

FY21 Performance Progress Report**Due date:** July 26, 2023**Cover Page**

USDA-ARS Agreement ID:	59-0206-0-164
USDA-ARS Agreement Title:	Deoxynivalenol in Wheat and Inhibition of <i>F. graminearum</i> by Compounds in Wheat Bran
Principle Investigator (PI):	Zhao Jin
Institution:	North Dakota State University
Institution UEI:	EZ4WPGRE1RD5
Fiscal Year:	2021
FY21 USDA-ARS Award Amount:	\$162,715
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Period of Performance:	6/1/21 - 5/31/23
Reporting Period End Date:	5/31/2024

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
FST-S	Deoxynivalenol (DON) Analysis in Wheat	\$162,714
FY21 Total ARS Award Amount		\$162,715

I am submitting this report as an: Annual 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.

Zhao Jin

06/30/2023

Principal Investigator Signature

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: Deoxynivalenol (DON) Analysis in Wheat

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

The goal of this project is to provide information to the wheat breeders, durum breeders, plant pathologists, commodity groups, and other researchers working on developing Fusarium resistant cultivars and developing fungicide protocols, with DON analysis results that are timely and affordable.

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?

Approximately 4,465 samples (exclusive of checks and standard curve samples) were analyzed for DON during the reporting period. 10 researchers from four US states (ND, SD, NE & MT) submitted the samples and the majority of them were from breeding programs. Some the samples were from pathologists and other researchers developing fungicide protocols.

b) What were the significant results?

Results for DON content of samples sent by cooperators were obtained and provided to the cooperators. The results were obtained for about 4,465 samples. Statistical information is listed on the DON QC addendum page.

c) List key outcomes or other achievements.

The major outcome of this project for FY21 was that we were able to effectively analyze all of the samples sent by the 10 cooperators by the end of the FY21 funding term. Results were submitted to and accepted by all cooperators involved in USWBSI research.

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

One undergraduate assisted in the laboratory with the testing. The undergraduate student has learned basic laboratory skills and laboratory quality control.

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

The data are provided directly to the researchers. Information on DON in wheat has been disseminated to the growers, breeders, and other scientists by written publications, conferences, and webinars.

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.

Jin Z. (2022). The Role of Fusarium Damaged Kernels in DON Accumulation during the Malting of FHB Infected Wheat. *Proceedings of the 2022 National Fusarium Head Blight Forum*; Tampa, FL. December 4-6, 2022. Retrieved from: <https://scabusa.org/forum/2022/2022NFHBForumProceedings.pdf>.