

'Scab Smart'

Scab Smart is a website developed and maintained by the U.S. Wheat & Barley Scab Initiative to provide key management information for each small grain class affected by this disease in the United States.

Scab Smart information is based on successful strategies identified by extensive research supported by the U.S. Wheat & Barley Scab Initiative with funding provided by USDA-ARS.

Scab Smart carries basic information, and links to university websites, for these categories:

- **Variety Resistance** — Links are provided to state university variety testing programs and trial results for the following grain classes: hard red spring wheat, durum wheat, spring barley, hard red winter wheat, soft red winter wheat (northern), soft red winter wheat (southern), soft white wheat and hard white wheat.
- **Scab Forecasting** — Scab forecasting models help predict disease risk during appropriate crop growth stages and assist producers in their decision-making regarding fungicide use. Links are provided to a multi-state scab forecasting model, as well as to a few individual states that have developed their own links.
- **Fungicides** — Links are provided for information on registered products, application timing and best application techniques.
- **Crop Rotation**
- **Other Management Strategies**

<http://www.scabsmart.org/>



U.S. Wheat & Barley Scab Initiative

The U.S. Wheat & Barley Scab Initiative (USWBSI) is a national, multi-disciplinary and multi-institutional research system whose goal is to develop, as quickly as possible, effective control measures that minimize the threat of Fusarium Head Blight (scab), which includes the production of mycotoxins, for the producers, processors and consumers of wheat and barley.

Contact details for USWBSI are as follows:

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Scab Smart Management



<http://www.scabsmart.org/>

'Scab Smart' is a quick guide to integrated management strategies for Fusarium Head Blight (scab) and its primary associated mycotoxin (DON).

This brochure contains state-specific management recommendations and other information for avoiding and controlling scab. The following content is provided by individual state university research and extension specialists.

This brochure is brought to you by the U.S. Wheat & Barley Initiative and your state university.

Head Scab in Michigan

Head scab (*Fusarium* head blight), is caused by fungi in the genus *Fusarium*. It is the most important head disease of wheat and one of the most difficult to prevent.

Severely infected kernels within the head tend to be shriveled, light weight and, sometimes, chalky white or pink in color. The most significant financial losses stem from a mycotoxin created by the fungus within the infected grain called deoxynivalenol (a.k.a. DON or vomitoxin). More information can be found at <http://www.scabsmart.org/>.

Weather conditions have the greatest influence on disease development. Damp conditions and moderately warm temperatures at the time of flowering are most advantageous to the pathogen. However, it may also be favored by wet weather several days prior to flowering, as it encourages spore numbers and dispersal.

Head scab is a financial threat to both soft red and soft white winter wheat growers. However, growers of soft white wheat are more vulnerable for two reasons: 1) its infected kernels are more apt to accumulate DON, and 2) it is more likely to incur discounts, as the maximum DON content is often 1 ppm as opposed to 2 ppm for soft red wheat.

Plant breeders have had difficulty incorporating resistance into new wheat varieties. Nevertheless, some high yielding varieties with reduced susceptibility have been released, particularly within soft red breeding lines.

Scab Management in Michigan

To lessen the risk of head scab, growers are best served when their strategy uses multiple management practices:

* **Crop rotations** matter, as residues from the previously crop can harbor *Fusarium*. Residues that represent the greatest risk are those from corn, followed by wheat and barley. Hay sods can also pose a significant risk based on industry experience in Michigan.

* **Selecting varieties** having the least susceptibility to scab is becoming increasingly important as varietal improvements are made. Michigan State University's annual variety performance report gives a FHB index for each variety: http://www.css.msu.edu/varietytrials/wheat/Variety_Results.html.

* **Using multiple varieties**, differing in maturity dates, can lessen the chance that the entire crop will experience weather particularly favorable for disease development.

* **Assessing risk** using the national scab model <http://www.wheatcab.psu.edu/> has proved valuable. It uses local weather information to estimate the current risk to flowering wheat. When the model indicates medium to high risk, growers should consider applying a fungicide.

* **Fungicides** can reduce the severity of scab by as much as 50 percent and DON levels by 25 to 40 percent. Recommended fungicides include Prosaro™ (6.5 fl oz/A), Proline™ (5.7 fl oz/A) or Caramba™ (13.5 fl oz/A).

Applying Fungicides

Fungicide applications are more likely to be successful when using:

- 1) proper application timing: Applications should be made while the wheat heads are in the early stages of flowering (when anthers can be seen on 25 to 50 percent of heads). This often occurs, depending on air temperatures, 1 to 4 days after the majority of the heads have fully emerged above the base of the flag leaf.
- 2) adjustments to application equipment:
 - a) the boom height should be adjusted upward to target the wheat heads;
 - b) flat fan nozzles should be angled forward 30 degrees from horizontal;
 - c) nozzles and pressure should provide a droplet size between the "fine" and "medium" categories (275 to 350 microns);
 - d) the spray volume should be 12 to 20 gallons of per acre.

— Contact for Information —

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