FUSARIUM FOCUS

2024 National FHB Forum Provided Breakthroughs Across Disciplines

Located on The University of Texas at Austin's Campus, the A&T Hotel and Conference Center's limestone archways afforded ample space for the FHB community to gather and connect during the 2024 National Fusarium Head Blight Forum.

More than 200 researchers, industry/organization representatives, growers, post-doctoral researchers, graduate students, and guests, from four countries attended the Forum on December 8-10, 2024. Attendees had the opportunity to participate in six general sessions, 17 breakout sessions, an early career game night, two poster sessions, and two breakthrough breakfasts.

Ruth Dill-Macky, University of Minnesota plant pathologist and USWBSI researcher co-chair, welcomed attendees to this year's event. While giving the audience several Forum highlights, including the new concept of breakthrough breakfasts, Dill-Macky thanked the Forum Organizing Committee (FOC) for their efforts in planning this year's program. Dill-Macky provided a brief overview of U.S. FHB activity, which was more prevalent this season compared to prior years. However, funding was a challenge, as the USWBSI received a reduction in the FY24 budget which impacted several projects. She indicated that advocacy efforts were strong, and a quick response from stakeholders was effective in building awareness of the situation on the Hill and the continued importance of FHB research. She then highlighted a few key 2024 USWBSI activities including, the second well-attended Scabinar for practitioner stakeholders, a joint Gene Discovery and Engineering Resistance and Pathogen Biology and Genetics virtual workshop, the VDHR-Northern Soft Winter Wheat Coordinated Project meeting in Wooster, OH, and a High-Throughput Phenotyping Workshop which was held in Fargo, ND to develop an overall strategy and planned approach for USWBSI funded efforts. She also shared that based on results from the communications survey, website enhancements for the Extension, Crop Consultant, and Grower Organization Resources will be launched in 2025.

Lisa Vaillancourt, Forum Organizing Committee co-chair, introduced the 2024 Opening Session Keynote Speaker **Gary Bergstrom** (A Field Pathologist's Insights on Fusarium Head Blight: Four Decades and Still Learning), followed by **Esten Mason**, FOC co-chair, introducing the plenary presentation by **James Burgum** (Supply Chain Solutions, Vision for the Future). These presentations emphasized the importance of data driven FHB research.

Bergstrom's presentation provided the perspective of a researcher who worked on *Fusarium graminearum* for the vast majority of his career including being the first lab to document an isolate of *F. graminearum* in North America that was resistant to a triazole fungicide. Working with soft winter wheat and malting barley as rotational crops in the Northeast, Bergstrom has witnessed the transition from planting highly susceptible varieties to new varieties with moderate resistance. However, even with better resistance, there is still a risk for DON contamination over purchase limits. In his research, he has tested multiple potential biofungicides and alternatives to synthetic fungicides but has never identified a product consistently efficacious for use by organic small grains producers. Bergstrom has also studied the epidemiology, aerobiology, and population biology of the fungus. Through a multi-year, multi-site experiment, Bergstrom and collaborators determined the long-distance atmospheric dispersal of ascospores. This allowed them to

2024 National Forum, continued on page 2

Ruth Dill-Macky

Gary Bergstrom

James Burgum

FUSARIUM FOCUS

Fusarium Focus is an online newsletter published periodically by the U.S. Wheat & Barley Scab Initiative (USWBSI) and distributed to the USWBSI community.

Content Creation: Amber Hoffstetter
Design: Dawn Mathers

The USWBSI is a national multi-disciplinary and multi-institutional research consortium whose goal is to develop effective control measures that minimize the threat of Fusarium Head Blight (scab), including the production of mycotoxins, for producers, processors and consumers of wheat and barley. The USWBSI's annual budget comes from Federal funds appropriated through the USDA-ARS and is distributed to more than 120 research projects in 31 states.

U.S. Wheat & Barley Scab Initiative (USWBSI)
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> *"I appreciate the informal networking to ask questions of individual investigators and arrange future collaborations. The commodity and disciplinary breakouts also have tremendous value for research planning."*
>
> **—2024 NFHB FORUM ATTENDEE**

estimate on average that approximately one-third of the inoculum load came from within-field sources (i.e., overwintered corn residue) and two-thirds came from atmospheric deposition of spores from outside the field. His lab was also able to demonstrate the presence of four mycotoxin-producing chemotypes within New York and associate them between intensively managed agricultural regions versus non-agricultural regions. While he has witnessed and participated in the steady progress of understanding and managing FHB throughout his career, Bergstrom continues to work as an emeritus professor at Cornell University and is always looking for those "aha moments."

Following Bergstrom's presentation, Burgum's presentation provided insights into the Arthur Companies and how the 118-year-old company in servicing growers. The company operates multiple grain elevators throughout North Dakota and eastern Idaho. In addition, it operates 7 full-service agronomy locations, and has now started a wheat breeding and research program. By investing in Frontier Genetics and launching Latitude 47, the Arthur Companies hopes to tie the grower and end-user needs together and is striving to provide "data driven decisions and confidence in their recommendations" to the growers.

