

Wheat Science News

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In This Issue:

- ◆ ***WHEAT VARIETY TEST RESULTS AFFECTED BY FREEZE***
- ◆ ***NOW IS THE TIME TO BEGIN YOUR FUSARIUM HEAD BLIGHT MANAGEMENT PROGRAM FOR 2013***

WHEAT VARIETY TEST RESULTS AFFECTED BY FREEZE

Bill Bruening—Research Specialist

The 2012 Kentucky wheat variety test results were affected by the April freeze. Of the 7 tests, 3 locations had minor damage, 3 had moderate and one was severely damaged. Tests with minor damage were not as advanced or were not exposed (duration and degree) to the freezing temperatures at other locations. At most locations, it was evident that varieties which were flowering at the time of freeze had severe damage. A test near Henderson, KY for example showed yields ranging from 86.5 to 24.4 Bu/A. Later heading varieties tended to have the best yields, while the early varieties generally did not yield well. These dramatic yield differences corresponded with freeze damage notes.

The 2012 wheat variety forage and straw tests sustained only minor freeze damage and use of this data is recommended. Likewise the freeze did not compromise 2012 disease ratings, plant height, maturity, lodging or grain test weight results. However, the 2012 yield data was compromised and may not reflect the genetic potential of varieties in a typical year. It is therefore recommended that the 2011 state summary table from last year's test be used along with this year's results for variety selection decisions. 2011 and 2012 Kentucky small grain variety test results are available at www.uky.edu/ag/WheatVarietyTest.

NOW IS THE TIME TO BEGIN YOUR FUSARIUM HEAD BLIGHT MANAGEMENT PROGRAM FOR 2013

Don Hershman—Extension Plant Pathologist

Fusarium head blight (FHB), commonly called head scab (Fig. 1), is one of the most damaging diseases Kentucky wheat growers face year in and year out. When FHB is moderate to severe, crop yield, test weight, and seed quality are negatively impacted. In addition, a toxin called deoxynivalenol (DON) is produced in “scabby” heads, which can greatly impact grain marketability and value. FHB can develop to significant levels any year when weather conditions favor infection from heading until grain maturation. Peak susceptibility is during crop anthesis (flowering).



Figure 1.
Typical symptoms of Fusarium
Head Blight (a.k.a. head scab)

Very little FHB was present in KY during 2012, but with each year comes the possibility that FHB will be a significant problem. Low FHB years like this past season tend to support a collective amnesia about how much damage FHB can cause. The purpose of this article is to encourage you to consider various management decisions that can reduce your FHB risk next spring.

Much progress has been made on managing FHB over the last decade. We have learned that there is no “silver bullet”. Consequently, no one management tactic can be relied on to provide optimal FHB control. Rather, growers must integrate all available FHB management tactics in order to achieve the best possible control of FHB when weather conditions favor the disease. It would be nice if it were possible to achieve greater than 90% disease control like we can for most fungal diseases of wheat. This level of control, however, is not realistic when it comes to FHB. But it is very possible to reduce FHB by 75% compared to where no effort was made to control the disease.

Below represent the general “ingredients” for integrated FHB management.

***Plant varieties that have different maturity dates, and/or stagger planting dates** to avoid having one’s entire crop vulnerable to infection at the same time — a time when weather could be very favorable for disease development.

***Planting wheat no-till, behind corn, does not significantly increase the FHB risk in Kentucky.** In Kentucky, wheat is most commonly planted following corn harvest. Wheat follows corn, rather than soybean, because corn is almost always harvested before soybean (in Kentucky). Thus, wheat is planted behind corn for logistical reasons. Moreover, over the last 15 years, the trend has been to plant wheat, no-till, into corn residue. The desire to plant wheat no-till is founded in several real advantages, such as savings of time, equipment and labor, as well as soil conservation. However, because the same fungus that causes FHB also causes stalk and ear rots in corn, and due to the fact that corn residue is the most common overwintering substrate for the FHB fungus, there has been justifiable concern that our current production practices may be significantly increasing the potential for FHB to occur. However, this has not been our experience. Studies have shown that weather, not local tillage practice or previous crop, is what drives FHB epidemics in areas where corn production is widespread. This is because when weather conditions favor sporulation of the FHB fungus in corn residue, so many spores are produced (due to the fact corn is widely grown) that infection is likely regardless of whether a field has been planted no-till behind corn or into a clean-tilled field. Conversely, when weather conditions are dry leading up to the critical flowering period in wheat, there are so few spores around that little disease develops, no matter what the previous crop or tillage is. The above said, planting wheat no-till behind corn can result in slightly elevated FHB severity and DON levels in a moderate disease environment. But the effect is not great enough to offset the benefits associated with the current production system.

***Plant adapted varieties that have the greatest resistance to FHB.** Recent variety releases in the soft red winter wheat class have improved resistance to FHB compared to varieties released even five years ago. Varieties with improved resistance are available from land grant universities and from private companies. Improved FHB resistance in today's varieties generally does not equate to lower yield potential. However, when FHB is severe, the level of available resistance is often insufficient to prevent significant losses due to FHB and excessive DON content in harvested grain. Therefore, resistant varieties should be used along with fungicides, when needed.

***Use a FHB-suppressive fungicide** when the risk of FHB is moderate to high to help reduce yield losses and DON accumulation in the grain. At the present time, Caramba[®], Proline[®], or Prosaro[®] are recommended as the best products available to reduce FHB and DON. Fungicides are best applied when the crop begins to flower (early anthesis). Achieving excellent coverage of heads is a key to successful application. Fungicides applied to an FHB-susceptible variety will not provide acceptable results in a high-disease environment.

***Use the Wheat FHB Prediction Center website:** www.wheatscab.psu.edu to determine risk of FHB infection as the crop approaches and enters vulnerable growth stages. Sign up at www.scabusa.org/ for FHB alerts, including text messages, based on FHB forecasting information.

***Harvest fields significantly affected by FHB separately** to avoid co-mingling high DON-contaminated grain with more sound grain.

***Increase the combine fan speed** when harvesting fields impacted by FHB. Shriveled kernels will blow out the back of the combine. This practice will lower yield by a small percentage, but gains in test weight and lower DON content more than offset yield loss.

Kentucky & Other Resources on FHB and DON

General information about FHB and its management may be found at www.scabsmart.org and www.wheatcab.psu.edu. Kentucky-specific information may be found at:

Kentucky Information on Variety Responses

www.uky.edu/Ag/WheatVarietyTest

Extension Bulletins on Scab Management

Wheat Fusarium Head Blight (Head Scab) in Relation to Tillage and Previous Crop:

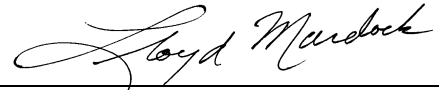
www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/ppfagsg9.htm

Disease Management in: A Comprehensive Guide to Wheat Management in Kentucky:

www.ca.uky.edu/agc/pubs/id/id125/07.pdf

Preplant Decisions Greatly Impact Disease Potential in Wheat:

www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/ppfsagsg6.pdf



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