U.S. Wheat & Barley Scab Initiative

Enhancing food safety and supply by reducing the impact of Fusarium Head Blight (scab) on wheat and barley.

Fusarium Head Blight (FHB or scab) significantly affects the yield and quality of wheat and barley, and its associated mycotoxins contaminate the grain, all resulting in additional losses for U.S. growers, processors, and end users. With the U.S. average annual farm-gate value at nearly $15 billion for these two crops, minimizing loss is critical. Yet, FHB-related losses to farmers, food processors and brewers run in the hundreds of millions of dollars. The U.S. Wheat & Barley Scab Initiative's (USWBSI) stakeholder-driven approach is aimed at identifying and providing research-based solutions to the FHB problem in wheat and barley.

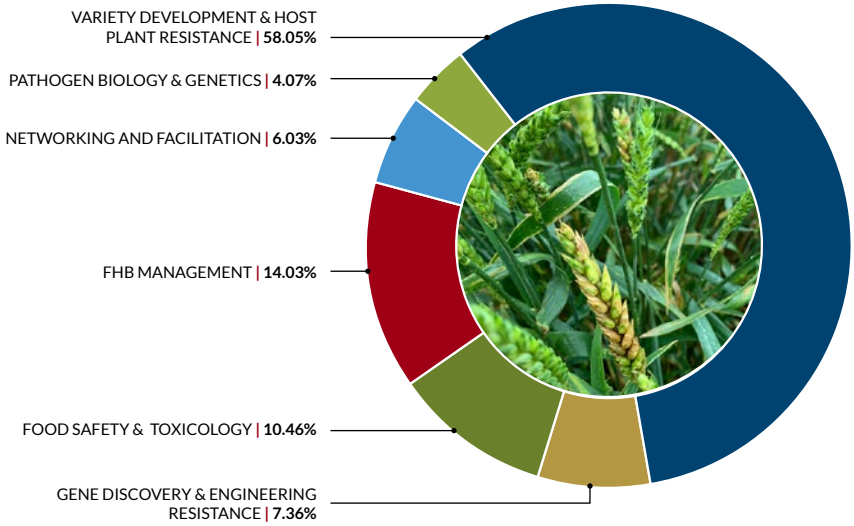
Supporting Innovative Research

The USWBSI funds critical research by scientists at land-grant universities and USDA-ARS facilities and communicates results to the entire wheat and barley community.

IN 2024...

- **$7.6*** MILLION IN USWBSI FUNDING WAS DISTRIBUTED FROM USDA-ARS
- **91** PIs WERE FUNDED FROM 31 STATES THROUGH COMPETITIVE GRANTS
- **123** USWBSI PROJECTS WERE IN PROGRESS

FUNDING BY RESEARCH AREA



Implementing Targeted Strategies

- Breeding for resistant wheat and barley cultivars; in FY23 alone, 35 new varieties were released in which the majority are classified moderately resistant
- Analyzing tens of thousands of DNA samples annually to expedite the breeding process at four regional USDA-ARS small grains genotyping laboratories
- Implementing nationwide management trials to evaluate new fungicide chemistries
- Assessing the impact of mycotoxins on food safety
- Forecasting disease risk in 35 states with the web-based FHB Risk Tool used by growers for fungicide application decisions (http://www.wheatscab.psu.edu)

Funding for wheat and barley FHB research is authorized and allocated at $15 million/year through the U.S. Farm Bill.

$15 MILLION

- **$8.6*** MILLION ALLOCATED TO USWBSI FUNDING (DISTRIBUTED BY USDA-ARS)
- **$6.4** MILLION IS ALLOCATED DIRECTLY TO USDA-ARS BASE FHB RESEARCH

** In FY24, a $1M reduction to USWBSI's allocation was temporarily implemented for a total of $7.6M allocated.*

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 Land Grant Universities, and grower and industry stakeholders.

Leveraging Resources and Collaboration

The USWBSI's effective model is built around a federal, state, grower, and industry partnership, that leverages state and federal research infrastructures to address scab through a coordinated national program.

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 food and feed chains from farm to consumer.

Partnering with numerous land-grant universities allows the USWBSI to make use of existing infrastructure in training the next generation of scientists.

Having an Impact

RESISTANT VARIETIES

Variety development is a major focus of the USWBSI, supported with more than half its funding. 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 most FHB-prone production regions. Resistance in durum wheat and barley has proven more challenging, however varieties that resist mycotoxin accumulation are now also 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 optimize their use, in conjunction with resistant varieties. Growers, crop consultants, and others can obtain information about resistant varieties, fungicides, and other management information at: https://scabusa.org/tools.

FOOD SAFETY

USWSBI-funded laboratories 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, including deoxynivalenol (DON). 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).

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

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All references use USWBSI FY23–24 data reports and sources, unless otherwise noted.