



U.S. Wheat & Barley  
Scab Initiative

# U.S. Wheat & Barley Scab Initiative (USWBSI)

# IMPACTS




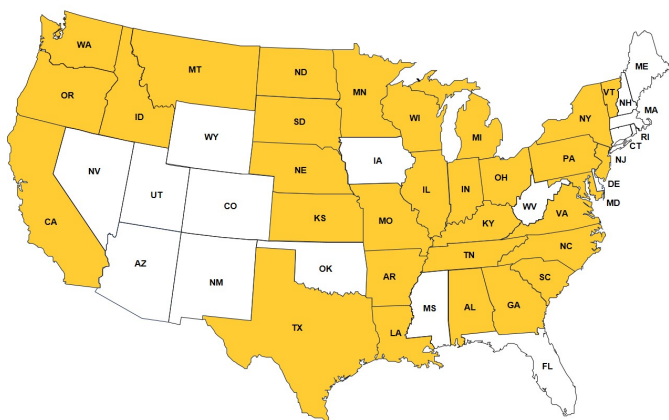
U.S. Wheat & Barley  
Scab Initiative

## Why Is USWBSI's Work So Important?

Fusarium Head Blight (FHB or scab) is a serious disease of wheat and barley — two crops whose average annual farm-gate value in the U.S. totals nearly \$15 billion. Scab-related losses to farmers, food processors and brewers run in the hundreds of millions of dollars. Losses to farmers take the form of lower yields, quality, and price. The presence of deoxynivalenol (DON), a mycotoxin associated with scab, results in additional losses for growers, processors, and end users.

The USWBSI's mission is: *to enhance food safety and supply by reducing the impact of Fusarium Head Blight on wheat and barley.* It does so by funding critical research by state university and USDA-ARS scientists, and by communicating results to the entire wheat and barley community.

 States where the USWBSI conducts research



## Whose Research Is Supported By USWBSI?

The USWBSI is an effective federal / state / grower / industry partnership, with substantial leveraging of state and federal research infrastructures to address scab through a coordinated national program.

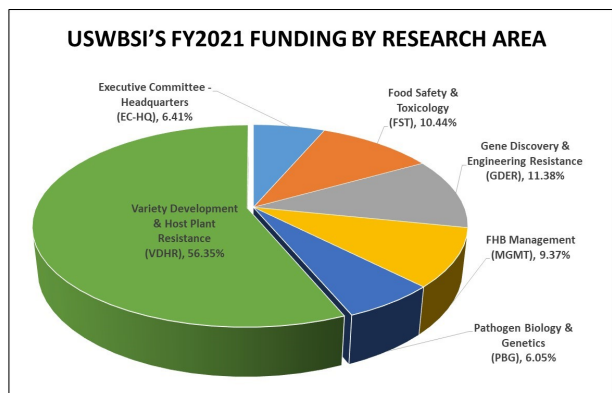
- Projects in 30 states through competitive grants
- \$8.6 million in USWBSI funding from USDA-ARS
- 160 USWBSI projects reviewed and funded in 2021
- 95 PIs from 30 states

## Funded projects support:

- Breeding resistant wheat and barley cultivars
- Field trials to evaluate management practices
- Assessing impact of DON mycotoxins on food safety
- A web-based disease forecasting system (<http://www.wheatscab.psu.edu>)

The USWBSI also supports four regional USDA-ARS small grains genotyping laboratories. These labs use sophisticated genomic technologies to analyze tens of thousands of samples annually to expedite the breeding process.

USWBSI'S FY2021 FUNDING BY RESEARCH AREA





## OUR IMPACT

**Resistant Varieties** — Variety development is a major focus of the USWBSI, comprising more than half of its funding allocation. Resistant varieties reduce production costs and help ensure a safe food supply. Multiple varieties with improved resistance to FHB are being released annually for the hard red spring, soft red and soft white winter, and hard red and hard white winter wheat regions — resistant varieties now comprise the majority of wheat acreage in some regions. Resistance in durum wheat and barley has proven more challenging, however varieties that resist DON accumulation are now available to growers.

**Disease Forecasting** — Growers, grain processors, and other stakeholders, depend heavily on the web-based disease forecasting system developed by the USWBSI, to assess the likelihood of scab occurrence. This information is used to plan fungicide applications and grain purchasing decisions. The FHB Alert System sends a text message to subscribers (no cost) to warn them that conditions in their area are favorable to FHB. A survey of system subscribers assigned a combined value of \$170 million to these alerts.

**Management** — Replicated, multi-location trials conducted by USWBSI plant pathologists are instrumental in generating data that enables registration of effective fungicides and making them available to growers. The USWBSI integrated management studies continue to evaluate new fungicides and their optimal management, in conjunction with resistant varieties. Growers, crop consultants, and others can obtain information about resistant varieties, fungicides, and other management information at: <https://scabsmart.org>.

**Food Safety** — USWBSI-funded centers have developed improved methods for mycotoxin detection and provide critical support for FHB forecasting and management activities. The USWBSI has also supported investigations into the risks of growth stunting in children and food poisoning in the general population from consuming food containing *Fusarium*-produced mycotoxins. Collectively, these efforts ensure a safe and nutritious food supply.

**Economic Return** — A USWBSI commissioned economic study, estimates that for every \$1 invested by the USWBSI there were \$71 in benefits. See “Economic Impact of USWBSI’s Scab Initiative to Reduce Fusarium Head Blight” *Agribusiness and Applied Economics* No. 774, September 2017 (<https://scabusa.org/pdfs/AAE774.pdf>).

### How Do We Leverage Funds?

- Multi-state coordination and collaboration within the USWBSI avoids duplication of resources in the pursuit of answers to managing FHB.
- Inclusion of wheat and barley industries and organizations under the USWBSI umbrella provides valuable input and extensive knowledge about the product chain from producer to market.
- By partnering with numerous universities, the USWBSI makes use of existing infrastructure in training the next generation of scientists.



Scab researchers inoculate small grain plots, St. Paul, MN.

Funding for the U.S. Wheat and Barley Scab Initiative is appropriated by Congress through the USDA-ARS and distributed as peer-reviewed grants. Foundational support is also provided by the USDA-NIFA, the Land Grant Universities, and grower and industry stakeholders.

### Want to know more? Contact info.



U.S. Wheat & Barley  
Scab Initiative

#### USWBSI's Networking and Facilitation Office

PH: 517-290-5023

Email: [nfo@scabusa.org](mailto:nfo@scabusa.org)

Website: <https://scabusa.org>

#### USWBSI Co-Chairs

Ruth Dill-Macky: [ruthdm@umn.edu](mailto:ruthdm@umn.edu)

Richard Magnusson: [rmags@wiktel.com](mailto:rmags@wiktel.com)