PROGRAM

At-a-Glance Program Timeline>>

Monday, December 6

Opening Plenary Session

Forum Organizing Committee Co-Chairs & Moderators:
Carl Bradley, University of Kentucky and
Carl Schwinke, Siemer Milling

Pacific	Mountain	Central	Eastern
8:00 a.m.	**9:00 a.m.**	**10:00 a.m.**	**11:00 a.m.**

5 min **Welcome and NFHB Forum Highlights**
Ruth Dill-Macky, University of Minnesota
USWBSI Co-Chair

25 min **Resisting susceptibility to FHB** View Abstract>>
Paul Nicholson, John Innes Centre; Norfolk, England
Q&A (5 min)

20 min **Challenges and mitigations of *Fusarium* impacts in malting and brewing** View Abstract>>
Xiang Yin, RAHR Corporation
Q&A (5 min)

Break (30 minutes)

Pathogen Biology & Genetics (PBG) Session

Moderators: Peter Oppenheimer, North Carolina State University and Zhao Jin, North Dakota State University

Pacific	Mountain	Central	Eastern
9:30 a.m.	**10:30 a.m.**	**11:30 a.m.**	**12:30 p.m.**

25 min **Impact of microbial associations on *Fusarium graminearum* virulence and disease** View Abstract>>
Briana Whitaker, USDA-ARS NCAUR
Q&A (5 min)

25 min **Unraveling the mystery behind increased DON levels in malting grains** View Abstract>>
Shyam Solanki, South Dakota State University
Q&A (5 min)

30 min **Poster Session** (see page 7)
Interactive time with PBG Poster Authors via Zoom Breakouts

Break (30 minutes)

Monday, December 6 (continued)

Gene Discovery & Engineering Resistance (GDER) Session

Pacific	Mountain	Central	Eastern
11:30 a.m.	**12:30 p.m.**	**1:30 p.m.**	**2:30 p.m.**

Moderators: Rong Di, Rutgers University and Guihua Bai, USDA

25 min **CRISPR-gene editing to engineer plants for disease resistance** View Abstract>>
Bing Yang, University of Missouri
Q&A (5 min)

25 min **Applications of the PHG database in wheat breeding**
Katherine Jordan, USDA-ARS View Abstract>>
Q&A (5 min)

30 min **Poster Session** (see page 6)
Interactive time with GDER Poster Authors via Zoom Breakouts

Break (30 minutes)

Food Safety & Toxicology (FST) Session

Pacific	Mountain	Central	Eastern
1:30 p.m.	**2:30 p.m.**	**3:30 p.m.**	**4:30 p.m.**

Moderators:
Dave Kendra, BASF and JIajia Rao, North Dakota State University

25 min **Impact of botanical biofumigants on grain fungal contaminants and food safety** View Abstract>>
William Hay, USDA-ARS
Q&A (5 min)

25 min **Essential oil based nanoemulsions as antifungal agents in food processing** View Abstract>>
Jiajia Rao, North Dakota State University
Q&A (5 min)

15 min **Poster Session** (see page 5)
Interactive time with FST Poster Authors via Zoom Breakouts

First Day Program Ends

After Hours: Early Career USWBSI Meetup

Pacific	Mountain	Central	Eastern
3:00 p.m.	**4:00 p.m.**	**5:00 p.m.**	**6:00 p.m.**

Moderator:
Peter Oppenheimer, North Carolina State University

60 min Opportunity for graduate students and post-docs to network and meet with their peers while having a chance to ask an early career professional key career tips. Learn more and view the Early Career Professionals Lineup.

Tuesday, December 7

FHB Management (MGMT) Session

Moderators: Christina Cowger, USDA and Ce Yang, University of Minnesota

Pacific	Mountain	Central	Eastern
8:00 a.m.	**9:00 a.m.**	**10:00 a.m.**	**11:00 a.m.**

25 min **Utilizing a high-throughput field based rover for high fidelity and high temporal resolution of FHB phenotyping**
Cory Hirsch, University of Minnesota View Abstract>>
Q&A (5 min)

10 min **Fungicide timing and efficacy for FHB reduction in winter barley** View Abstract>>
Christina Cowger, USDA-ARS
Q&A (5 min)

10 min **Pre-flowering fungicide applications for FHB management in wheat** View Abstract>>
Pierce Paul, Ohio State University
Q&A (5 min)

45 min **Poster Session** (see page 5)
Interactive time with MGMT Poster Authors via Zoom Breakouts

Break (30 minutes)

Variety Development & Host Resistance (VDHR) Session

Moderators: Jessica Rupp, Kansas State University and Nicholas Santantonio, Virginia Tech

Pacific	Mountain	Central	Eastern
10:15 a.m.	**11:15 a.m.**	**12:15 p.m.**	**1:15 p.m.**

