

USDA-ARS | U.S. Wheat and Barley Scab Initiative
FY21 FINAL Performance Progress Report

Due date: July 26, 2023

Cover Page

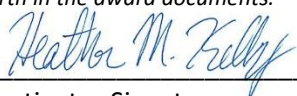
USDA-ARS Agreement ID:	59-0206-0-185
USDA-ARS Agreement Title:	Investigation of Fusarium Head Blight in Tennessee
Principle Investigator (PI):	Heather Kelly
Institution:	University of Tennessee-Knoxville
Institution UEI:	LXG4F9K8YZK5
Fiscal Year:	2021
FY21 USDA-ARS Award Amount:	\$17,163
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Period of Performance:	6/1/21 - 5/31/23
Reporting Period End Date:	5/31/2023

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
MGMT-IM	Integrated Management of FHB and DON in Soft Red Winter Wheat in Tennessee	\$17,163
FY21 Total ARS Award Amount		\$17,163

I am submitting this report as a: FINAL Report

I certify to the best of my knowledge and belief that this report is correct and complete for performance of activities for the purposes set forth in the award documents.



Principal Investigator Signature

7/25/2023

Date Report Submitted

† BAR-CP – Barley Coordinated Project
 DUR-CP – Durum Coordinated Project
 EC-HQ – Executive Committee-Headquarters
 FST-R – Food Safety & Toxicology (Research)
 FST-S – Food Safety & Toxicology (Service)
 GDER – Gene Discovery & Engineering Resistance
 HWW-CP – Hard Winter Wheat Coordinated Project

MGMT – FHB Management
 MGMT-IM – FHB Management – Integrated Management Coordinated Project
 PBG – Pathogen Biology & Genetics
 TSCI – Transformational Science
 VDHR – Variety Development & Uniform Nurseries
 NWW – Northern Soft Winter Wheat Region
 SPR – Spring Wheat Region
 SWW – Southern Soft Red Winter Wheat Region

Project 1: Integrated Management of FHB and DON in Soft Red Winter Wheat in Tennessee

1. What are the major goals and objectives of the research project?

- 1) Evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON, with emphasis on a new fungicide, Miravis Ace[®],
- 2) Generate data to further quantify the economic benefit of FHB/DON management strategies;
- 3) Develop more robust “*best-management practices*” for FHB and DON; and
- 4) Generate data to validate and advance the development of FHB and DON risk prediction models.

2. What was accomplished under these goals or objectives? (For each major goal/objective, address these three items below.)

a) What were the major activities?

- 1) Field trials were conducted at 2 locations in West TN with 4 varieties, varying in their susceptibility to FHB. Five different fungicides were evaluated along with a non-treated check within each of the varieties. Disease ratings and yield were recorded.
- 2) Data were shared with regional cooperators for further analysis of the economic benefit of FHB/DON management strategies
- 3) Through the factorial design at multiple locations, results will help develop more robust BMP for FHB and DON in Tennessee
- 4) Data generated have been shared to compare to risk prediction models to validate and advance the development of the models

b) What were the significant results?

While there wasn't significant disease pressure, there were differences among greenness ratings for varieties at both locations and for fungicide treatment at one location. Although this did not correlation to differences in yield by variety or treatment. Illustrating a more tolerant FHB variety, even in the absence of disease, yielded just as well as a more susceptible FHB variety; where as in the absence of disease a foliar fungicide to protect yield was not needed or beneficial.

c) List key outcomes or other achievements.

These data will be presented to growers as well as previous years data from this initiative, highlighting the advantages to using a more FHB tolerant variety as well as scouting for disease and using the FHB forecast model to best guide when fungicide applications are warranted and when they are not, saving producers money and reducing unnecessary fungicide applications.

3. What opportunities for training and professional development has the project provided?

Graduate and undergraduate student learned how to scout for wheat diseases and look for FDK as well as seen first-hand factorial field plot design and analysis of data from such a design.

4. How have the results been disseminated to communities of interest?

The results will be disseminated during the coming wheat season (on utcrops.com and news.utcrops.com) as well as in county production meetings to producers in the winter. Additionally, the data will be shared with the MGMT-IM group to be incorporated into the larger wheat dataset.

Publications, Conference Papers, and Presentations

Please include a listing of all your publications/presentations about your FHB work that were a result of funding from your FY21 grant award. Only citations for publications published (submitted or accepted) or presentations presented during the **award period** should be included.

Did you publish/submit or present anything during this award period?

- Yes, I've included the citation reference in listing(s) below.
 No, I have nothing to report.

Journal publications as a result of FY21 award

List peer-reviewed articles or papers appearing in scientific, technical, or professional journals. Include any peer-reviewed publication in the periodically published proceedings of a scientific society, a conference, or the like.

Identify for each publication: Author(s); title; journal; volume: year; page numbers; status of publication (published [include DOI#]; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).

Books or other non-periodical, one-time publications as a result of FY21 award

Report any book, monograph, dissertation, abstract, or the like published as or in a separate publication, rather than a periodical or series. Include any significant publication in the proceedings of a one-time conference or in the report of a one-time study, commission, or the like.

Identify for each one-time publication: Author(s); title; editor; title of collection, if applicable; bibliographic information; year; type of publication (book, thesis, or dissertation, other); status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).

Other publications, conference papers and presentations as a result of FY21 award

Identify any other publications, conference papers and/or presentations not reported above. Specify the status of the publication.