

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

**Cover Page**

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<b>Fiscal Year:</b>	2015
<b>USDA-ARS Agreement ID:</b>	N/A
<b>USDA-ARS Agreement Title:</b>	Improvement and Adoption of FHB Management Techniques.
<b>FY15 USDA-ARS Award Amount:</b>	\$ 11,300

**USWBSI Individual Project(s)**

USWBSI Research Category*	Project Title	ARS Award Amount
MGMT	Integrated FHB Management of Winter Barley in the Mid-Atlantic.	\$ 11,300
	<b>FY15 Total ARS Award Amount</b>	<b>\$ 11,300</b>

*Christina Cowger*

July 12, 2016

Principal Investigator

Date

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\* 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:** *Integrated FHB Management of Winter Barley in the Mid-Atlantic.*

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

The first objective of this project is to provide data to enhance the selection of Mid-Atlantic barleys with FHB resistance. The second objective of this project is to identify the reduction in FHB from moderately resistant barley cultivars and fungicide, and to compare two timings of fungicide application.

**2. What was accomplished under these goals?**

- 1) major activities: Two years of field experiments in a misted, inoculated field nursery utilized four varieties: Atlantic and Nomini are six-row feed barleys; Thoroughbred is a six-row variety used for both feed and malting; and Endeavor is a two-row malting barley.
- 2) specific objectives: identify FHB-resistant, regionally adapted barleys; compare fungicide timings (Prosaro® at spikes just fully emerged vs. Prosaro six days later)
- 3) significant results: When DON data are received later this summer, we will have 2 years of disease and DON data on advance experimental lines for Mid-Atlantic barley breeders; 2 years of disease and 2 years of DON data on 4 popular commercial barley cultivars subjected to 2 timings of fungicide application for scab reduction.

4) key outcomes or other achievements:

In the barley integrated management trial, rankings for disease severity were consistent for the 4 barley varieties between the 2 years: Atlantic was susceptible, Nomini was susceptible to moderately susceptible, and Thoroughbred and Endeavor were moderately resistant. DON data are available for the first year and they rank the barley varieties consistently with the visual disease severity data.

As for fungicide timing, Prosaro at spikes just fully emerged was not as effective in reducing visual scab symptoms as Prosaro six days later except on the two-row malting barley Endeavor. However, the two timings reduced DON about equally relative to the untreated control; they reduced DON an average of about 35%.

The trial demonstrated the value of integrating barley variety resistance with fungicide to reduce DON to acceptable levels.

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

N/A

FY15 Final Performance Report

PI: Cowger, Christina

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

The results are not yet complete, so it is too early to draw final conclusions. When we have the second year's DON data, we will begin to publicly present the results of the experiment. We will do this through the North Carolina Small Grain Growers Association newsletter, and at meetings of small-grain growers. We will also prepare a peer-reviewed manuscript, and present a poster at the upcoming USWBSI scab forum.

### **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

FY15 Final Performance Report

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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.**