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Research Category: VDHR-SWW   **Duration of Award:** 1 Year

Project Title: Developing Double Haploids to Expedite Mapping and Enhance FHB Resistance in SRWW.

PROJECT 1 ABSTRACT
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One of the main objectives of the VDHR research area is to increase the efficiency of coordinated project breeding programs at developing and releasing FHB-resistant varieties. Doubled haploids (DH) allow quick introgression of resistance genes and can significantly shorten variety development time. We plan to expand the use of this technique for the whole Southern Winter Wheat region by the coordinated development of at least five breeding populations and one mapping population through DH production followed by collaborative phenotyping across the region once the DH lines are developed and seed is increased for testing. This proposal will quickly provide inbred breeding lines having several diverse FHB resistance genes (exotic and native) to six breeding programs for testing in the Southern Winter Wheat (SWW) region and also provide useful markers for selecting the Catbird resistance that has been one of the most effective sources of FHB resistance in the SWW region. We plan to use the doubled haploid facility at Kansas State University (Plant Innovations Facility). Approximately 200 DH lines will be developed for each population. Single Nucleotide Polymorphism (SNP) genotyping will done at the USDA-ARS North Dakota genotyping lab using an Illumina Infinium SNP assay. Seed of each DH line will be increased and distributed to cooperators for fall 2013 planting at six locations (AR, GA, LA, MD, NC, and VA). This project was developed through the cooperation of the six breeding programs in the Southern region and will be a source of outstanding breeding SRWW lines selected for FHB resistance that will be available and freely shared with other wheat breeders and has great potential to deliver high–impact FHB resistant varieties in a short period of time