USDA-ARS/
U.S. Wheat and Barley Scab Initiative
FY13 Final Performance Report
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Cover Page

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Fiscal Year:	FY13
USDA-ARS Agreement ID:	NA
USDA-ARS Agreement Title:	Improvement and Adoption of FHB Management Techniques.
FY13 USDA-ARS Award Amount:	$ 59,372

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
MGMT	National Survey of Wheat and Barley Producers on Scab Management.	$ 43,078
MGMT	Influence of Variable Pre-anthesis Rainfall Patterns on FHB and DON in Wheat.	$ 16,294
	FY13 Total ARS Award Amount	**$ 59,372**

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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
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: *National Survey of Wheat and Barley Producers on Scab Management.*

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

   Until we understand barriers to adoption of management practices, we cannot hope to effectively surmount them. At present, we lack basic information on topics such as acreage by variety; how growers get / don't get information about scab; access to variety ratings and seed of resistant varieties; where scab fits into farmers' priorities; who is using / not using the risk forecasting system, and why; and the main incentives driving decisions about scab management, such as the extent and rate of rejection and/or dockage in scab years.

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:

   Working with NASS and a USWBSI team of researchers and stakeholders, the survey has been developed and administered in 17 states. NASS has provided data, and a plan is in place to augment sub-standard data collection in one state (KY).

   Impact:

   The national 17-state survey of wheat and barley producers will yield unique and valuable information about attitudes and practices related to scab management. It will help us characterize how scab management practices are actually being used, both quantitatively and qualitatively. It will also help us identify barriers to adoption of the best scab management practices, and develop strategies to help overcome these barriers.

Project 2: *Influence of Variable Pre-anthesis Rainfall Patterns on FHB and DON in Wheat.*

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

   No previous studies have taken into consideration differences in moisture or rainfall patterns during the 7- to 10-day window prior to wheat anthesis. In the present wheat scab risk forecasting model, the total duration or volume of pre-anthesis precipitation (or high RH) may occur in a single rain event, at the very beginning/end of the 7-day window, or it may accumulate over the course of several rainy days. The distribution of precipitation is likely to differentially affect processes important for FHB development and DON accumulation.

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:

   In concert with researchers at Ohio State University and University of Minnesota, data are being generated on how various patterns of wet and dry days during the week prior to wheat flowering affect Fusarium head blight. Specifically, we are acquiring data on spore frequencies on wheat spikes; disease symptoms; Fusarium-damaged kernels; and DON.

   Impact:

   This research will help us refine the current risk forecasting model. Results will provide further insight into the role of moisture in the development of FHB and contamination of grain with DON. They will contribute to ongoing disease/toxin risk assessment efforts. Data from these trials could identify predictor variables for future FHB and DON modeling. From personal communications with stakeholders and extension specialists, there is a sense that users of the risk tool have difficulty interpreting the model output. Results will help users of the current FHB risk tools to better interpret the model output, especially for cases of intermittent rainfall that may be on the cusp of low-moderate risk.

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.

Cowger, C. "Known Knowns and Known Unknowns: Assessing Adoption of Scab Management Tools." In: S. Canty, A. Clark, A. Anderson-Scully and D. Van Sanford (Eds.), *Proceedings of the 2012 National Fusarium Head Blight Forum* (pp. 11-12). East Lansing, MI/Lexington, KY: U.S. Wheat & Barley Scab Initiative.