Following the Opening Session, Sunday, Monday, and Tuesday General Sessions featured sixteen relevant invited presentations covering topics ranging from regulatory mycotoxin analysis, trichothecenes in Europe, barley transformation, updates on spray application technology, using BioID in both plants and fungi to identify effectors and their targets, as well as mapping and breeding for resistance in wheat. General Sessions were moderated by the FOC members with live question and answer sessions following each presentation. A full list of the presenters and their presentation abstracts are available online.

Included in this year's presentations were four speakers giving highlights from the USDA-ARS's Intramural Research programs; **Mary Guttieri**, from the Hard Winter Wheat Genetics Research in Manhattan, Kansas, presented enhancing hard winter wheat germplasm by pyramiding resistance genes (Germplasm Development for FHB Resistance in USDA-ARS); **Mark Busman**, from the National Center for Agricultural Utilization Research in Peoria, Illinois, showed disease development from NA3 populations compared to other North American *F. graminearum* populations spread more slowly in wheat, but during initial infection they produced more mycotoxins compared to the others

Attendees enjoyed the new "Breakthrough Breakfasts" to meet with colleagues on a topic of mutual interest and build connections.

2024 National Forum, continued from page 2


Mary Guttieri

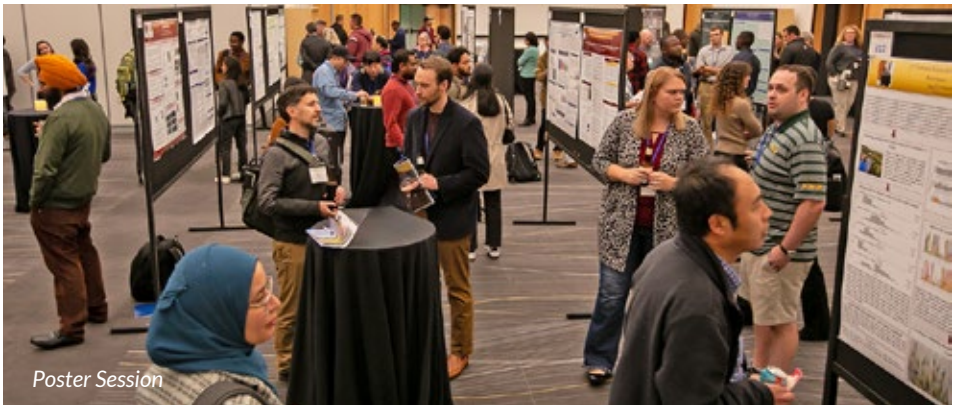

Mark Busman


Andrew Read


Milton Drott

(Prevention, Mitigation, and Detection of Mycotoxins in Wheat and Barley); the evolution of the Uniform Regional Scab Nursery for Spring Wheat Parents over the past 30 years was presented by **Andrew Read**, from the Plant Science Research Unit in St. Paul, Minnesota (Thirty Years of the Hard Red Spring Wheat Uniform Regional Scab Nursery); and finally **Milton Drott**, from the Cereal Disease Lab in St. Paul, Minnesota, showed that there is a significant reservoir of chemical diversity within and between *F. graminearum* populations that contributes to disease progression and emphasizes a need to define emerging mycotoxins (The Pan-secondary Metabolome of *Fusarium graminearum* Points to New Mycotoxins and Virulence Factors). At the end of all four presentations, questions were asked of all four presenters in a panel format.

There were two live poster sessions at the 2024 NFHB Forum on Sunday and Monday evening. During these sessions, the authors of sixty-seven posters, up twelve from 2023, presented their research to other attendees during the reception. Attendees could also view posters in an online format using the Virtual Poster Room prior and during the Forum. Poster Competition winners were announced Monday preceding the second poster session allowing attendees to visit the winning posters and ask further questions.


Poster Session

Monday morning was broken out into a series of sessions organized by Research Category. Chairs of the breakouts led discussions related to ideas for new research projects, as well as updates on funded projects. In addition to Research Category Breakout Sessions, the T3 Breeders Database Workshop, four Regional Genotyping Lab Updates, and a Nuts and Bolts Workshop providing an introduction into the technical basics of

Special Thanks to the USWBSI 2024 Forum Organizing Committee

CO-CHAIRS

Esten Mason, Colorado State University
Lisa Vaillancourt, University of Kentucky

MEMBERS

FHB MANAGEMENT
Kelsey Andersen Onofre, Kansas State University
Christina Cowger, USDA-ARS

FOOD SAFETY & TOXICOLOGY
Dave Kendra, Cibus
Mark Busman, USDA-ARS

GENE DISCOVERY AND ENGINEERING RESISTANCE
Nidhi Rawat, University of Maryland
Matt Helm, USDA-ARS

PATHOGEN BIOLOGY AND GENETICS
Hye-Seon Kim, USDA-ARS
Mitch Elmore, USDA-ARS

VARIETY DEVELOPMENT AND HOST RESISTANCE
Jason Fiedler, USDA-ARS
Jessica Rutkoski, University of Illinois


General Session audience

2024 National Forum, continued from page 3

Photo Booth


2024 National FHB Forum Attendees

FHB inoculation and DON analysis for grain samples were provided.

