USDA-ARS/
U.S. Wheat and Barley Scab Initiative
FY10 Final Performance Report
July 15, 2011

Cover Page

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Fiscal Year:	FY10
USDA-ARS Agreement ID:	NA
USDA-ARS Agreement Title:	Developing Next Generation Markers for Genotyping FHB Resistance in Wheat.
FY10 USDA-ARS Award Amount:	$ 28,500

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
VDHR	Developing Next Generation Markers for Genotyping FHB Resistance in Wheat.	$ 28,500
	Total ARS Award Amount	**$ 28,500**

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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: *Developing Next Generation Markers for Genotyping FHB Resistance in Wheat.*

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

   The long-term goal of this research is to accelerate development of wheat cultivars having improved resistance to FHB to reduce DON in the U.S. wheat crop. The role of the USDA-ARS genotyping labs in this effort is to conduct research into mapping of resistance QTL and to facilitate deployment of FHB resistance genes into improved cultivars via MAS.

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:

   Plant populations have been developed for identification of markers closely linked to and diagnostic for FHB resistance QTL on chromosomes 3B and 4B from Massey. Six new STS and ISBP markers have been mapped in each region, allowing alignments of the QTL regions with the physical map of chromosome 3B and syntenic regions in rice. Homozygous recombinant plants were identified and seed is being increased. These recombinants will be screened for FHB resistance during the winter and spring of 2012 so that resistance QTL can be mapped as single, major genes.

   Impact:

   This research will result in increased efficiency of marker-assisted selection for FHB resistance through development of improved markers for high throughout genotyping. This research leverages the results of results of USWBSI funded research and investments in technology at the regional small grains genotyping labs to more efficiently use genomics to rapidly develop cultivars with improved resistance to 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.

None**.**