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# Assessment Tool & Alert System Help Growers Control Scab in Wheat & Barley Fields

U.S. wheat and barley producers have incurred billions of dollars in economic losses to Fusarium Head Blight (FHB) across the past couple decades. Fortunately, substantial progress has been made in the battle against FHB, which is commonly referred to as "scab." Moderately resistant varieties are now available, certain fungicides offer good levels of control when applied correctly and at the appropriate time, and other management practices also can help producers minimize their losses in years when scab threatens their crops.

Still, these are tools; none is a panacea providing simple and complete protection against scab. So the research – much of which is supported by the U.S. Wheat & Barley Scab Initiative (USWBSI) – continues.

One of the most important management aids currently available to growers and crop advisors is the Fusarium Head Blight Risk Assessment Tool operated by the Fusarium Head Blight Prediction Center. Its website – http://www.wheatscab.psu.edu/riskTool.html - displays daily in-season risk maps for Fusarium Head Blight in 30 states and walks the user through the process of generating a prediction based on factors such as geographic location and type of grain. Based upon more than a decade of development and testing at multiple universities, the assessment tool's models estimate the risk of an FHB outbreak with greater than 10% field severity. They do so by using weather variables observed one week prior to flowering, since weather during that pre-flowering period is a key component in the production (or lack thereof) of infectious spores of the fungus that causes head scab.

Now in its fifth year of operation, the website received nearly 20,900 visits (122,000 hits) during the 2013 U.S. wheat and barley growing season (April through August).

Testing has shown the models to be correct about 75% of the time. Importantly, however, the models are supplemented by commentary from

university crop specialists in affected states. These commentaries provide ground truth information and real-time observations. The level of confidence in the models themselves is often moderate at best among growers and crop advisors, notes University of Kentucky extension plant pathologist Don Hershman. "But when the state specialist – who hopefully has excellent credibility with stakeholders – agrees with the models and provides a personal assessment of risk, based on years of experience, the stakeholders look at the model outputs with a much higher level of trust," he remarks.

The university specialists likewise provide the FHB model developers with data and information used to refine the prediction models, Hershman observes, along with feedback for improving the FHB Prediction Center website.

Going hand-in-hand with the scab assessment tool is the U.S. Wheat & Barley Scab Initiative-sponsored FHB Alert System. Its purpose is to give growers, advisors and grain industry personnel better advanced notice of potential outbreaks and the risk of scab in their area, thus facilitating the timely treatment of at-risk fields with fungicides. Alerts are sent to one's cell phone or email (per the user's preference), with the frequency and timing of alerts depending upon a given area's risk for serious scab problems – which obviously varies, depending upon environmental conditions and crop stage.

Subscription to the FHB Alert System is free. Interested persons can sign up at the following web address: http://scabusa.org/fhb_alert.php.

Kansas State University plant pathologist Erick DeWolf is a principal developer of the scab prediction model/FHB Risk Assessment Tool and a coordinator of the FHB Alert System. DeWolf says a 2012 use survey indicated that the average monetary value of the information provided by the prediction system was estimated (by survey respondents) at $17,000 per user. "Combining this figure with use statistics suggests that the annual impact of the FHB prediction model exceeds $170 million," he reports.

While that's an impressive number, DeWolf and other prediction model developers and alert system promoters hope it will grow significantly in 2014 and future years. "Approximately 10,000 users annually is a great start," he states.

"However, with so many farms and businesses potentially affected by FHB, there is still a need to get more people involved."

Hershman believes that in his state of Kentucky, the FHB Prediction Center information is used mainly by crop consultants, agribusiness agronomists and "top" growers. "Your 'average' farmer is not using the system much, for a variety of reasons," he says. "Lack of time is probably the main one.

"In any event, they would benefit from using the tool/alert system. But we have to do a better job of informing them that it exists – and, is relatively fast and easy to use and interpret."

Hershman believes the models and this FHB management tool eventually "will be icons in the wheat industry" as their use becomes more widespread and people have a better understanding of both their benefits and their limitations. While touting the legitimate benefits is very important, "I think it is also just as important to highlight the inherent limitations of the models," the Kentucky pathologist observes. "This balanced approach will increase the overall credibility of the system."

KSU's DeWolf emphasizes that the Fusarium Head Blight Prediction Center truly has been a multi-state, multi-disciplinary endeavor since its inception. "More than a dozen universities have contributed the data used to develop the models and are involved in the models' deployment," he notes. For its part, in addition to providing funding for the FHB Prediction Center, the U.S. Wheat & Barley Scab Initiative plays another very important role, DeWolf adds – that of providing "a unifying framework for collaboration that makes such a large multi-state effort possible."

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