

**USDA-ARS/
U.S. Wheat and Barley Scab Initiative
FY16 Final Performance Report
Due date: July 28, 2017**

Cover Page

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Fiscal Year:	2016
USDA-ARS Agreement ID:	59-0206-4-017
USDA-ARS Agreement Title:	Integrated Management of Fusarium Head Blight in Indiana.
FY16 USDA-ARS Award Amount:	\$ 11,341
Recipient Organization:	Purdue University AG Sponsored Program Services 615 W. State Street West Lafayette, IN 47907
DUNS Number:	07-205-1394
EIN:	35-6002041
Recipient Identifying Number or Account Number:	107129
Project/Grant Reporting Period:	5/8/16 - 5/7/17
Reporting Period End Date:	05/07/17

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
MGMT	Improving Integrated Management Strategies for FHB of Wheat in Indiana.	\$ 11,341
	FY16 Total ARS Award Amount	\$ 11,341



Principal Investigator

7/26/17

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: *Improving Integrated Management Strategies for FHB of Wheat in Indiana.*

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

Fusarium Head Blight (FHB) levels on wheat vary each year in Indiana but the disease is consistently present and of concern to growers. The goal of this project is to research effective FHB and deoxynivalenol (DON) management programs. Application timing of fungicides has been a recent concern, since weather conditions often prohibit applications at the optimum timing of early anthesis. Therefore the objective of this research is to determine the window of effective fungicide timing for FHB and DON in Indiana in conjunction with varietal resistance and provide updated management recommendations to farmers.

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

1) major activities

A research trial was conducted in West Lafayette, IN to evaluate the effect of genetic resistance and fungicide application timing to achieve optimal management of FHB and DON. Various combinations of fungicides were applied to experimental plots of a moderately resistant and a susceptible variety to FHB at Feekes 10.5.1 and 4 days after anthesis. Non-treated plots of each of the varieties were included in the experiment to test the effects of a foliar fungicide application at Feekes 10.5.1, and variety susceptibility for improved FHB management. Treatments were replicated across plots that were inoculated with *Fusarium graminearum*, and non-inoculated plots were also included for each treatment.

2) specific objectives

The objective of this research is to determine the window of effective fungicide timing for FHB and DON in Indiana in conjunction with varietal resistance.

3) significant results

FHB levels were low in 2016, and DON levels did not exceed 0.5 in any treatment. Weather conditions were very cool in late May during flowering, which prevented disease development. Because of this treatment did not significantly affect FHB and DON levels. Yields were significantly higher where fungicide was applied, regardless of application timing. The highest yielding plots in both varieties were treatments where Caramba was applied at FGS 10.5.1, followed by Folicur at 10.5.1 + 4 days.

4) key outcomes or other achievements

Although conditions were not favorable for disease development, fungicide application did increase yield in all treated plots. This means that even under low levels of disease severity, fungicide is still providing a benefit, and the economics of this practice should be determined.

FY16 Final Performance Report
PI: Wise, Kiersten
USDA-ARS Agreement #: 59-0206-4-017
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3. What opportunities for training and professional development has the project provided?

One undergraduate student learned laboratory techniques and assisted in inoculum preparation and application.

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

This information is of primary importance to growers and is presented in newsletters, various programs and field days, and also contributes data to help refine the national FHB forecasting model. Research results are summarized in Extension articles to aid growers in managing FHB and DON in wheat.

FY16 Final Performance Report
PI: Wise, Kiersten
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Training of Next Generation Scientists

Instructions: Please answer the following questions as it pertains to the FY16 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 FY16 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 FY16 award period? No**

If yes, how many?

3. **Have any post docs who worked for you during the FY16 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 FY16 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?

FY16 Final Performance Report
 PI: Wise, Kiersten
 USDA-ARS Agreement #: 59-0206-4-017
 Reporting Period: 5/8/16 - 5/7/17

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 FY16 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

FY16 Final Performance Report
PI: Wise, Kiersten
USDA-ARS Agreement #: 59-0206-4-017
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Publications, Conference Papers, and Presentations

Instructions: Refer to the FY16-FPR_Instructions for detailed instructions for listing publications/presentations about your work that resulted from all of the projects included in the FY16 grant. Only include citations for publications submitted or presentations given during your award period (5/8/16 - 5/7/17). 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.