

**USDA-ARS/
U.S. Wheat and Barley Scab Initiative
FY13 Final Performance Report
July 15, 2014**

Cover Page

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| Fiscal Year: | FY13 |
| USDA-ARS Agreement ID: | 59-0206-9-090 |
| USDA-ARS Agreement Title: | Integrated Management of Fusarium Head Blight in Indiana. |
| FY13 USDA-ARS Award Amount: | \$ 7,303 |

USWBSI Individual Project(s)

| USWBSI Research Category* | Project Title | ARS Award Amount |
|----------------------------------|---|-------------------------|
| MGMT | Integrated Management Strategies for Fusarium Head Blight in Indiana. | \$ 7,303 |
| | FY13 Total ARS Award Amount | \$ 7,303 |



Principal Investigator

7/12/14

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
 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. Research in Indiana determines how these tactics can be combined to provide improved control of FHB.

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:

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. FHB levels were moderate in the trial, and DON levels exceeded 1.0 ppm in all but one treatment of the trial. Plots receiving fungicide applications did yield higher across all varieties, and resulted in reduced levels of DON in the susceptible variety.

Impact:

This research indicates that fungicide applications of Prosaro at early flowering can reduce FHB and DON and increase yield when conditions are favorable for FHB development. Varieties with moderate to high levels of resistance also yielded more than varieties rated as more susceptible to FHB. Management recommendations distributed to Indiana wheat farmers will indicate that a combination of variety resistance and fungicide application are most efficacious at minimizing the impact of FHB and DON.

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.

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 FY13 grant. Please reference each item using an accepted journal format. If you need more space, continue the list on the next page.

Wise, K. 2013. Time to monitor the risk of Fusarium Head Blight (Scab) in Indiana wheat
Purdue Pest & Crop Newsletter. Issue 6.

Wise, K. 2013. Update on Fusarium head blight and stripe rust of wheat. Purdue Pest & Crop
Newsletter. Issue 7.

Wise, K. 2013. Fusarium head blight (scab) present in Indiana wheat. Purdue Pest & Crop
Newsletter. Issue 12