

FY22 Performance Progress Report**Due date:** July 26, 2023**Cover Page**

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| USDA-ARS Agreement ID: | 59-0206-2-094 |
| USDA-ARS Agreement Title: | Management of Fusarium Head Blight (FHB) in Missouri |
| Principle Investigator (PI): | Mandy Bish |
| Institution: | University of Missouri |
| Institution UEI: | SZPJL5ZRCLF4 |
| Fiscal Year: | 2022 |
| FY22 USDA-ARS Award Amount: | \$18,411 |
| PI Mailing Address: | 214 Waters Hall Columbia, MO 65211 |
| PI E-mail: | bishm@missouri.edu |
| PI Phone: | 573-882-9878 |
| Period of Performance: | May 1, 2022 – April 30, 2026 |
| Reporting Period End Date: | April 30, 2023 |

USWBSI Individual Project(s)

| USWBSI Research Category* | Project Title | ARS Award Amount |
|------------------------------------|---|------------------|
| MGMT IM-CP | Integrated disease management for FHB and DON in Missouri | \$18,411 |
| FY22 Total ARS Award Amount | | \$18,411 |

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.



Principal Investigator Signature

7/21/2023

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 disease management for FHB and DON in Missouri

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

This project has two objectives to study FHB and DON disease management:

- Evaluate effects of integrating fungicide application with genetic resistance on soft winter wheat varieties grown in Missouri.
- Evaluate 1-pass and 2-pass fungicide applications for management of FHB and DON in susceptible soft winter wheat using a standard anthesis application or early anthesis followed by a 4 to 6 days after application (DAA).

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?

Four trials were planted at two locations in November 2022. The three soft winter varieties included: Truman, Bess, and the FHB-susceptible variety 25R40. Applications were made in May 2023. All trials were inoculated with Missouri *Fusarium graminearum* field isolates at the anthesis application timing (10.5.1). Ratings and wheat harvest were conducted in late June and early July 2023, respectively.

b) What were the significant results?

Data will be analyzed in this quarter. Much of Missouri, including the trial site locations, were in severe to exception drought status (D2-D4 categorization by the US Drought Mitigation Center) during May and that continued into June. Disease pressure, based on visible symptoms and ratings, was extremely low to none at both locations. Seed were collected from each plot and grain will be analyzed for *Fusarium Diseased Kernels* (FDK) and mycotoxins this quarter.

c) List key outcomes or other achievements.

Data is continuing to be collected and analyzed so that key outcomes can be determined.

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

Results on new products, application timing, and genetics from the 2022 project were shared with approximately 1,300 Missouri commercial pesticide applicators during trainings this winter. Three undergraduate students and one senior research specialist were trained on aspects of this research during the 2023 growing season.

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

Results from the 2022 project have been distributed through MU Crop & Pest News (1,700 subscribers) and in winter farmer meetings and conferences (~400 producers and agriculture professionals). In Missouri, there is much interest in this topic based on the number of follow up questions, phone calls, and invites to present.

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 FY22 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 May 1, 2022 – April 30, 2023?

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

Journal publications as a result of FY22 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 FY22 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 FY22 award

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