Several attendees took the opportunity to network outside of scheduled sessions during the new Breakthrough Breakfast table topics where each day seven different topics were selected from attendee input to provide conversation and stimulate collaboration. Besides networking during the Poster Sessions, on Monday evening, the Graduate Students and Post-docs in FHB hosted a game night for early career attendees to interact and get to know one another (See GPFHB article on pg. 8 for full story).


Richard Magnusson

Richard Magnusson, Roseau, MN grower and USWBSI grower co-chair, provided the Closing Session remarks. Magnusson offered a special thank you to all the Forum sponsors, which helped make the event possible. In addition, he thanked the FOC Chairs and members for organizing such a wonderful event, and the broader FHB community for their ongoing engagement and volunteer investment in the USWBSI.

As a reminder, abstracts of all the presentations and posters continue to be available in the online 2024 NFHB Forum Abstract Viewer. If you need to reference material presented during the Forum, the full 2024 NFHB Forum Proceedings are also now published. An assortment of photos from the 2024 NFHB Forum were also captured, if you haven't already, make sure to check out the online albums.

Thank you sponsors

2024 NFHB FORUM FUNDING AGENCY

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U.S. DEPARTMENT OF AGRICULTURE

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NFHB Forum Poster Competition Offered Opportunity to Hone Presentation Skills

In its fifth year, the Poster Competition at the 2024 NFHB Forum featured 19 posters across four research categories presented by 13 graduate students and 6 post-doctoral researchers. 22 judges evaluated the posters between two rounds of judging to determine the top three graduate student and post-doctoral researcher winners.

The Poster Competition provides presenters with the opportunity to present both virtually and in-person, if selected as a finalist. In the first round, posters were evaluated using the Virtual Poster Room by three experts in the field for scientific merit and appearance using a poster image and a 3-minute pre-recorded video by the presenting author. In the second round of judging, presenters were asked to give a 3-minute live presentation and answer up to two questions from the judges. Once evaluated, the scores of the judges were tallied quickly to announce the winners at the end of Monday's General Sessions. Awards were presented by **Richard Magnusson**, Minnesota grower and USWBSI stakeholder co-chair, and **Reuben McLean**, senior director of quality and regulatory for Grain Craft, on behalf of the North American Millers' Association (NAMA).

The awardees were recognized by their peers during the second Poster Session and Reception on Monday evening. Cash prizes, sponsored by NAMA, were awarded to the top 3 awardees in each category: 1st Place - $500, 2nd Place - $300, and 3rd Place - $200. A huge thank you to NAMA, for generously providing these cash prizes for all the awardees.

The Poster Competition provides a great opportunity for graduate students and post-docs to showcase their research. All the competitors enjoyed this year's event and the winners were all appreciative of their awards. The USWBSI looks forward to organizing the competition again in 2025, details will be available in the coming months.

Richard Magnusson (USWBSI Grower Co-Chair), Ruth Dill-Macky (USWBSI Researcher Co-Chair), and Reuben McLean (North American Millers' Association Representative) with poster competition awardees. BACK L TO R: *Ruth Dill-Macky, Nicholas Rhoades, Alireza Poursafar, Bhavit Chhabra, Subash Thapa, Reuben McLean, and Richard Magnuson.* FRONT L TO R: *Lovepreet Singh and Youhuang Xiang.*

Congratulations to the 2024 NFHB Forum Poster Competition Winners

POST-DOCTORAL RESEARCHER AWARDEES

1st Place: **Lovepreet Singh**, University of Minnesota, Pathogen Biology and Genetics, "*Rapid Detection of* Fusarium graminearum *Chemotypes Using a Single-tube Multiplex High-Resolution Melting (HRM) Assay*"

2nd Place: **Nicholas Rhoades**, USDA-ARS, Pathogen Biology and Genetics, "*Fusarium graminearum Effector FgRGAE is Critical for Fungal Initial Infection in Wheat and Barley*"

3rd Place: **Youhuang Xiang**, Indiana University, Gene Discovery and Engineering Resistance, "*A Fusarium graminearum Effector FgTPP1 Interacts with Stromal Chaperone HSP70 and Suppresses Plant Immunity*"

GRADUATE STUDENTS AWARDEES

1st Place: **Subash Thapa**, South Dakota State University, Variety Development and Host Resistance, "*Enhancing Predictive Accuracy for Fusarium Head Blight-Related Traits in Winter Wheat through Integrating Genomics, Phenomics, and Deep Learning*"

2nd Place: **Bhavit Chhabra**, University of Maryland, Gene Discovery and Engineering Resistance, "*Discovery and Mapping of FHB-resistant Mutations in a Susceptible Wheat Variety 'Jagger'*"

3rd Place: **Alireza Poursafar**, North Dakota State University Gene Discovery and Engineering Resistance, "*Identification and Characterization of Fusarium Head Blight Susceptibility Genes in Durum Wheat*"

To learn more about this year's poster winner's check out the January Featured Researcher posting.

