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:	Molecular Marker Evaluation of International Fusarium Spring Wheat Nurseries.
FY09- USDA-ARS Award Amount:	$ 3,000

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Adjusted Award Amount
VDHR-SPR	Development, Evaluation and Distribution of International Fusarium Spring Wheat Nurseries.	$ 3,000
	Total Award Amount	**$ 3,000**

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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 Winter Wheat Region
SWW – Southern Sinter Wheat Region

Project 1: *Development, Evaluation and Distribution of International Fusarium Spring Wheat Nurseries.*

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

To expand the resistance sources against Fusarium head blight (FHB) that can be integrated into the spring wheat breeding programs, the International Maize and Wheat Improvement Centre (CIMMYT) recently established spring wheat nurseries to evaluate the performance of elite cultivars and germplasm contributed from various wheat breeding programs worldwide including the US. By genotyping these lines with DNA markers previously found closely linked to the known resistance genes, lines carrying the new and novel sources of resistance against FHB can be identified and distributed to the breeding programs to enhance the efforts on improving resistance in the US spring wheat cultivars.

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: In this study, the Fargo lab received 346 germplasm from CIMMYT, and genotyped with a total of 17 DNA markers located on chromosomes 2D, 3A, 3B, 4B, 5A and 6B associated with resistance genes of Sumai 3 origin, and other putative resistance genes derived from Frontana, Chinese lines CJ9306 and Wuhan 1, and *T. dicoccoides*.

Impact: Based on both DNA marker data and phenotypic data evaluated and collected at CIMMYT, the new and novel resistance sources have been identified. These new sources will provide the U.S. spring wheat breeders with an access to the international elite germplasm collections.

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.

Not applicable.

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.

Detailed analysis and results will be presented by CIMMYT collaborators.