

**USDA-ARS/
U.S. Wheat and Barley Scab Initiative
FY15 Final Performance Report
Due date: July 15, 2016**

Cover Page

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Fiscal Year:	2015
USDA-ARS Agreement ID:	5-0206-5-005
USDA-ARS Agreement Title:	Management of Spring and Winter Barley in the Mid-Atlantic for Scab.
FY15 USDA-ARS Award Amount:	\$ 14,577
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 4540
Project/Grant Reporting Period:	06/01/15-05/31/16
Reporting Period End Date:	05/31/16

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
MGMT	Evaluation of Spring and Winter Barley Varieties Adapted to the Mid-Atlantic for Resistance to Scab.	\$ 14,577
	FY15 Total ARS Award Amount	\$ 14,577

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

Project 1: *Evaluation of Spring and Winter Barley Varieties Adapted to the Mid-Atlantic for Resistance to Scab.*

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

Evaluate barley varieties for competitive grain yield, quality, and scab resistance that can be part of an integrated program for the control of scab in the Mid-Atlantic and Northeastern United States.

Determine if fungicide application combined with varietal resistance is a viable management approach for FHB in the region.

Educate current and potential barley growers, buyers, maltsters, educators and crop advisors on best management practices for reducing FHB infection and toxin contamination.

2. What was accomplished under these goals?

1) major activities

Trialing of spring & winter malting barley were completed at two locations (Lancaster County, PA for winter barley, and Centre County, PA for both spring and winter barley). These trials included varieties with good potential for malting quality and competitive yields, and paired these with fungicide treatments at heading or 5-7 days after heading.

The first Penn State Malting Barley Field Day was held in Centre County, PA on June 11, 2015. Participants viewed field plots, discussed production considerations with extension specialists in agronomy and plant pathology, and listened to presentations by local maltsters on the malting process and understanding feedstock quality. Approximately 60 growers, maltsters, consultants and educators were in attendance.

Penn State's annual Farming for Success Field Day was held on June 23, 2016 in Lancaster County, PA, during which over 150 attendees participated in sessions on malting barley production and use led by a local malt agronomist. Questions were asked and answered regarding contracting, disease management, and other quality issues. All participants received a copy of the "Malting Barley in Pennsylvania" factsheet which addresses the history of malting barley, production, disease management and marketing.

2) specific objectives

The objectives put forth in the proposal for this project were met in that the studies proposed were executed successfully, with data forthcoming. The educational portion of this project was fulfilled through multiple field events, and will continue through dissemination of research results in newsletters and during winter meetings, which reach thousands of readers and attendees in the Mid Atlantic.

3) significant results

The harvests of barley were completed in June 2016. Samples are currently being processed for yield and quality and packaged for delivery to Yanhong Dong's laboratory in Minnesota for DON analysis. Results should be available in winter of 2016/2017.

4) key outcomes or other achievements

Through this project, growers in the Mid Atlantic are gaining a deeper understanding of the need for high quality malting barley and methods for successful production. Already, more growers are attempting conventional and organic production of the crop. Awareness is growing concerning the issue of and management approaches to Fusarium Head Blight in malting barley. Crop consultants, growers, and maltsters are primed to learn from the results of these studies. As the results become available, they will be eager to use the information we provide to inform their businesses and growing decisions.

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

This project has afforded extension educators, research technicians and student assistants the opportunity to interact with the FHB field trials through data collection and plot observation. In addition, the educational events hosted have allowed them to network with malting industry professionals to understand how to support the burgeoning industry in the MidAtlantic.

Attendance at the National Fusarium Head Blight Forum has provided a valuable opportunity to engage with other workers in disease management. As a result, the PI has been able to enrich extension programming for growers in the Mid Atlantic by bringing back information gained in other regions.

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

While the data is still being gathered and analyzed at this time, we have not yet disseminated the results of this work. When these data are ready, we plan to share results through our online newsletter (Field Crop News), with growers and industry professionals at field days and winter meetings in 2016 & 2017. They will also be made available to any audience at any time through the Penn State website.

Training of Next Generation Scientists

Instructions: Please answer the following questions as it pertains to the FY15 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 FY15 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 FY15 award period? no**

If yes, how many?

- 3. Have any post docs who worked for you during the FY15 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 FY15 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?

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 FY15 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

Refer to the FY15-FPR_Instructions for listing publications/presentations about your work that resulted from all of the projects included in the FY15 grant. If you did not have any publications or presentations, state 'Nothing to Report' directly above the Journal publications section.

Nothing to report

Journal publications.

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

Other publications, conference papers and presentations.