Special Thanks to All the 2024 Poster Judges

Gazala Ameen, South Dakota State University
Alyssa Collins, Pennsylvania State University
Ken Davis, Grow Pro Genetics
Dongying Gao, USDA-ARS
Mike Giroux, Montana State University
Guixia Hao, USDA-ARS
Terra Hartman, Bayer Crop Science
Shahryar Kianian, USDA-ARS
Dal-Hoe Koo, Kansas State University
Wanlong Li, South Dakota State University
Carrie Maune, Trilogy Labs
Jason McCann, RahrBSG
Susan McCormick, USDA-ARS
John McLaughlin, Rutgers, the State University of New Jersey
Dojin Ryu, University of Missouri
David Schmale, Virginia Tech
Steve Scofield, USDA-ARS
Mark Sorrells, Cornell University
Brian Steffenson, University of Minnesota
Christopher Toomajian, Kansas State University
Jin-Rong Xu, Purdue University
Xiaofei Zhang, University of California, Davis.

If you are interested in serving as a poster judge for future competitions, please contact Amber Hoffstetter.

Experts in High Throughput Phenotyping Map Out Plan for USWBSI

The USWBSI Executive Committee recently sponsored a special High-Throughput Phenotyping (HTP) workshop. The workshop, which focused on developing an overall strategy and planned approach for USWBSI-funded efforts, brought together key individuals focused on the current and future integration of high-throughput/AI-based phenotyping approaches. It was facilitated by **Rich Horsley** and **Ana Maria Heilman Morales** from North Dakota State University (NDSU).

The workshop keynote speaker, Filipe Matias, highlighted effective strategies and tools for attendees to consider when building their HTP efforts.

The workshop objectives included:

- Gaining a better understanding of the various technologies and data modeling effectively utilized.
- Identifying potential new methods for phenotyping FHB in the field and collecting and analyzing data.
- Enhancing collaboration across categories and developing an integrated high throughput phenotyping approach for USWBSI.

Held at the Peltier Complex on the NDSU campus and organized by the USWBSI NFO on September 26-27, 2024, more than 25 attendees participated in the first day of technical presentations and ideation. The invited keynote presentation, "Phenomics Strategies and Tools Applied to Plant Breeding," was provided by **Filipe Matias**, who leads phenomics and environomics for Syngenta in Latin America. This was followed by updates on research being conducted by **Cory Hirsch**, University of Minnesota (A Scalable, Low-Cost Phenotyping Strategy for Plot and Single Spike FHB Field Ratings); **Ali M Nafchi**, South Dakota State University (FHB Detection Using a 360-Degree Deep Scanning Method); **Trevor Rife**, Clemson University (Developing Applied Phenotyping Tools for Plant Breeding and Genetics Research); **Eric Olson**, Michigan State University (Phenotyping FHB Using a Combination of Hyperspectral and Thermal Imaging Methods); and **Ce Yang**, University of Minnesota (Multimodal Intelligence Platforms for High-Throughput Phenotyping on Wheat FHB Detection).

The workshop also included a facilitated ideation session, during which attendees brainstormed ideas, identified challenges, and discussed current and future opportunities for collaboration in a speedy round of targeted questions and challenges.

A smaller targeted group met on the second day to review and summarize the insights from the prior sessions and build a recommendation for USWBSI consideration. There was significant interest in launching collaborative projects related to HTP for FHB. The group noted that progress in fostering collaborations and building communities has been slowed by the pace of adoption and testing of current systems, which is further limited by funding challenges. They would like to see this issue addressed. The team developed a report presented to the USWBSI Executive Committee (EC) in December to highlight their findings and potential path for consideration in future funding cycles. The USWBSI EC is currently considering their recommendations and will have further discussions in April 2025 as the USWBSI Action Plan and FY26 Request for Proposals (RFP) are updated.

