

**USDA-ARS/
U.S. Wheat and Barley Scab Initiative
FY12 Final Performance Report
July 16, 2013**

Cover Page

PI:	Kiersten Wise
Institution:	Purdue University
Address:	Department of Botany and Plant Pathology 915 W. State Street West Lafayette, IN 47907-2054
E-mail:	kawise@purdue.edu
Phone:	765-496-2170
Fax:	
Fiscal Year:	FY12
USDA-ARS Agreement ID:	59-0206-9-090
USDA-ARS Agreement Title:	Integrated Management of Fusarium Head Blight in Indiana.
FY12 USDA-ARS Award Amount:	\$ 7,310*

USWBSI Individual Project(s)

USWBSI Research Category**	Project Title	ARS Award Amount
MGMT	Integrated Management Strategies for Fusarium Head Blight in Indiana.	\$ 7,310
	Total ARS Award Amount	\$ 7,310

Principal Investigator

Date

* Partial funding for this research is under ARS agreement # 59-0206-9-081

** 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

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 Management Strategies for Fusarium Head Blight in Indiana.*

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

Fusarium Head Blight (FHB) levels on wheat vary each year in Indiana but the disease is consistently present and of concern to growers, and there is a need for effective FHB and deoxynivalenol (DON) management programs. Varieties with moderate resistance to FHB do not always provide desirable levels of disease control in certain environments, and fungicides have become an important component in FHB and DON management plans in the region. A research study was established in Indiana to determine how these tactics can be combined to provide improved control of FHB.

2. List the most important accomplishment and its impact (i.e. how is it being used) to minimize the threat of Fusarium head blight or to reduce mycotoxins. Complete both sections (repeat sections for each major accomplishment):

Accomplishment:

A research trial was conducted in West Lafayette, IN to evaluate the effect of genetic resistance and fungicide application to achieve optimal management of FHB. The fungicide Prosaro® was applied to experimental plots of six varieties of varying susceptibility to FHB. 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. The 2013 environment was not conducive for FHB development, even in inoculated plots. Record high temperatures in May and June and below average rainfall through flowering and grain fill reduced the impact of FHB in these trials in 2013. Plots receiving fungicide applications did yield higher across all varieties, but this was due to management of leaf rust that developed in the trial in early June, and not due to reductions in FHB.

Impact:

Despite unfavorable conditions for FHB in 2012, interest and research findings from previous years helped contribute to recommendations for farmers managing FHB in 2013. Previous results from this research project indicate that a well-timed fungicide application can significantly reduce the impact of FHB and DON in wheat varieties, and increase yields in most varieties. This information is of primary importance to growers and is presented in 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. Additional research is needed to more thoroughly investigate the interaction between fungicide and variety susceptibility under Indiana conditions under conditions more favorable for FHB.

FY12 (approx. May 12 – May 13)

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PI: Wise, Kiersten

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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 grant. Please reference each item using an accepted journal format. If you need more space, continue the list on the next page.

Wise, K. 2012. Tools available to monitor risk of Fusarium Head Blight (Scab) in Indiana wheat
Purdue Pest & Crop Newsletter. Issue 3 April 13, 2012.

Wise, K. 2012. Wheat disease update. Purdue Pest & Crop Newsletter. Issue 5: April 27, 2012.