25 min **Serendipity and Strategy: Improving FHB Resistance in Hard Winter Wheat** View Abstract>>
Allan Fritz, Kansas State University
Q&A (5 min)

10 min **Multi-trait genomic selection and it's potential to streamline scab resistance phenotyping**
Jessica Rutkoski, University of Illinois View Abstract>>
Q&A (5 min)

10 min Breeding for FHB resistance in hard red winter wheat
Sunish Sehgal, South Dakota State University
Q&A (5 min) View Abstract>>

45 min **Poster Session** (see page 7)
Interactive time with VDHR Poster Authors via Zoom Breakouts

Break (30 minutes)

Tuesday, December 7 (continued)

Closing Session: Virtual Malting Operations and Brewery Tour & FHB Trivia Networking

Pacific	Mountain	Central	Eastern
12:30 p.m.	**1:30 p.m.**	**2:30 p.m.**	**3:30 p.m.**

Forum Organizing Committee Co-Chairs & Moderators:
Carl Bradley, University of Kentucky and Carl Schwinke, Siemer Milling

Participants will have a chance to virtually tour RAHR Corporation's malt production and technical center as well as the Luce Line Brewing Co., followed by randomized breakout sessions for FHB Trivia and informal networking! Test your FHB knowledge and plan to stay after the tour to participate to reconnect with your colleagues. The NFHB Forum will conclude with the announcement of the 2021 NFHB Forum Poster Awardees, sponsored by BASF, along with USWBSI recognitions.

5 min **Closing Session Overview**
Carl Bradley, University of Kentucky
Carl Schwinke, Siemer Milling
NFHB Forum Co-Chairs


20 min **Rahr Malting Operations & Luce Line Brewing Virtual Tour**
Xiang Yin, RAHR Corporation
Tim Naumann, Luce Line Brewing Co.

20 min **FHB Trivia Networking**
All Attendees

15 min **Awards & Recognitions NFHB Forum Closing**
Richard Magnusson, Magnusson Farms
USWBSI Co-Chair

NFHB Forum Adjourns

Pacific	Mountain	Central	Eastern
1:30 p.m.	**2:30 p.m.**	**3:30 p.m.**	**4:30 p.m.**

Special Thanks!

USDA Agricultural Research Service
U.S. DEPARTMENT OF AGRICULTURE

2021 NFHB Forum Funder

BASF We create chemistry | Ideltis Hybrid Wheat

2021 NFHB Forum Poster Award Sponsor

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

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.

U.S. Wheat & Barley Scab Initiative

Poster Sessions

View All Poster Abstracts @ https://scabusa.org/scripts/forum/abstracts.php
Visit the Virtual Poster Room @ https://scabusa.org/scripts/VPosters/

Poster #		Poster Presenter	Institution	Title
100	FHB Management (MGMT)	Albright, Adam	University of Missouri	Cost Effectiveness of Fungicides for FHB Control: Impacts on FDK and Test Weight
101		Andrade, Sheila	University Saskatchewan	Characterizing the Resistance of Fusarium graminearum to Quinone Outside Inhibitor Fungicides
102		Aviles, David (C. Yang presenting)	University of Minnesota	Development of a Lightweight Quadruped for Real-Time FHB Phenotyping Under Variable Field Conditions
103		Bucker Moraes, Wanderson	The Ohio State University	Effects of Environmental Conditions after Fusarium Head Blight Visual Symptom Expression on Deoxynivalenol-3-glucoside Accumulation in Wheat
104		Bucker Moraes, Wanderson	The Ohio State University	Temperature, Moisture, Grain Development, and Harvesting Strategy Effects on Zearalenone Contamination of Grain Harvested from Fusarium Head Blight-affected Wheat Spikes
105		Cinderella, Joseph	University of Delaware	Baseline Fungicide Sensitivity to Pydiflumetofen in Fusarium graminearum Isolated from Wheat Across 16 States
106		Islam, M. Nazrul	Agriculture & Agri-food Canada	Fungicide Sensitivity Towards the Predominant Pathogen Species of Fusarium Head Blight in Cereals from Manitoba, Western Canada
107		Lux, LeAnn	North Dakota State University	Effect of Fungicide and Variety Resistance on the Suppression of Fusarium Head Blight and Deoxynivalenol in Dryland Hard Red Spring Wheat
108		Thorsness, Kevin	Bayer Crop Science	Introduction to Prosaro® Pro - a New Fungicide for Control of Leaf and Head Diseases in Wheat and Barley
109		Turkington, Thomas	Agriculture and Agri-Food Canada, Lacombe Research and Development Centre	The Impact of Row Spacing, Seeding Rate, and Fungicide Timing on Leaf Disease and Fusarium Damaged Kernel Severity, Deoxynivalenol, and Productivity of Spring Wheat
152		Hay, William (M. Vaughn presenting)	USDA-ARS	Fusarium Head Blight Resistance Exacerbates Nutritional Loss of Wheat Grain at Elevated CO^2
110	Food Safety & Toxicology (FST)	Gabriel, Aaron	Cornell Cooperative Extension	Can Barley, High in Vomitoxin, Be Used To Grow Edible Mushrooms?
111		Jiang, Haiyang	North Dakota State University	Antifungal and Mycotoxin Inhibitory Activities of Nanoemulsified Hop Essential Oil Against Fusarium graminearum and Their Mechanism of Action