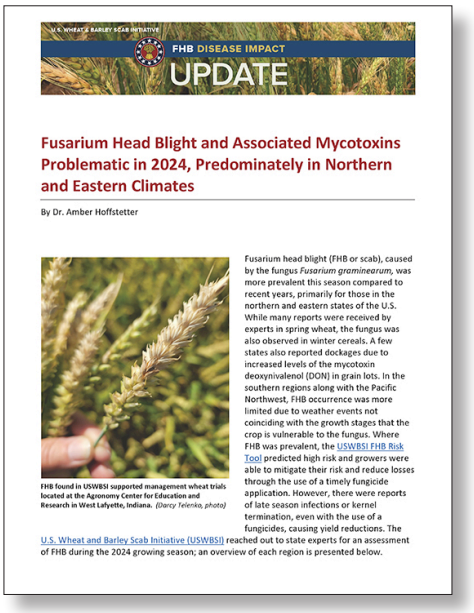
Expert technical presentations highlighting the latest advances and HTP methods were shared with the workshop attendees.

After a day of presentations and ideation, the HTP workshop invited speakers and facilitators held a focused discussion on the overall strategy and planned approach for USWBSI funded efforts.

2024 FHB Disease Impact Update Shows FHB and Associated Mycotoxins Problematic in 2024

The U.S. Wheat and Barley Scab Initiative's (USWBSI) *2024 Fusarium Head Blight Disease Impact Update* was released on November 4, 2024. **Amber Hoffstetter**, PhD, USWBSI research technical specialist, once again authored this year's article. Commentary from experts in 32 states indicated FHB was more prevalent this season compared to recent years, primarily for those in the northern and eastern states of the U.S. A few states heard reports of dockages due to increased levels of deoxynivalenol (DON) and yield reductions. The southern regions, along with the Pacific Northwest, had more limited cases of FHB due to weather events not coinciding with growth stages when the crop is vulnerable to infection. Where FHB was prevalent, the FHB Risk Tool predicted high risk and growers were able to mitigate losses through the use of fungicide applications.

"The FHB Risk Tool and new varieties with improved FHB resistance, developed by experts collaborating with the USWBSI, have proved to reduce the risk of FHB when implemented by U.S. growers in a growing season such as we just had where FHB was prevalent," noted **Ruth Dill-Macky**, USWBSI researcher co-chair. Growers and extension specialists are utilizing the information provided by the USWBSI in making production decisions and educating on effective management strategies including the FHB Risk Tool, fungicides, and crop varieties.


U.S. WHEAT & BARLEY SCAB INITIATIVE

FHB DISEASE IMPACT UPDATE

Fusarium Head Blight and Associated Mycotoxins Problematic in 2024, Predominately in Northern and Eastern Climates

By Dr. Amber Hoffstetter

FHB found in USWBSI supported management wheat trials located at the Agronomy Center for Education and Research in West Lafyette, Indiana. *(Darcy Telenko, photo)*

Fusarium head blight (FHB or scab), caused by the fungus *Fusarium graminearum*, was more prevalent this season compared to recent years, primarily for those in the northern and eastern states of the U.S. While many reports were received by experts in spring wheat, the fungus was also observed in winter cereals. A few states also reported dockages due to increased levels of the mycotoxin deoxynivalenol (DON) in grain lots. In the southern regions along with the Pacific Northwest, FHB occurrence was more limited due to weather events not coinciding with the growth stages that the crop is vulnerable to the fungus. Where FHB was prevalent, the USWBSI FHB Risk Tool predicted high risk and growers were able to mitigate their risk and reduce losses through the use of a timely fungicide application. However, there were reports of late season infections or kernel termination, even with the use of a fungicides, causing yield reductions. The U.S. Wheat and Barley Scab Initiative (USWBSI) reached out to state experts for an assessment of FHB during the 2024 growing season; an overview of each region is presented below.

The Fusarium Head Blight Disease Impact Update provides an annual report of the crop growing conditions as well as the impact of FHB on wheat and barley in different regions of the United States. Additionally, photographs of these cereal crops were included to highlight specific crop conditions. The USWBSI has been releasing this update article annually since 2010 to provide insights into the experiences that small grains growers had with FHB during the most recent growing season.

For more information subscribe to the FHB Alerts for the most up-to-date information on issues regarding FHB by state experts. ●

NDSU DON Lab Makes a Big Move

The USWBSI supported deoxynivalenol (DON) mycotoxin testing lab at North Dakota State University made a big move this year. Beginning in May of 2024, the lab began packing up equipment, supplies, and samples to move to the new Peltier Complex, a 160,000 square foot facility. The move was finally complete by November. The new space provides adequate lighting and sufficient space to spread out instruments. It also provides a space for sample preparation that is separate from the analysis area. In the prep lab, separate areas are provided for sample grinding and sample preparation. "The new lab potentially offers the ability for more samples, a quicker turnaround time, and the analysis of emerging toxins," said **Zhao Jin**, assistant professor at NDSU and primary investigator for the USWBSI DON Lab located at NDSU. However, grinding and sample preparation are still the two bottlenecks of the process. "Grinding samples takes a lot of time, and sample preparation is still done by hand," adds Jin. In 2024, the lab received half of the expected samples due to issues with cooperators trials. Since starting the lab back up this fall, 25% of those have been analyzed. Jin hopes to see sample submission numbers increase in 2025. ●

