USDA-ARS/  
U.S. Wheat and Barley Scab Initiative  
FY12 Final Performance Report  
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Cover Page

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| 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)

<table>
<thead>
<tr>
<th>USWBSI Research Category**</th>
<th>Project Title</th>
<th>ARS Award Amount</th>
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</thead>
<tbody>
<tr>
<td>MGMT</td>
<td>Integrated Management Strategies for Fusarium Head Blight in Indiana.</td>
<td>$ 7,310</td>
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<tr>
<td>** Total ARS Award Amount</td>
<td>$ 7,310</td>
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</tbody>
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Principal Investigator | Date
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* 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 it is 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.
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.
