

**USDA-ARS/
U.S. Wheat and Barley Scab Initiative
FY09 Final Performance Report
July 15, 2010**

Cover Page

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Fiscal Year:	2009
USDA-ARS Agreement ID:	NA
USDA-ARS Agreement Title:	Evaluation of Fusarium Nurseries for Milling and Baking Quality.
FY09- USDA-ARS Award Amount:	\$ 6,951

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Adjusted Award Amount
VDHR-NWW	Evaluation of Fusarium Nurseries for Milling and Baking Quality.	\$ 6,951
	Total Award Amount	\$ 6,951

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 Winter Wheat Region
 SWW – Southern Sinter Wheat Region

Project 1: *Evaluation of Fusarium Nurseries for Milling and Baking Quality.***1. What major problem or issue is being resolved relevant to Fusarium head blight (scab) and how are you resolving it?**

New breeding lines developed with resistance to *Fusarium* head blight must have adequate milling and baking quality if they are to be successfully released as finished cultivars for use by farmers. This project evaluates the quality of breeding lines targeted for *Fusarium* resistance at early stage, while they are in regional screening nurseries and provides that information back to breeders in a timely manner.

A second problem concerns selection of breeding materials for crossing to develop the next cycle of resistant cultivars. By evaluating the regional nurseries, we allow breeders to effectively identify the lines with both desirable resistance and desirable milling and baking quality. The combination of information was not available previous to the grant and was a barrier to identifying optimum combinations of parents for developing viable commercial cultivars with *Fusarium* resistance.

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:**

The Southern Uniform Fusarium Head Blight Nursery and the Northern Uniform Winter Wheat Scab Nursery were evaluated for milling and baking data and the data provided to breeders by December 1st. Evaluations were provided to breeders by the nursery coordinators as part of the nursery reports. The results were posted on the Soft Wheat Quality Laboratory website (<http://www.ars.usda.gov/News/News.htm?modecode=36-07-05-00>) and presented in a poster at the annual meeting of the USWBSI in Indianapolis.

Impact:

Timely, accurate evaluations of milling and baking quality directly influences the decisions of most of the breeding programs participating in the CP. Long-term impact of the research will be shorter delivery time of improved cultivars with both target soft wheat quality and improved disease resistance.

Include below a list all germplasm or cultivars released with full or partial support of the USWBSI. List the release notice or publication. Briefly describe the level of FHB resistance.

No genotypes released this year involving the data produced within the project.

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.

Cardwell, L., E. Souza and J. Costa. 2009. Scab Resistance QTLs Have an Effect on Agronomic and Quality Traits of Soft Red Winter Wheat. Proceedings of US Wheat and Barley Scab Initiative. Annual Meeting, Orlando, FL, Dec. 2009. Poster #41, Page 113.

Souza, E., N. Mundell, D. Sarti, A Balut, Y. Dong and D. Van Sanford. 2009. Can Host Plant Resistance Protect the Quality of Wheat from Fusarium Head Blight? Proceedings of US Wheat and Barley Scab Initiative. Annual Meeting, Orlando, FL, Dec. 2009. Poster #65, Page 154.