Poster #		Poster Presenter	Institution	Title
112	Gene Discovery & Engineering Resistance (GDER)	Alhashel, Abdullah (S. Yang presenting)	North Dakota State University	Genetic Engineering to Improve Fusarium Head Blight Resistance in Barley
113		Bethke, Gerit	University of Minnesota	The Barley UDP-Glycosyltransferase UGT13248 is Required for Deoxynivalenol Conjugation and Type 2 Resistance to Fusarium Head Blight
114		Chen, Hui	Kansas State University	Nanoparticle-mediated Genome Editing System for FHB Resistance Improvement in Wheat
115		Chhabra, Bhavit	University of Maryland	Discovery of a Susceptibility Factor for Fusarium Head Blight on Chromosome 7A of Wheat
116		Dineen, Alison	Rutgers, The State University of New Jersey	Genetic Engineering of Barley to Improve Fusarium Head Blight Resistance
117		Huang, Yadong	University of Minnesota	Fine Mapping of FHB and DON Quantitative Trait Loci on Chromosome 2H in Barley
118		Kavetskyi, Volodymyr	Kansas State University	Using a New Genome Editing System to Validate the Functions of Wheat Candidate Genes of FHB1 in Fusarium Head Blight Resistance
119		Kirana, Rizky Pasthika	University of Natural Resources and Life Sciences	Association Genetics of Fusarium Head Blight and Deoxynivalenol Resistance in Aegilops tauschii
120		Li, Wanlong	South Dakota State University	Transfer Fhb7 to Barley Through CRISPR-mediated Targeted Gene Insertion
121		McLaughlin, John	Rutgers, The State University of New Jersey	Deoxynivalenol Induces the Chloroplast Unfolded Protein Response (cpUPR) in Chlamydomonas
122		McLaughlin, John	Rutgers, The State University of New Jersey	Exosome Mediated Protection against FHB
123		Mittal, Isha	University of North Texas	Knockdown of Lpx3 Function in Wheat Enhances FHB Resistance and Lowers DON Content
124		Montoya, Brandon	University of North Texas	Development of Biocompatible siRNA Nanoparticles to Mitigate FHB in Wheat
125		Poudel, Bikash	USDA-Agricultural Research Service	A Wheat Practical Haplotype Graph to Facilitate FHB Resistance Mapping
126		Sallam, Ahmad	University of Minnesota	Meta-Analysis of the Genetics of Resistance to FHB and DON Accumulation Based on a New Barley Consensus Map
127		Singh, Lovepreet	University of Maryland	Towards Fine Mapping of a Native FHB Resistance QTL from Soft Red Winter Wheat Cultivar 'Jamestown'
128		Singla, Shiv	USDA-Agricultural Research Service	Phenylpropanoid-based Resistance to Fusarium Head Blight in Wheat
129		Zhao, Lanfei	Kansas State University	Development and Validation of Diagnostic Markers for the Wheat Fusarium Head Blight Resistance Gene Fhb7

