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Project ID: FY14-DI-021 **ARS Agreement #: New Agreement (Expiring Agreement # 59-0206-9-069)**

Research Category: **GDER** **Duration of Award: 1 Year**

Project Title: A Field Nursery for Testing Transgenic Spring Wheat and Barley from the USWBSI.

PROJECT 1 ABSTRACT

(1 Page Limit)

This proposal has the single objective of establishing an annual nursery to provide a central field-testing site for transgenic spring wheat and barley lines developed by researchers in the USWBSI.

The proposed nursery will be located in Rosemount Minnesota and will be inoculated (macroconidia) and mist-irrigated and conducted so as to conform to the Minnesota state and US federal regulations for the field testing of transgenic materials. My lab has gained considerable experience with conducting field nurseries to screen both wheat and barley for their reaction to Fusarium head blight, having been involved in field nurseries screening of breeding material since 1994. We have been testing transgenic materials since 1997 and thus have considerable experience in running these specialized and regulated nurseries. We do not anticipate any problems in conducting the nursery or meeting the necessary state and federal regulations.

Collaborators and anticipated entry numbers to be submitted in 2014 and 2015 are:
Lynn Dahleen, USDA-ARS, Fargo ND – barley, 19 entries in 2014 and 32 entries in 2015.
Gary Muehlbauer, University of Minnesota, St. Paul MN – wheat, 20 entries each year.
Steve Scofield, USDA-ARS, West Lafayette, IN – wheat, 4 constructs (multiple entries of each likely) in 2014, possibly more in 2015.
Jyoti Shah, University of Northern Texas, Denton TX – wheat, 7 entries each year.
Nilgun Tumer, Rutgers, New Brunswick, NJ – wheat, 7 entries each year.
Additional entries (space being the only limiting factor) could also be accommodated from these or other USWBSI-funded researchers as necessary.

This research is needed because increasing the efficiency of individual breeding programs to develop FHB resistant varieties and developing effective FHB resistance through transgenics are major strategies of the USWBSI for reducing the impact of FHB in wheat and barley. The proposed research addresses the research needs in the Action Plan by helping to characterize the genetic function of existing and novel loci for FHB resistance and by determining if transgenic lines, developed with the aim of improving FHB resistance and/or reducing DON accumulation, have been successful.