

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

**Due date:** July 26, 2023

**Cover Page**

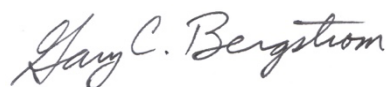
<b>USDA-ARS Agreement ID:</b>	59-0206-0-126
<b>USDA-ARS Agreement Title:</b>	FHB Management Research in New York
<b>Principle Investigator (PI):</b>	Gary Bergstrom
<b>Institution:</b>	Cornell University
<b>Institution UEI:</b>	G56PUALJ3KT5
<b>Fiscal Year:</b>	2021
<b>FY21 USDA-ARS Award Amount:</b>	\$13,363
<b>PI Mailing Address:</b>	Cornell University, School of Integrative Plant Science Plant Pathology and Plant-Microbe Biology Section, Plant Science Building, Room 316 Ithaca, NY 14853
<b>PI E-mail:</b>	gcb3@cornell.edu
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<b>Period of Performance:</b>	5/3/21 - 5/2/23
<b>Reporting Period End Date:</b>	5/2/2023

**USWBSI Individual Project(s)**

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

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.*



July 24, 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:** Integrated Management of FHB and DON in Winter Wheat in New York

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**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 applied by New York producers as effective fungicides for FHB and DON suppression when applied to fully headed barley. Prosaro Pro and Sphaerex have since become available as labeled alternatives in New York.

**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 National 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 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. <https://www.plantmanagementnetwork.org/pub/trial/pdmr/reports/2022/CF074.pdf>  
Status: Published, Acknowledgement of Federal Support: Yes

### 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).

NA

### 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.

Moraes, W.B., G. Bergstrom, K. Bissonette, K. Bowen, C. Bradley, E. Byamumkama, M. Chilvers, A. Collins, C. Cowger, H. Darby, E. DeWolf, R. Dill Macky, P. Esker, A. Friskof, N. Kleczewski, A. Koehler, D. Langston Jr., L. Madden, J. Marshall, H. Mehl, M. Nagelkirk, N. Rawat, D. Smith, D. Telenko, S. Wegulo, H. Young-Kelly, and P.A. Paul. (2022). Fusarium head blight management coordinated project: integrated management trials 2022. Proceedings of the 2022 National Fusarium Head Blight Forum; Virtual. December 4-6, 2022. Retrieved from: <https://scabusa.org/forum/2022/2022NFHBFForumProceedings.pdf>  
Status: Published, Acknowledgement of Federal Support: Yes

Moraes, W.B., G. Bergstrom, K. Bissonette, K. Bowen, C. Bradley, E. Byamumkama, M. Chilvers, A. Collins, C. Cowger, H. Darby, E. DeWolf, R. Dill Macky, P. Esker, A. Friskof, N. Kleczewski, A. Koehler, D. Langston Jr., L. Madden, J. Marshall, H. Mehl, M. Nagelkirk, N. Rawat, D. Smith, D. Telenko, S. Wegulo, H. Young-Kelly, and P.A. Paul. (2022). Fusarium head blight management coordinated project: uniform fungicide trials 2022. Proceedings of the 2022 National Fusarium Head Blight Forum; Virtual. December 4-6, 2022. Retrieved from: <https://scabusa.org/forum/2022/2022NFHBFForumProceedings.pdf>  
Status: Published, Acknowledgment of Federal Support: Yes

**Extension presentations by Gary C. Bergstrom from 5/3/21 to 5/2/23 that included updates on Fusarium head blight research:**

Central New York Soybean and Small Grains Virtual Congress. (4/4/23)

Status: Presented

Acknowledgement of Federal Support: Acknowledged in slides.

Finger Lakes Soybean and Small Grains Congress, Waterloo (2/16/23)

Status: Presented

Acknowledgement of Federal Support: Acknowledged in slides.

Western New York Soybean and Small Grains Congress, Batavia. (2/15/23)

Status: Presented

Acknowledgement of Federal Support: Acknowledged in slides.

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.