Poster #		Poster Presenter	Institution	Title
130	Pathogen Biology & Genetics (PBG)	Dhakal, Upasana (C. Toomajian presenting)	Kansas State University	A Genome-Wide Association Study for the Genetic Basis of Saprophytic Fitness Traits in a Sample of Isolates of Fusarium graminearum from the Americas
131		Fajardo, Janice	University of Manitoba	Linking the Effects of Fusarium graminearum Infection to Phenolic Acid Content in Malting Barley
132		Ghimire, Bikash	University of Georgia	Population Diversity of Fusarium Species Causing Fusarium Head Blight in Wheat and Greenhouse Pathogenicity Tests of F. poae Isolated from Georgia
133		Hao, Guixia	USDA-Agricultural Research Service	β-1,3-glucan, Laminarin, Trigged an Atypical Reactive Oxygen Response in Wheat and Barely
134		Jayathissa, Anuradha	University of Manitoba	Barley Resistance Ratings to Fusarium Head Blight Reflect Fusarium graminearum Growth and Deoxynivalenol Production During Malting
135		Krone, Mara	University of Illinois	The Effect of Wheat Resistance on the Aggressiveness of Fusarium graminearum
136		Shay, Rebecca	Michigan State University	Exploring the Genetics of Biofilm Development in Fusarium graminearum
137		Yulfo-Soto, Gabdiel	University of Kentucky	Use of Mating-Type Gene Deletion Mutants for Genetic Analysis of Fusarium graminearum
138	Variety Development and Host Resistance (VDHR)	Bian, Ruolin	Kansas State University	Quantitative Trait Loci Mapping for Fusarium Head Blight Resistance in a Wheat EMS Mutant from 'Jagger'
139		Eggers, Ben (E. Stockinger presenting)	The Ohio State University	DON Accumulation and Fusarium Head Blight Resistance in Winter Barley
140		Gautam, Pravin	BASF Corporation	Evaluation of FHB Resistance in Hybrid Wheat
141		Hawkins, John	University of Minnesota	Exploring Variation for FHB Resistance and Toxin Distribution in Naked Barley
142		Hayes, Patrick	Oregon State University	Collaborative Doubled Haploid Breeding for Fusarium Head Blight Resistance in Barley
143		Larkin, Dylan	Colorado State University	Predicting Fusarium Head Blight Resistance for Advanced Trials in a Soft Red Winter Wheat Breeding Program with Genomic Selection
144		Szuleta, Elzbieta	University of Kentucky	Evaluation of Winter Rye (Secale cereale L.) Resistance to Fusarium Head Blight in Kentucky
145		Wallace, Sydney	University of Maryland	Exploring the Genetic Diversity of Fusarium Head Blight Resistance in a Diverse Triticale Collection
146		Wang, Fang	University of Nebraska-Lincoln	Breeding for Fusarium Head Blight Resistance of wheat (Triticum aestivum) by Marker-Assisted Selection and Genomic Selection
147		Wang, Runhao	North Dakota State University	Recurrent Selection to Develop Fusarium Head Blight Resistance Germplasm for Durum Wheat
148		Winn, Zachary	North Carolina State University	Imputation of Fusarium Head Blight Resistance QTL Through Molecular Markers, Genotyping-by-Sequencing, and Machine Learning
149		Xu, Yuzhou	Kansas State University	Characterization of Quantitative Trait Loci for Resistance to Fusarium Head Blight in a Winter Wheat Population
150		Zhang, Wei (X. Cai presenting)	North Dakota State University	A Diploid Tall Wheatgrass-Derived Fhb7 Allele Integrated into Wheat B Genome Conditions FHB Resistance in Wheat
151		Zhong, Shaobin	North Dakota State University	Identification of QTL for Type I Resistance to Fusarium Head Blight in Two Spring Wheat Mapping Populations

Program Timeline Overview

U.S. Time Zones				Monday	Tuesday
Pacific	**Mountain**	**Central**	**Eastern**	**December 6, 2021**	**December 7, 2021**
8:00 a.m.	**9:00 a.m.**	**10:00 a.m.**	**11:00 a.m.**	Plenary Session	MGMT Session
8:15	9:15	10:15	11:15		
8:30	9:30	10:30	11:30		
8:45	9:45	10:45	11:45		
9:00 a.m.	**10:00 a.m.**	**11:00 a.m.**	**12:00 p.m.**	Break	MGMT Poster Author Time
9:15	10:15	11:15	12:15		
9:30	10:30	11:30	12:30	PBG Session	
9:45	10:45	11:45	12:45		Break
10:00 a.m.	**11:00 a.m.**	**12:00 p.m.**	**1:00 p.m.**		
10:15	11:15	12:15	1:15		VDHR Session
10:30	11:30	12:30	1:30	PBG Poster Author Time	
10:45	11:45	12:45	1:45		
11:00 a.m.	**12:00 p.m.**	**1:00 p.m.**	**2:00 p.m.**	Break	
11:15	12:15	1:15	2:15		VDHR Poster Author Time
11:30	12:30	1:30	2:30	GDER Session	
11:45	12:45	1:45	2:45		
12:00 p.m.	**1:00 p.m.**	**2:00 p.m.**	**3:00 p.m.**		Break
12:15	1:15	2:15	3:15		
12:30	1:30	2:30	3:30	GDER Poster Author Time	Closing Session
12:45	1:45	2:45	3:45		
1:00 p.m.	**2:00 p.m.**	**3:00 p.m.**	**4:00 p.m.**	Break	
1:15	2:15	3:15	4:15		
1:30	2:30	3:30	4:30	FST Session	
1:45	2:45	3:45	4:45		
2:00 p.m.	**3:00 p.m.**	**4:00 p.m.**	**5:00 p.m.**		
2:15	3:15	4:15	5:15		
2:30	3:30	4:30	5:30	FST Poster Author Time	
2:45	3:45	4:45	5:45	Break	
3:00 p.m.	**4:00 p.m.**	**5:00 p.m.**	**6:00 p.m.**	Early Career Meetup Networking	

Make sure to **update your Zoom** to the latest version to ensure full functionality of all the features during the event!