

USDA-ARS
U.S. Wheat and Barley Scab Initiative
FY18 Performance Report
Due date: July 12, 2019

Cover Page

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Fiscal Year:	2018
USDA-ARS Agreement ID:	59-0206-6-008
USDA-ARS Agreement Title:	Integrated Strategies for Improved Management of FHB and DON in Soft Red Winter Wheat in Alabama.
FY18 USDA-ARS Award Amount:	\$ 20,362
Recipient Organization:	Auburn University Contracts and Grants Accounting Department (CGA) 208 M. White Smith Hall Auburn, AL 36849
DUNS Number:	066470972
EIN:	63-6000724
Recipient Identifying Number or Account Number:	361848-304504-2002
Project/Grant Reporting Period:	5/23/18 - 5/22/19
Reporting Period End Date:	05/22/19

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
MGMT	Integrated Strategies for Improved Management of FHB and DON in Soft Red Winter Wheat.	\$ 20,362
	FY18 Total ARS Award Amount	\$ 20,362

Kira L. Bowen

2 July 2019

Principal Investigator

Date

* MGMT – FHB Management
 FST – Food Safety & Toxicology
 GDER – Gene Discovery & Engineering Resistance
 PBG – Pathogen Biology & Genetics
 EC-HQ – Executive Committee-Headquarters
 BAR-CP – Barley Coordinated Project
 DUR-CP – Durum Coordinated Project
 HWW-CP – Hard Winter Wheat Coordinated Project
 VDHR – Variety Development & Uniform Nurseries – Sub categories are below:
 SPR – Spring Wheat Region
 NWW – Northern Soft Winter Wheat Region
 SWW – Southern Soft Red Winter Wheat Region

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Project 1: *Integrated Strategies for Improved Management of FHB and DON in Soft Red Winter Wheat.*

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

The objectives were to: 1) evaluate the integrated effects of fungicide and genetic resistance on Fusarium head blight (FHB) and deoxynivalenol (DON) in soft red winter wheat grown in AL; and 2) evaluate the efficacy of Miravis Ace to standard Prosaro and Caramba treatments for FHB and DON management. Data collected from these studies will contribute to national efforts for improved FHB and DON management by: 3) quantifying the economic benefits, 4) developing more robust “*best-management practices*” guidelines, and 5) validating and advancing risk prediction models.

2. What was accomplished under these goals? *Address items 1-4) below for each goal or objective.*

1) major activities

Field studies were done at four sites over two years—in Fairhope (south AL, 2018), Prattville (central AL, 2018 and 2019), Tallassee (east central AL, 2018 and 2019), and Belle Mina (north AL, 2019).

2) specific objectives

The specific objectives for studies at each site were:

Relative to managing FHB and DON contamination:

- a) the efficacy of MiravisAce to standard Prosaro and Caramba treatments were evaluated (Prattville, Belle Mina), and
- b) the integrated effect of genetic resistance and fungicide treatments were investigated (Tallassee and Fairhope).

3) significant results

Very little disease of any kind was seen on wheat in Alabama in 2018. Fungicide treatments did not result in significant differences in test weights or yields at Prattville or Fairhope.

Significantly higher yields were noted for ‘Jamestown’ compared to ‘SS 5550’, and the MiravisAce FS10.5.1 had significantly greater test weights than Prosaro and control treatments at Tallassee.

4) key outcomes or other achievements

With one year of data and little disease, there is little to state.

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

Graduate students help with most aspects of this project, regardless of the thesis project of the students. Tasks done by graduate students included disease rating, determination of thousand-kernel weights and % Fusarium-damaged kernels.

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

Information is shared with Alabama small grains commodity group and Auburn University Extension personnel. Poster presentation done at the National Fusarium Head Blight Forum.

Training of Next Generation Scientists

Instructions: Please answer the following questions as it pertains to the FY18 award period. The term “support” below includes any level of benefit to the student, ranging from full stipend plus tuition to the situation where the student’s stipend was paid from other funds, but who learned how to rate scab in a misted nursery paid for by the USWBSI, and anything in between.

- 1. Did any graduate students in your research program supported by funding from your USWBSI grant earn their MS degree during the FY18 award period?**

No

If yes, how many?

- 2. Did any graduate students in your research program supported by funding from your USWBSI grant earn their Ph.D. degree during the FY18 award period?**

No

If yes, how many?

- 3. Have any post docs who worked for you during the FY18 award period and were supported by funding from your USWBSI grant taken faculty positions with universities?**

No.

If yes, how many?

- 4. Have any post docs who worked for you during the FY18 award period and were supported by funding from your USWBSI grant gone on to take positions with private ag-related companies or federal agencies?**

No.

If yes, how many?

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Release of Germplasm/Cultivars

Instructions: In the table below, list all germplasm and/or cultivars released with full or partial support through the USWBSI during the FY18 award period. All columns must be completed for each listed germplasm/cultivar. Use the key below the table for Grain Class abbreviations.

NOTE: Leave blank if you have nothing to report or if your grant did NOT include any VDHR-related projects.

Name of Germplasm/Cultivar	Grain Class	FHB Resistance (S, MS, MR, R, where R represents your most resistant check)	FHB Rating (0-9)	Year Released

Add rows if needed.

NOTE: List the associated release notice or publication under the appropriate sub-section in the ‘Publications’ section of the FPR.

Abbreviations for Grain Classes

- Barley - BAR
- Durum - DUR
- Hard Red Winter - HRW
- Hard White Winter - HWW
- Hard Red Spring - HRS
- Soft Red Winter - SRW
- Soft White Winter - SWW

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Publications, Conference Papers, and Presentations

Instructions: Refer to the FY18-FPR_Instructions for detailed instructions for listing publications/presentations about your work that resulted from all of the projects included in the FY18 grant. Only include citations for publications submitted or presentations given during your award period (5/23/18 - 5/22/19). If you did not have any publications or presentations, state 'Nothing to Report' directly above the Journal publications section.

NOTE: Directly below each reference/citation, you must indicate the Status (i.e. published, submitted, etc.) and whether acknowledgement of Federal support was indicated in publication/presentation. See example below for a poster presentation with an abstract:

Conley, E.J., and J.A. Anderson. 2018. Accuracy of Genome-Wide Prediction for Fusarium Head Blight Associated Traits in a Spring Wheat Breeding Program. In: Proceedings of the XXIV International Plant & Animal Genome Conference, San Diego, CA.

Status: Abstract Published and Poster Presented

Acknowledgement of Federal Support: YES (poster), NO (abstract)

Journal publications.

Books or other non-periodical, one-time publications.

Other publications, conference papers and presentations.

Bowen, K.L., J. Jones, and M. Pegues. 2018. Evaluation of foliar fungicide treatments for control of diseases of wheat in south Alabama, 2017. Plant Dis. Manag. Reports 12:CF070.

Status: published

Acknowledgement of Federal Support: NO (not possible in PDMRs)

Bowen, K.L. 2018. Observations on Fusarium head blight epidemics in Alabama. Proc. National Fusarium Head Blight Forum, p. 10. St. Louis, MO.

Status: Abstract published and poster presented

Acknowledgement of Federal Support: YES (both abstract and poster)