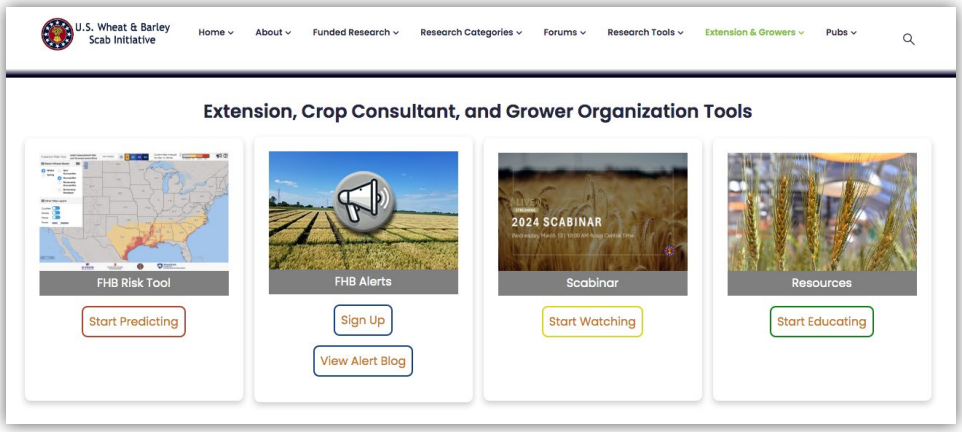
The new analytical lab houses the LC-MS which enables the NDSU lab to test for conjugated DON in samples of wheat and barley.

Kathy Christianson, a research specialist at NDSU, preps samples by hand for DON analysis of wheat and barley.

Extension, Crop Consultant, and Grower Organization Section of ScabUSA Gets New Design

Based off the results from a communications survey conducted in 2023, the USWBSI Networking and Facilitation Office decided to undergo a redesign of the resources for extension specialists, crop consultants, and grower organizations related to FHB available on ScabUSA. Working alongside the FHB Advisory Team consisting of **Boyd Padgett**, Louisiana State University Ag Center extension/research row crop plant pathologist, **Neal Fehringer**, certified professional agronomist at Fehringer Agricultural Consulting, and **Richard Magnusson**, USWBSI grower co-chair, the NFO worked to redesign the layout of resources directed towards these individuals while keeping usability in mind.

Quick links on the landing page are provided to the FHB Risk Tool, FHB Alerts, and the Scabinar. Under Resources, users can find the Fungicide Timing Postcards, download the current Integrated Management Slides to use for extension meetings, read publications, or listen to podcast episodes related to FHB.



We encourage everyone to check out the new landing page for Extension, Crop Consultants, and Grower Organization Tools and familiarize yourselves with the information presented there.

We hope that this redesign helps those seeking more information on FHB find the appropriate resources. If you have any questions, please contact the NFO (nfo@scabusa.org). ●

Breaking Ice at the 2024 NFHB Forum Early Career Social

Nearly 25 graduate students, post-doctoral researchers, technicians, and visiting scholars, attended a social event held at the 2024 National Fusarium Head Blight Forum for early career scientists. Those who attended broke the ice by pairing up with another attendee and learning more about them. Attendees had the opportunity to introduce their new colleague and tell the others something fun that person liked to do. The group then moved into team-oriented action, with the game Pass the Action. **Lawrence Tidakbi**, the new GPFHB co-organizer, joined **Bhavit Chhabra** to choose categories and words. Each team had to then interpret the word into an action and pass it down the line to their other team members. The last person in line raced to beat the other team back to Chhabra and Tidakbi, repeated the action, and said what they thought the word was. Many laughs were had as actions altered throughout the line. Participants loved the fun and engaging activities and built connections that continued throughout the rest of the NFHB Forum and beyond. To receive more information about upcoming GPFHB events join the email listserv. ●

Graduate students, post-doctoral researchers, technicians, and visiting scholars played Pass the Action during the GPFHB social held at the 2024 NFHB Forum.

GPFHB (Graduate Students and Post-Docs in FHB) is a USWBSI network of graduate students and post-docs whose goal is to provide educational, career, and social opportunities for those in FHB research and beyond. The focus of GPFHB is to bring together the current generation of graduate students and post-docs with other members of this community to provide information on relative topics.

USWBSI Featured Researchers 2024 Highlights

Special thanks to the following individuals who were highlighted this past year for their contributions to the FHB community. If you haven't had a chance to visit yet, links to all the past featured researchers are available on the USWBSI Featured Researcher archives page. Have an idea for a featured researcher? Send your suggestions to amber.hoffstetter@scabusa.org.

