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**Project ID: FY10-NW-005**

**FY09 ARS Agreement #: 59-0206-9-086**

**Research Category: VDHR-NWW**

**Duration of Award: 1 Year**

**Project Title: Development and Distribution of Male Sterile Facilitated Recurrent Selection Populations.**

### **PROJECT 3 ABSTRACT**

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The objective of this project is to develop male-sterile facilitated recurrent selection populations combining genes for FHB resistance derived from multiple sources in soft winter wheat backgrounds adapted to the eastern U.S. The objective of male sterile facilitated recurrent selection is to increase the frequency of desirable alleles for one or more traits while maintaining a high level of variability in the population. Male-sterility in a self-pollinated species greatly facilitates hybridizations without laborious manual emasculation and pollination. Preliminary work on development of male-sterile populations has been conducted at the Ohio Ag. Res. and Deve. Center at Wooster, Ohio and development of the populations will continue in the 2010 season. Four populations will be developed: a southern-mid-Atlantic SRW population (in cooperation with the SWW CP), an early Midwest SRW population, a late SRW Midwest population, and a late soft winter wheat population (including white winter wheat). A bulk of sterile heads from each population will be harvested and composited for planting in fall 2010 by cooperating programs (GA, IL, IN, KY, LA, MD, MI, MO, NC, NY, OH, and VA). This project will result in male-sterile facilitated recurrent selection populations that will be available to all of the members of the NWW-CP and the SWW-CP. These populations provide both the opportunity for individual breeding programs to select genotypes with favorable local adaptation and the region-wide opportunity to recombine and recombine local selections into an improved regional pool. As a result of this project breeding programs in the eastern regions will have several pools of germplasm from which to extract breeding lines with the potential for unique combinations of FHB resistance genes.