

## **Scab Management: It Takes an Integrated Approach**

By Don Lilleboe\*

When it comes to managing *Fusarium* Head Blight (commonly referred to as “scab”) in wheat and barley, university small grains specialists emphasize that the best approach is an integrated one focusing primarily on the planting of moderately resistant varieties and the use of effective fungicides.

“No individual approach is 100% effective at reducing scab — and particularly reducing vomitoxin,” says Pierce Paul, Wooster-based plant pathologist with the Ohio State Extension. “Fungicides provide about 50-60% control, while resistance provides about 50% control relative to the susceptible checks. To get the best control, you have to integrate multiple strategies, with fungicide and resistance being the two main ones.” Seeding into fields previously planted to non-cereal crops reduces the risk of increased inoculum pressure; also, Paul and his group have been researching the value of harvesting strategies that help improve the quality of the grain harvested from scabby fields. They found that increasing the combine fan speed helps to blow out scabby, light-weight kernels, thus reducing the level of vomitoxin and *Fusarium*-damaged kernels (FDK) and increasing the test weight of grain harvested from scab-affected fields.

“Any single management practice used alone to reduce FHB and DON (the mycotoxin often resulting from scab infection) is not enough when weather conditions are favorable for FHB,” states University of Illinois extension plant pathologist Carl Bradley. Speaking to wheat specifically, while no variety is completely resistant to scab, “the combination of a [moderately] resistant variety and the application of an effective fungicide (either Prosaro® or Caramba®) at the correct timing (beginning of flowering — Feekes growth stage 10.5.1) will provide a much better level of control than doing either practice alone,” Bradley advises. Should one be unable to apply Prosaro or Caramba on the day that most of the field is flowering, an application two to six days after that will still help reduce scab and vomitoxin, says Ohio State’s Paul.

For barley, fungicide application should occur at heading, says Andrew Friskop, North Dakota State University small grains extension plant pathologist. When deciding whether to make an application, wheat and barley growers often rely upon experience and “gut instinct,” Friskop notes. But, he likewise encourages producers to utilize state and national FHB prediction models. The FHB Risk Assessment Tool, funded by the U.S. Wheat & Barley Scab Initiative (USWBSI), is designed to give growers and grain industry personnel valuable advance notice of potential outbreaks and the risk of scab. This tool, which can be accessed at <http://www.wheatscab.psu.edu/riskTool.html>, displays daily estimates of disease risk for more than 30 states. The risk maps are accompanied by timely commentary from disease specialists from the participating states.

The USWBSI also sponsors the Fusarium Head Blight (FHB) Scab Alert, a real-time alert system based on commentary from small grains disease specialists around the country. Alerts are delivered to subscribers via either cell phone text messages or email, warning them when conditions in their area are favorable for scab development. Those interested in signing up for these alerts can do so at [http://scabusa.org/fhb\\_alert.php](http://scabusa.org/fhb_alert.php).

Despite university extension emphasis on an integrated approach to FHB management, not all growers follow that advice. “Unfortunately, it was apparent that not enough growers in Illinois implemented an integrated management approach in the 2014 season,” Bradley says, referring to last year’s “major issues that occurred with FHB, and especially high DON levels, despite many fields receiving a fungicide application.” Numerous growers assume that a good fungicide can cure all disease problems, he continues. “But fungicide alone does not go far enough for control of FHB and DON.”

NDSU’s Friskop believes the use of an integrated strategy varies from region to region within his state. “Growers who deal with chronic scab problems likely will employ an integrated approach; and therefore, I would consider it to be highly adopted in these regions,” he relates. “However other regions that have infrequent scab epidemics may choose one of two FHB management tools instead of a holistic integrated approach.” Also, he points out, FHB-resistant varieties of durum wheat

and barley are not yet as widely available in North Dakota, compared to hard red spring wheat.

As wheat and barley breeders develop and release more varieties with at least moderate resistance to Fusarium Head Blight, it is hoped — and expected — that the percentage of small grain acreage planted to such varieties will trend upward. One challenge facing extension educators, however, is how to maintain producers' FHB "radar alert" on a regular basis, not just in those years when scab rears its head in their locale to an economically significant degree. "It's a good thing we don't get scab every year; but the fact that we don't [likewise means] it's hard to keep people focused on scab," affirms Pierce Paul. "The same applies to using the forecasting system, using the tools that are available for scab management. When scab is 'off the radar screen,' nobody wants to hear about it. But we have to keep at it."

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