Here is a listing of all the individuals that were featured in 2024:

TOP ROW: **2023 NFHB Forum Poster Competition Winners / Wanlong Li**, South Dakota State University, Brookings, ND / **Gary Bergstrom**, Cornell University, Ithaca, NY • MIDDLE ROW: **Margaret Krause**, Oregon State University, Corvallis, OR / **Andrew Friskop**, North Dakota State University, Fargo, ND / **Shuyu Liu**, Texas A&M University, College Station, TX / **Lisa Vaillancourt**, University of Kentucky, Lexington, KY • BOTTOM ROW: **Pierce Paul**, The Ohio State University, Wooster, OH / **Frances Trail**, Michigan State University, East Lansing, MI / **Gina Brown-Guedira**, USDA-ARS, Raleigh, NC / **Franz Berthiller**, BOKU, Austria /**James Anderson**, University of Minnesota, St. Paul, MN

MARK YOUR CALENDARS

2025 National Fusarium Head Blight Forum—Denver, Colorado

The 2025 National Fusarium Head Blight Forum will be held December 7-9, 2025, in Denver, Colorado at the Hilton Denver City Center. Located in the heart of downtown Denver, Larimer Square, Coors Field, and the Denver Performing Arts Complex are all within walking distance. Just one block away, on 16th Street, you'll find options for dining, nightlife, and shopping. Mark your calendars and make plans to enjoy the Mile High City at the 2025 NFHB Forum! Stay tuned for updates on the 2025 National FHB Forum website, and watch your email for more information as it becomes available.

PHOTO COURTESY VISIT DENVER

2024 USWBSI Publications

Twenty-four publications associated with USWBSI funding were published this past year. Take some time to read some of these impressive articles.

Anderson, J. A., Wiersma, J. J., Reynolds, S. K., Conley, E. J., Stuart, N., Caspers, R., Kolmer, J., Rouse, M. N., Jin, Y., Dill-Macky, R., Smith, M. J., & Dykes, L. (2025). Registration of 'MN-Rothsay' spring wheat with high grain yield and lodging resistance. Journal of Plant Registrations, 19, e20400. https://doi.org/10.1002/plr2.20400

Anderson, J. A., Wiersma, J. J., Reynolds, S. K., Conley, E. J., Stuart, N., Caspers, R., Kolmer, J. A., Rouse, M. N., Jin, Y., Dill-Macky, R., Smith, M. J., & Dykes, L. (2024). Registration of 'MN-Torgy' spring wheat with moderate resistance to Fusarium head blight and adult plant resistance to Ug99 stem rust. *Journal of Plant Registrations*, 18, 122–133. https://doi.org/10.1002/plr2.20321

Ballén-Taborda, C., Lyerly, J., Smith, J., Howell, K., Brown-Guedira, G., DeWitt, N., Ward, B., Babar, Md A., Harrison, S. A., Mason, R. E., Mergoum, M., Murphy, J. P., Sutton, R., Griffey, C. A., & Boyles, R. E. (2024). Predicting superior crosses in winter wheat using genomics: A retrospective study to assess accuracy. *Crop Science*, 64, 2195–2211. https://doi.org/10.1002/csc2.21266

Batista, L. A., Bandillo, N., Friskop, A., & Green, A. (2024). Accelerating genetic gain through strategic speed breeding in spring wheat. *Crop Science*, 64, 3311–3322. https://doi.org/10.1002/csc2.21380

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Colleagues Reconnect at 2024 National Fusarium Head Blight Forum

When you attend the National Fusarium Head Blight Forum you know you're going to see people you collaborate with and meet new people. But often, you don't think about running into someone from your past. **Mohammad Jafar Tanin** is a visiting scholar from Afghanistan, now working at the University of Missouri and **Subash Thapa** is originally from Nepal but is currently a PhD student studying at South Dakota State University. The two first met at Punjab Agricultural University in Ludhiana, India in 2019. At the time, Thapa was working on his master's degree in plant pathology while Tanin was a PhD student in the Department of Plant Breeding and Genetics. The two worked together closely for almost a year, conducting research in the same lab. Eventually, both graduated and moved on with their careers. To their surprise, four years later, the two reconnected unexpectedly at the 2024 National Fusarium Head Blight Forum in Austin, Texas. "Neither of us knew that the other would be attending the Forum this year or that we were both working on FHB", said Thapa. Reuniting was a pleasant surprise to both of them and allowed the two friends to catchup on life events. "We had no idea the other would be there, and it felt like a small world moment," said Tanin. Tanin was able to be there and celebrate with Thapa on his first-place win in the Graduate Student Poster Competition. This story is a great reminder that our paths often cross in very unexpected ways.

Jafar Tanin and Subash Thapa reconnected at the 2024 National Fusarium Head Blight Forum.

The Beginning of the New Year Brings New NWIC Leadership

JOCHUM WIERSMA / *National Wheat Improvement Committee Outgoing Chair* and CHRISTINA HAGERTY / *National Wheat Improvement Committee Incoming Chair*

Christina Hagerty, Chair of National Wheat Improvement Committee.

