Fusarium Head Blight Is Widespread In Ky. Wheat

LEXINGTON, KY.

During the past week, the disease Fusarium head blight or "head scab" has appeared at significant levels in many wheat fields across Kentucky. Depending on the severity of the disease, it could pose potential problems for the state's many agricultural sectors that depend on wheat, said Don Hershman, University of Kentucky extension plant pathologist.

"We're still in a period of flux right now," he said. "There could be more disease development over the next week or so."

Fusarium head blight attacks wheat near and in the flowering stage, which is where most of the state's wheat was when wet weather hit during the last few days in April through the first week in May. The extended period of rain provided excellent conditions for infection. The wet, cloudy conditions that have characterized May likely favored multiple infection periods, which has resulted in an extended window for disease development.

Fusarium head blight is present in Kentucky wheat fields every year to some extent, but some years are more severe than others. The last statewide epidemic was in 1991, but there have been several lesser epidemic years since then. This year could rival what was seen 18 years ago.

"The disease is not quite at 1991 levels, but it's definitely the worst it's been since 1991," Hershman said.

Fortunately, many of the state's wheat producers were able to apply a fungicide to protect their crops from Fusarium head blight when conditions were favorable for infection a few weeks ago. There were several dry days mixed in here and there during the first half of May, and many acres were treated during that time. Hershman said the additional spray applications appear to have made a significant difference in most fields when compared to untreated fields. However, the fungicides only have about a 50 percent suppression rate with head scab, so some treated fields still have a lot of disease. This is especially true for fields that were treated after infection had already occurred or applications were made during less than ideal conditions. By comparison, no fungicides were available in 1991 to manage the disease, so the Kentucky wheat crop that year was highly vulnerable.

Fusarium head blight can cause wheat producers to have lower yields and tests weights during harvest time, but the larger, system-wide concern is that the fungus that causes head scab also produces a mycotoxin deoxynivalenol, also known as DON. Fields with Fusarium head blight almost always have DON too. Finished grain products with DON levels greater than 1 part per million are not suitable for human consumption. Consumption of contaminated grain by livestock and other animals is also a great concern when DON levels exceed accepted norms.

The first thing wheat producers need to determine is whether Fusarium head blight is a significant problem in their wheat or not. It is relatively easy to spot the disease in wheat that has not reached physiological maturity because infected heads exhibit bleached areas which contain small, shriveled kernels, contrasted to the typical green tissue of healthy heads. The disease becomes more difficult to identify when wheat begins to mature. Hershman said producers can determine whether they have Fusarium head blight by grabbing numerous heads and crumbling them in their hands. Upon doing this, if one sees small, shriveled and sometimes pink- or salmon-colored grain, it's likely due to the disease.

Producers who have wheat with a lot of Fusarium head blight must consider several different harvesting and marketing options. Producers will have to make decisions based on the severity of the disease, their farming operations and marketing goals.

Producers may want to harvest wheat early if they can dry it quickly.

"Early harvesting will stop additional DON accumulation in grain, can help to prevent field

sprouting, boost test weight and, perhaps most importantly, increase soybean yield when double-cropping," said Sam McNeill, UK agricultural engineer. "Additionally, early harvest will help wheat seed producers maintain seed quality when harvest conditions are less than optimal."

When harvesting, growers may want to try to separate fields with good-quality wheat from those with Fusarium head blight. Producers should increase the fan speed on their combines in fields that have a significant amount of the disease, so the lighter material, including many scabby kernels, will blow back onto the field and out the back of the combine.

"The trade-off with this method is obviously lower test weights and lower yields," McNeill said.

Producers who store grain should separate sound wheat from scabby wheat, preferably in different bins. Scabby wheat that will be held through the summer should be dried to a lower moisture content than sound wheat – 12 percent versus 12.5 percent.

If possible, producers who have grain harvested from fields where Fusarium head blight was a problem may want to consider storing their grain until after harvest time to get better prices. Discounts normally decrease after the harvest.

In 1991, producers baled much of the diseased wheat for animal consumption. However, animal producers should be aware of DON levels in the feed they purchase because it could affect animals differently, said Jeffrey Bewley, UK extension dairy specialist. Studies at North Dakota State University and in Canada show beef cattle over 4 months old and poultry were able to tolerate higher DON levels compared to other animals. Both can tolerate about 10 parts per million of DON in grain and grain by-products. All other animals can tolerate about 2 parts per million of DON. Studies have shown that too much DON in feedstock may cause problems in some animals such as weight problems, less milk production in dairy cattle, and intestinal problems, reproductive failure and death in swine.

In addition to Fusarium head blight, wheat producers also are combating Stragonospora leaf and glume blotch and leaf rust, among other diseases.

"While these diseases are caused by different fungi than that which causes Fusarium head blight, their severity is notable in many fields for the same reason we are seeing a lot of FHB – a wet May," Hershman said. "Even fungicide treated fields are showing increased disease activity as fungicides that were applied in early May begin to wear off."

The UK Wheat Science Group will be releasing post-harvest information related to the Fusarium head blight epidemic. It will be made available to producers and others though local county extension offices. Δ