

FY21 Performance Progress Report

Due date: July 26, 2022

Cover Page

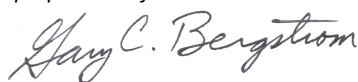
Principle Investigator (PI):	Gary Bergstrom
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Phone:	607-255-7849
Fiscal Year:	2021
USDA-ARS Agreement ID:	59-0206-0-126
USDA-ARS Agreement Title:	FHB Management Research in New York
FY20 USDA-ARS Award Amount:	\$13,363
Recipient Organization:	Cornell University School of Integrative Plant Science Plant Pathology and Plant-Microbe Biology Section, Plant Science Building, Room 316 Ithaca, NY 14850
DUNS Number:	872612445
EIN:	15-0532082
Recipient Identifying Number or Account Number, if any:	1538132 (OSP91332)
Project/Grant Period:	5/3/21 - 5/2/23
Reporting Period End Date:	5/2/2022

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
MGMT-IM	Integrated Management of FHB and DON in Winter Barley in New York	\$13,363
FY21 Total ARS Award Amount		\$13,363

I am submitting this report as an: Annual Report 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

July 26, 2022 _____
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 Winter Barley in New York

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

To provide more robust recommendations for management of Fusarium head blight in barley. Emphasis was placed on timings of fungicide treatments involving Miravis Ace.

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?

We conducted standard protocol IM studies on winter barley (cultivars KWS Scala and LCS Violetta).

b) What were the significant results?

Fusarium head blight index was reduced by all spray treatments, but the greatest reductions were observed with Miravis Ace applied at FGS 10.3, Miravis Ace or Prosaro applied at FGS 10.5 and the double treatments of Miravis Ace at FGS 10.5 followed by either Prosaro or Sphaerex at FGS 10.53. DON contamination of grain was reduced below the malthouse buying threshold of 1 ppm by the application of Miravis Ace or Prosaro at full head emergence and the double treatment of Miravis Ace at full head emergence followed by Sphaerex applied at late flowering. Neither biological treatment resulted in a reduction of DON. We were surprised that Sphaerex applied at full head emergence did not reduce DON in this experiment as it has performed better in experiments by other investigators.

c) List key outcomes or other achievements.

Miravis Ace and Prosaro will continue to be the main effective fungicides for FHB and DON suppression when applied to fully headed barley.

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

NA

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

Through field days, winter grower meetings, email listserves, presentations at the FHB Forum, and publication in *Plant Disease Management Reports*.

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 grant 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).

Starr, J.K., G.C. Bergstrom, and P.J. Stachowski. 2022. Evaluation of integrated methods for management of Fusarium head blight and deoxynivalenol contamination in winter malting barley in New York, 2021. *Plant Disease Management Reports* 16: CF074.

Status: Published

Acknowledgement of Federal Support: Yes

Books or other non-periodical, one-time publications as a result of FY21 grant 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).

NA

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

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

Extension presentations by Gary C. Bergstrom from 5/3/21 to 5/2/22 that included updates on Fusarium head blight research:

Virtual Western and Finger Lakes New York Soybean and Small Grain Congress. (2/9/22)

Status: Presented

Acknowledgement of Federal Support: Acknowledged in slides.

Empire State Barley and Malt Virtual Summit (12/16/21)

Status: Presented

Acknowledgement of Federal Support: Acknowledged in slides.

Cornell Small Grains Management Virtual Field Day (6/3/21)

Status: Presented

Acknowledgement of Federal Support: Acknowledged in slides.