At the National Wheat Improvement Committee's meeting in Austin, Texas on December 10 and 11, the current Chair, **Jochum Wiersma's**, tenure ended with **Christina Hagerty**, dryland cereal pathologist at the Pendleton Station at Oregon State University and past vice-chair, assuming the role. **Allan Fritz**, Kansas State University's winter wheat breeder, was elected as the incoming vice-chair.

During Hagerty's tenure as vice-chair she, like those who came before her, learned the difference between authorization and appropriation language while roaming the halls of the Russell and Longworth buildings on either side of Capitol Hill. As a plant pathologist, she is well suited to advocate for the increased funding authorization and appropriations for the USWBSI and the Wheat Resiliency Initiative.

Hagerty will serve as chair of the NWIC for the next two years, the first woman to do so. Her term ends in December of 2026.

The National Association of Wheat Growers (NAWG) is the primary representative of U.S. wheat growers. NAWG and its 20 member-states work to coordinate and implement policy priorities in the following areas: farm policy, conservation, energy, research, trade (on Capitol Hill), biotechnology, and others. https://wheatworld.org/.

The National Wheat Improvement Committee (NWIC) is a non-profit organization composed of 24 voting members whose mission is to communicate, educate, and advocate on behalf of the scientific well-being of the U.S. wheat industry. NAWG is the Secretariat of the Committee, and the two organizations work together each year to outline and advocate research priorities. https://wheatworld.org/coalitions/.

HAVING AN IMPACT

FOOD SAFETY

44,000+ **wheat and barley samples**, submitted from 31 states in FY23, were evaluated for mycotoxins through USWBSI funded DON labs

ECONOMIC RETURN

For every $1 invested in FHB research by the USWBSI, there are $71 in benefits generated

COMMUNITY UPDATES

Kudos On Your New Degrees

Mahnoor Asif graduated from the University of Nebraska-Lincoln in December with her doctorate degree in plant pathology. Her project with **Stephen Wegulo** focused on integrated management strategies, particularly the effects of cultivar and fungicide, to mitigate FHB and DON in winter wheat.

Binod Gyawali graduated from Purdue University with his doctorate degree in agronomy. His project with **Mohsen Mohammadi** was on the application of exogenous double-stranded RNA with graphene quantum dot nanocarriers to target *fusarium graminearum* genes for controlling FHB in wheat.

Kudos to Those Starting New Positions

Cory Hirsch, Ph.D., is serving in the role of interim head of the Department of Plant Pathology at the University of Minnesota. Hirsch joined the Department of Plant Pathology in 2016. As an associate professor, his research focuses on plant stress resistance biology. Hirsch's appointment as interim head was effective January 1.

Shaobin Zhong, Ph.D., had accepted the position as the new research plant pathologist at the USDA-ARS Cereal Disease Lab in St. Paul, Minnesota. Zhong will lead a program focusing on leaf rust pathology and genetics.

Congratulations on Your Retirement

Gary Bergstrom, a small grains pathologist at Cornell University, retired in June 2024. Working on FHB for most of his career, Bergstrom was an inaugural participant in the formation of the USWBSI. As a funded PI, his research focused on epidemiology and coordinated management projects for FHB. His most memorable project included collaborating with many colleagues in the U.S. and Canada on epidemiology/aerobiology/pathogen population research. Bergstrom is continuing as an emeritus professor.

Patrick Hayes, professor of barley breeding and genetics at Oregon State University, retired in January 2024. Hayes has been a PI with the USWBSI since 2017, working on developing doubled haploid barley lines with FHB resistance for breeders. Hayes intends to continue as an emeritus professor.

J. Paul Murphy, the small grains breeder at North Carolina State University, retired in February 2024. Murphy was a PI with the USWBSI since 1999, serving as the Chair of the Variety Development and Host Resistance Southern Winter Wheat Coordinated Project. During his 24 years with the USWBSI, his biggest accomplishments were the collaborations on the Uniform Southern Scab Nursery and the distribution of resistance germplasm.

Kevin Thorsness, a crop protection technical development representative for Bayer Crop Science, retired in November 2024. Serving as a crop protection representative, Thorsness was first elected to the USWBSI Steering Committee in 2013, and continued to serve in that role up until his retirement.

CALENDAR

USWBSI EVENTS

APRIL

17 USWBSI Steering Committee Spring Meeting, virtual, invitation only

DECEMBER

7-9 2025 National Fusarium Head Blight Forum, Denver, CO

OTHER EVENTS

FEBRUARY

26-Mar 4 National Association of Wheat Growers 2025 Annual Conference and Commodity Classic, Denver, CO

MAY

19-23 2025 National Association for Plant Breeding, Kona, HI

JULY

15-17 24th North American Barley Researchers Workshop, Pullman, WA

AUGUST

2-5 Plant Health 2025, Honolulu, HI

OCTOBER

21-24 17th European Fusarium Seminar, Bordeaux, France