

**USDA-ARS/
U.S. Wheat and Barley Scab Initiative
FY14 Preliminary Final Performance Report
July 15, 2015**

Cover Page

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Fiscal Year:	FY14
USDA-ARS Agreement ID:	59-0206-4-026
USDA-ARS Agreement Title:	Evaluation of Integrated Management Strategies for Fusarium Head Blight.
FY14 USDA-ARS Award Amount:	\$ 12,160

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
MGMT	Evaluation of Integrated Management Strategies for Fusarium Head Blight.	\$ 12,160
	FY14 Total ARS Award Amount	\$ 12,160

Principal Investigator

Date

* MGMT – FHB Management
 FSTU – Food Safety, Toxicology, & Utilization of Mycotoxin-contaminated Grain
 GDER – Gene Discovery & Engineering Resistance
 PBG – Pathogen Biology & Genetics
 BAR-CP – Barley Coordinated Project
 DUR-CP – Durum Coordinated Project
 HWW-CP – Hard Winter Wheat Coordinated Project
 WES-CP – Western 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 Integrated Management Strategies for Fusarium Head Blight.*

1. What major problem or issue is being resolved relevant to Fusarium head blight (scab) and how are you resolving it?

This research project addresses the need of identifying the best management methods for FHB/DON or good farming practices for FHB/DON management through integrated management studies. Needs addressed also include the evaluation of potential disease reductions through combinations of host resistance and fungicides, the documentation of the impact of crop sequence on disease risk and its potential role as part of the integrated management of FHB/DON and the development of outreach materials and opportunities for exchange of information with clientele.

The proposed research project very clearly mirrors Goal #1 of the FHB Management Action Plan, i.e. “Validate integrated management strategies for FHB and DON”. It also contributes to the goals of developing the next generation of management tools for FHB/DON control and enhancing communication and end user education/outreach by providing valuable research results on best management practices to clientele.

2. List the most important accomplishments and their impact (i.e. how are they being used) to minimize the threat of Fusarium Head Blight or to reduce mycotoxins. Complete both sections; repeat sections for each major accomplishment:

Accomplishment:

This work has been in a holding pattern for this two year funding cycle. Trials planted in the fall of 2013 were planted late because of wet fall conditions and were not well established going into the winter. Survival was poor. Because of the poor stand, the trial for the 2014 season was abandoned and the second year of the two year project not attempted. The current plan is to participate again when the next two year Integrated Management Project is initiated.

Impact:

The research that has been done in the Integrated Management Strategies project has shown the importance of crop sequence or residue type on the level of FHB and DON in the subsequent wheat crop. Crop rotation as a management tool for both FHB and DON management needs to be stressed. In general, the greatest reductions in FHB intensity and DON accumulation were observed when moderately resistant varieties were used with crop rotation and fungicide application. Resistant varieties had lower levels of both FHB and DON in both residue types and with or without fungicide application. Under high disease pressure, a three tier management approach of crop rotation with a non-host, moderately resistant to resistant varieties and fungicide application was required to achieve < 2ppm DON.

This research project has provided data that can be used by producers to manage both FHB and DON levels in wheat. The importance of crop rotation, variety selection and the use of fungicide applications as the wheat flowers if weather conditions are conducive to the development of FHB are viable options for producers trying to manage FHB and reduce DON levels.

The next two year project in this area may focus on refining fungicide timings to better meet the needs of producers.

Training of Next Generation Scientists

Instructions: Please answer the following questions as it pertains to the FY14 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 FY14 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 FY14 award period? No**

If yes, how many?

- 3. Have any post docs who worked for you during the FY14 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 FY14 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?

FY14 (approx. May 14 – May 15)
PI: Sweets, Laura
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Include below a list of all germplasm or cultivars released with full or partial support of the USWBSI during the FY14 award period. List the release notice or publication. Briefly describe the level of FHB resistance. *If not applicable because your grant did NOT include any VDHR-related projects, enter N/A below.*

N/A

Include below a list of the publications, presentations, peer-reviewed articles, and non-peer reviewed articles written about your work that resulted from all of the projects included in the FY14 grant. Please reference each item using an accepted journal format. If you need more space, continue the list on the next page.

Extension Manuals:

Bradley, Kevin, Laura E. Sweets, Wayne C. Bailey, and Moneen Jones. 2015. 2015 Missouri pest management guide: corn, grain sorghum, soybean, winter wheat, rice and cotton. University of Missouri Extension publication M171. 240 pp.

2014 Newsletter Articles: All articles published in the University of Missouri's Integrated Pest and Crop Management Newsletter, V. 24. Similar contributions made in previous years.

Sweets, L. E. Check wheat fields for early season diseases- March 26

Sweets, L.E. Continue checking for wheat diseases- May 19

Sweets, L.E. Evaluate winter wheat seed quality prior to planting