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Research Category: GDER

Duration of Award: 1 Year

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

PROJECT 2 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 would be located in Rosemount Minnesota and would 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 the field screening of breeding material since 1994 with annual nurseries for wheat of greater than 9,000 rows and barley of greater than 14,000 rows. We have been field testing transgenic materials since 1997 thus we have considerable experience in running these specialized nurseries and anticipate no problems conducting the nursery or meeting the necessary regulations.

Collaborators and anticipated entry numbers to be submitted in 2008 are:

- Tilahun Abebe, University of Northern Iowa, Cedar Falls IA - 7 barley lines (14 lines anticipated for 2009).
- Lynn Dahleen, USDA-ARS, Fargo ND - 72 barley lines in 2008 (36 lines anticipated for 2009).
- Gary Muehlbauer, University of Minnesota, St. Paul MN - 15 to 20 wheat lines.
- Jyoti Shah, University of Northern Texas, Denton TX - 4 wheat lines.

Additional entries (space being the only limiting factor) could also be accommodated from these or other USWBSI researchers.

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 following research needs in the Action Plan: maintain the existing capacity for field testing in mist-irrigated inoculated nurseries (VDHR, goal 2); verify new and novel sources of FHB/DON resistance (VDHR, goal 3); and support centralized facilities for field testing transgenic wheat and barley (GDER, goal 2). I originally proposed a wheat only nursery to the VDHR-spring wheat group who felt that my proposal would be more appropriate for the GDER research area. Therefore I am now proposing a combined spring wheat and barley nursery to GDER.