

FY22 Performance Progress Report

Due date: July 26, 2023

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USDA-ARS Agreement ID:	59-0206-2-151
USDA-ARS Agreement Title:	Coordinated IPM for Fusarium Head Blight (FHB) and DON in SRWW - Wisconsin
Principle Investigator (PI):	Damon Smith
Institution:	University of Wisconsin
Institution UEI:	LCLSJAGTNZQ7
Fiscal Year:	2022
FY22 USDA-ARS Award Amount:	\$24,225
PI Mailing Address:	University of Wisconsin, Department of Plant Pathology 1630 Linden Drive, Madison, WI 53706
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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	Coordinated IPM for FHB and DON in SRWW - Wisconsin	\$24,225
FY22 Total ARS Award Amount		\$24,225

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.



7/5/2023

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: Coordinated IPM for FHB and DON in SRWW - Wisconsin

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

- I) Evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON in all major grain classes, with emphasis on new combination fungicides, Prosaro Pro and Sphaerex.
- II) Compare the efficacy of Prosaro Pro and Sphaerex to that of Prosaro, Caramba, and Miravis Ace.
- III) Generate data to further quantify the economic benefit of FHB and DON management programs.
- IV) Generate data to validate and advance the development of FHB risk prediction models.

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

a) What were the major activities?

The IM-CP standard protocols were followed and implemented in Wisconsin on soft red winter wheat (SRWW). This included conducting the integrated management (IM) protocol, treating resistant and susceptible varieties with various fungicides at different application timings. We also conducted the uniform fungicide trial (UFT) to bolster multi-state recommendations for efficacious fungicides. We are contributing data to the multi-state efforts to understand the economic benefits of fungicides for FHB and DON Management and to better predict FHB epidemics.

b) What were the significant results?

We are finding that the new products, Prosaro Pro and Sphaerex, are excellent additions to the fungicide portfolio available for managing FHB and DON in Wisconsin. In fact, these products seem a bit better in efficacy compared to Prosaro and Caramba. This information has been useful in educating farmers about new options for FHB and DONB management in Wisconsin. We also continue to show that varietal resistance is an excellent way to control FHB and DON and to rely on resistant varieties that fit their operation.

c) List key outcomes or other achievements.

Key outcomes of this work have been improved fungicide recommendations for FHB management in Wisconsin. We are amassing a reliable dataset to show farmers that there are additional fungicide options now. Up until this point, we really had only a few tools available for FHB and DON in-season control. With the addition of Prosaro Pro and Sphaerex, we now have additional modern tools along with Miravis Ace at our disposal.

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

While this project did not directly train a graduate student, a graduate student focused on FHB management in organic winter wheat production was involved in assisting technicians in implementing these trials. The grad student obtained experience in experimental design and disease management strategies in wheat.

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

Results obtained were disseminated to stakeholders using cooperative extension outlets. The University of Wisconsin Field Crops Pathology program maintains a website(s) (<https://badgercropdoc.com>) for data distribution. All pertinent results from these trials were posted in online portals. In addition, data were delivered to growers via annual cooperative extension Badger Crops and Soils Update Meetings and Winter Agronomy meetings. All data were also supplied to the IM-CP manager to be included in the multi-state analysis.

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).

N/A

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).

N/A

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.

Peer-reviewed technical reports

Mueller, B. and **Smith, D.L.** 2023. Evaluation of foliar fungicides for control of Fusarium head blight of 'Kaskaskia' wheat in Wisconsin, 2022. Plant Disease Management Reports 17:CF036.
Status: Published

Acknowledgement of Federal Support: N/A

Mueller, B. and **Smith, D.L.** 2023. Evaluation of foliar fungicides for control of Fusarium head blight of 'Harpoon' wheat in Wisconsin, 2021. Plant Disease Management Reports 17:CF037.
Status: Published

Acknowledgement of Federal Support: N/A

Newsletters and Blog Articles

Smith, D.L. 2022. Wisconsin winter wheat disease update-June 1, 2022. Badger Crop Doc Blog, June 1. <https://badgercropdoc.com/2022/06/01/wisconsin-winter-wheat-disease-update-june-1-2022/>

Smith, D.L. 2022. Wisconsin winter wheat disease update-May 24, 2022. Badger Crop Doc Blog, May 24. <https://badgercropdoc.com/2022/05/24/wisconsin-winter-wheat-disease-update-may-24-2022/>

Videos

Smith, D.L. and Smith, D. 2022. Bumper Crops: Early season pest management in winter wheat. University of Wisconsin-Madison, Division of Extension. <https://youtu.be/IQeWM83QG0U>