

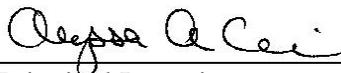
USDA-ARS
U.S. Wheat and Barley Scab Initiative
FY17 Preliminary Final Performance Report
Due date: July 31, 2018

Cover Page

Principle Investigator (PI):	Alyssa Collins
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Fiscal Year:	2017
USDA-ARS Agreement ID:	59-0206-5-005
USDA-ARS Agreement Title:	Management of Spring and Winter Barley in the Mid-Atlantic for Scab.
FY17 USDA-ARS Award Amount:	\$ 15,744
Recipient Organization:	The Pennsylvania State University Research Accounting 227 W Beaver Ave, Ste 401 State College, PA 16801-4819
DUNS Number:	00-340-3953
EIN:	24-6000376
Recipient Identifying Number or Account Number:	404-49 (74TU)
Project/Grant Reporting Period:	6/1/17 - 5/31/18
Reporting Period End Date:	5/31/2018

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
MGMT	Management of Fusarium Head Blight on Barley in the Mid-Atlantic.	\$ 15,744
FY17 Total ARS Award Amount		\$ 15,744



Principal Investigator

7/31/18
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

Project 1: Management of Fusarium Head Blight on Barley in the Mid-Atlantic.

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

1. Develop integrated management strategies for FHB and mycotoxins that are robust to conditions experienced in production fields of wheat and barley.
2. Help develop and validate the next generation of management and mitigation tools for FHB and mycotoxin control.
3. Enhance communication and end user education/outreach.

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

Develop integrated management strategies for FHB and mycotoxins that are robust to conditions experienced in production fields of wheat and barley.

1) Major activities

Winter barley variety x fungicide timing plots were established in Lancaster County, PA and Centre County, PA. These experienced significant disease pressure in 2018, treatments were applied, and plots were harvested in late June. The samples currently await processing to determine results.

2) Specific objectives

- Understand the costs and benefits of utilizing different levels of FHB resistance in combination with various fungicide application timings.
- Determine the feasibility of adding an additional application of fungicide post-anthesis.

3) Significant results

Full results will be available once sample processing and DON testing is complete.

4) Key outcomes or other achievements

Anticipated results and outcomes include the determination of the amount of FHB and DON mitigation that can be expected from well-timed fungicide applications when combined with moderately resistant varieties. We also hope to identify or confirm ideal application timings and varieties.

Help develop and validate the next generation of management and mitigation tools for FHB and mycotoxin control.

1. Major activities

Participated with two field sites in the Risk-based Fungicide Decision-making for FHB and DON Management in Wheat multi-cooperator USWBSI project.

2) Specific objectives

- Evaluate criteria for using the web-based risk assessment tool to make fungicide application decisions for FHB management.
- Develop risk-based fungicide application guidelines for FHB management.

3) Significant results

FHB pressure was quite high in the region in 2018, and all treatments were successfully applied. Final harvest took place in July 2018 and samples currently await processing. Full results will be presented in combination with the results of all sites by Paul et al.

4) Key outcomes or other achievements

We anticipate these data will enhance our knowledge of the efficacy of the FHB forecasting model, especially when combined with data from sites across the continent.

Enhance communication and end user education/outreach.

1) Major activities

- Small Grain Field Day (June 8, 2017)
- Invited talk at the Philadelphia Grain & Malt Symposium: Farming for Malting 101 (March 3, 2018)
- Grower study circle for intensive small grain managers (June 19, 2018)
- Small grain session at Farming for Success Field day (June 29, 2017; June 21, 2018)
- Fact sheet: Pro Tips for Barley Disease Management
- Articles highlighting best management practices informed by this project and others nationwide funded through USWBSI:
 - Field Crop News: So you think you have a scab problem.
 - Weekly Crop Update (DE): Keeping your small grains clean
 - Field Crop News: When to pull the trigger on wheat fungicide
 - Field Crop News: Making small grain fungicide decisions
 - Field Crop News: Planning for small grain health
 - Field Crop News: Small grain disease update

2) Specific objectives

The objectives for this goal have been to increase general knowledge of FHB best management practices so that producers can anticipate the actions they should take to ensure a healthy crop and high levels of quality production. We also wish to enrich the understanding of all those involved in the buying of grain, production of malt, and brewing so that they understand the challenges that FHB presents for growers and how to work together to ensure quality products.

3) Significant results

Face-to-face contacts achieved through the above events numbered well over 350 during this time frame. The print and online resources have reached thousands of end-users both regionally and nationwide.

4) Key outcomes or other achievements

Through these activities, the PIs have established themselves as an important resource to producers and the industry. It is clear that industry professionals are comfortable approaching the PIs with questions and specific needs, and through these communications we learn that growers and others are gaining a better understanding of management for this disease as a result of our efforts.

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

In conjunction with this project, two “Train the Trainer” days have been held for Cooperative Extension Educators in Pennsylvania. During these events, new and experienced educators take part in field walks and discussion sessions with grain pathology specialists to gain a better understanding of FHB and how to manage it. This affords an opportunity for learning not only on the part of Extension Educators, but also for specialists to discover common questions, misconceptions, and challenges among producers and ag industry professionals. Ultimately, this leads to better communication of best management practices throughout the production chain.

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

In addition to the many outreach events and educational materials produced which are listed above, this project has generated interest among trade press and the mainstream media. The malting barley production research has been featured in seven local newspapers and online news sources, CSA News, as well as in craftbrewingbusiness.com. This has generated greater interest from grain producers who are reaching out for help with more frequency than ever before.

Once final results are available, these will become accessible on the Penn State Extension website and through factsheets to farmers, consultants, maltsters, and any other interested parties. We will also present results at grower meetings and conferences.

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Training of Next Generation Scientists

Instructions: Please answer the following questions as it pertains to the FY17 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.

No graduate students or post-docs were supported on this grant.

- 1. Did any graduate students in your research program supported by funding from your USWBSI grant earn their MS degree during the FY17 award period?**

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 FY17 award period?**

If yes, how many?

- 3. Have any post docs who worked for you during the FY17 award period and were supported by funding from your USWBSI grant taken faculty positions with universities?**

If yes, how many?

- 4. Have any post docs who worked for you during the FY17 award period and were supported by funding from your USWBSI grant gone on to take positions with private ag-related companies or federal agencies?**

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 FY17 award period. All columns must be completed for each listed germplasm/cultivar. Use the key below the table for Grain Class abbreviations. *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 FY17-FPR_Instructions for detailed instructions for listing publications/presentations about your work that resulted from all of the projects included in the FY17 grant. Only include citations for publications submitted or presentations given during your award period (6/1/17 - 5/31/18). 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.

Journal publications.

Nothing to report

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

Nothing to report

Other publications, conference papers and presentations.

Collins, A.A., March, 2018. Farming for Malting 101. 2nd Philadelphia Grain and Malt Symposium.

Status: talk given

Acknowledgement of Federal Support: Yes