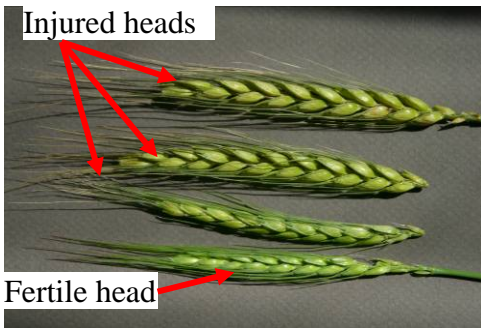
Roger Gribble toured the area with county extension educators on Monday and reported that early varieties and early-sown fields sustained more damage than later-maturing varieties or late-sown wheat.

Injury symptoms on the hardest hit fields include swollen nodes, split stems, and some lodging. Other injury includes twisted flag leaves, white and/or shriveled anthers, and frozen awns and tips of heads. Roger also indicated that some heads looked as though they were “trapped” in the boot. This type of injury is not uncommon in late freeze events and is similar in appearance to 2,4-D damage.

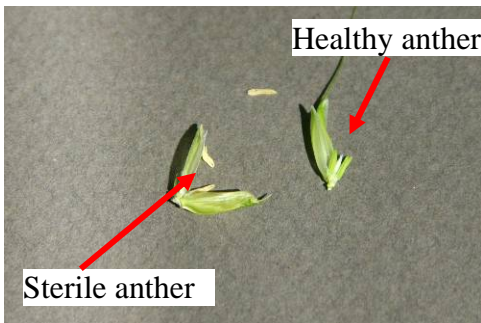
**Freeze injury at Lahoma and Kildare, OK  
on 16 April 2007**



Richard Austin and Melanie Inda with the OSU small grains extension program evaluated injury to wheat in the replicated variety trials at Lahoma and Kildare (chart to the left). Damage was generally under 10%, with the exception of Overley at Kildare. Overley is one of our earliest varieties, which explains why it had the most damage at these locations.



We are also observing some “hidden injury” in our wheat plots at Stillwater. There are four wheat heads in the top picture on the left-hand side of the page. All wheat heads still have a somewhat green appearance, however, only the bottom head still contains viable anthers. The other three are sterile.



So, it is important to open a few glumes and take a look at the anthers with a hand lens. Viable anthers should still be green and turgid. White, shriveled or mushy-yellow anthers are no longer viable and will be sterile (see middle picture to the left). This injury is the exception rather than the norm, but it is still something to be on the lookout for.



Similar to wheat anthers, wheat heads should have a nice green color while in the boot. Damaged heads will have a whitish appearance and grain sites will cease growth (see bottom picture to the left).



The total impact of the freeze event of 2007 is still yet to be seen. It is likely, though, that impact on the Oklahoma wheat crop as a whole will be minimal. In most areas of the state we have in excess of 70 tillers per square foot. Losing 10% of these tillers to freeze injury will probably not result in a 10% yield loss. Rather, the yield loss is likely to be much less. The final impact will largely depend on temperatures during grain fill. If daytime temps stay below 85 °F over the next month, we are still on track for a good wheat crop in Oklahoma.

## Market Reaction

By Kim Anderson

Based on the Kansas City Board of Trade (KCBT) July wheat contract, the market thinks that there has been about 44 cents per bushel damage to the wheat. Before the weather forecast indicating that parts of the winter wheat would be subjected to freezing temperatures, the KCBT July wheat contract price was \$4.40. After the freeze, the KCBT July wheat contract price peaked at \$4.94. The July wheat contract was down four cents on April 17. The KCBT July wheat contract may establish a sideways pattern between \$4.80 and \$5.

The price spread between the CBT corn contract price and the KCBT July wheat contract prices has increased with wheat at a premium to corn. There are signs that some sprouted corn may have been damaged and that corn plantings are slightly behind average. The wheat-corn spread must narrow. Given cool, wet weather, which is conducive to the wheat crop recovering and may hinder corn planting, wheat prices may decline and corn prices increase.

## Upcoming Events

- May 3** – Canadian county wheat field day. 10 AM at plots on Don Bornemann near Union City. Contact Canadian County Extension office for more info.
- May 3** – Major county wheat field day. 6 PM at plots on Brook Strader's farm at Homestead.
- May 18** – Wheat field day at the North Central Research Station in Lahoma, OK.
- May 21** – Woods county wheat field day Wheat field day. 6 PM at plots on Wes Mallory just west of Alva, OK

## Subscription Information

The *Wheat Production Newsletter* is published in electronic format on an as needed basis throughout the year. To receive an electronic copy in pdf format, send an email with **subscribe** as the subject line to [jeff.edwards@okstate.edu](mailto:jeff.edwards@okstate.edu)