USDA-ARS/
U.S. Wheat and Barley Scab Initiative
FY11 Final Performance Report
July 13, 2012

Cover Page

PI:	Donald Hershman
Institution:	University of Kentucky
Address:	Department of Plant Pathology P.O. Box 469 1205 Hopkinsville St. Princeton, KY 42445
E-mail:	dhershma@uky.edu
Phone:	270-365-7541 ext 215
Fax:	270-365-2667
Fiscal Year:	FY11

FY11 USDA-**ARS Award Amount:**	$ 8,940

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
MGMT	Uniform Trials on Integrated Management of FHB: Kentucky.	$ 6,892
MGMT	Effects of Local Corn Debris Management on FHB and DON Levels.	$ 2,048
	Total ARS Award Amount	**$ 8,940**

July 17, 2012
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: *Uniform Trials on Integrated Management of FHB: Kentucky.*

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

The impact of foliar fungicide and FHB resistance on FHB and DON with an eye towards developing enhanced FHB management programs. This project is part a coordinated regional, multi-state unform trial. A unform set of treatments was applied under field conditions. Data were sent to a project coordinator for the purposes of developing a summary analysis for all test sites.

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:

We have determined that up to 75% FHB/DON control can be achieved by applying fungicides to the best FHB resistant varieties.

Impact:

FHB/DON control has been maximized using available technology.

Project 2: *Effects of Local Corn Debris Management on FHB and DON Levels.*

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

Study the impact of local corn debris on the development and severity of FHB and DON under field conditions. This project is part of a multi-state research trial. This was a large-scale field test, involving wheat produced following corn, planted no-till or after moldboard plowing. Data were submitted to a project coordinator for the purposes of developing a summary analysis for all test sites.

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:

Local (in-field) corn debris has been determined to have a very limited impact on how much FHB, grain colonization by *F. graminearum*, and DON occur in regions of the US with widespread corn production.

Impact:

Growers in states (like KY) who feel compelled to plant wheat behind corn, using no-till planting methods, can do so without the fear of significantly increasing FHB or DON. No-till conserves soil and significantly improves production economics due to reduced labor, equipment, and time costs.

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.

Bergstrom, G. C., K. D. Waxman, C. A. Bradley, A. L, Hazelrigg, **D. E. Hershman**, M. Nagelkirk, L. E. Sweets and S. N Wegulo. 2011, Effects of Local Corn Debris Management on FHB and DON Levels in Seven U. S. Wheat Environments in 2011. (Poster) Proceedings of the 2011 National Fusarium Head Blight Forum, St. Louis, MO, Dec 4-6, 2011.

Hershman, D. E. 2012. An Introduction to Scab & its History in Kentucky and Basic Scab Management Recommendations for Kentucky Producers. In: ScabSmart Management Brochure, Published by U.S. Wheat & Barley Scab Initiative, East Lansing, MI.

Willyerd, K. T., Li, C., Madden, L. V., Bradley, C. A., Bergstrom, G. C., Sweets, L. E., McMullen, M., Ransom, J. K., Grybauskas, A., Osborne, L., Wegulo, S. N., **Hershman, D. E**., Wise, K., Bockus, W. W., Groth, D., Dill- Macky, R., Milus, E., Esker, P. D., Waxman, K. D., Adee, E. A., Ebelhar, S. E., Young, B. G., and Paul, P. A. 2012. Efficacy and stability of integrating fungicide and cultivar resistance to manage Fusarium head blight and deoxynivalenol in wheat. Plant Dis. 96:957-967.

Willyerd, K., G. Bergstrom, C. Bradley, R. Dill-Macky, P. Gross, A. Grybauskas, S. Halley, **D. Hershman**, L. Madden, M. McMullen, G. Milus, L. Osborne, K. Ruden, J. D. Salgado, L. Sweets, S. Wegulo, K. Waxman, K. Wise, and P. Paul. 2011. Uniform Fusarium Head Blight Integrated Management Trials: A 2011 Update. Pages 161-166 In: Proc. Of 2011 National Fusarium Head Blight Forum, St. Louis, MO., Dec 4-6, 2011.