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**Project ID: FY06-GU-080**

**FY05 ARS Agreement #: NA**

**Research Area: HGR**

**Duration of Award: 1 Year**

**Project Title: Developing FHB Resistant Soft Wheat Varieties by Accelerated Backcrossing.**

### **PROJECT 1 ABSTRACT**

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Fusarium head blight (FHB) is a devastating disease of wheat that causes reduction in grain yield and quality in the eastern US where soft wheat is grown. Host resistance is the best method to control losses. Although FHB resistance has been found in SRW wheat germplasm in the eastern US, little is known about the resistance genes in this germplasm. We are proposing a platform for using the USDA-ARS Genotyping lab at Raleigh, NC, native resistance in SRW wheat cultivars and breeding lines, and tagged QTLs to rapidly address the needs of the eastern US soft wheat growers. This project directly addresses the Host-Genetic Resources research area priority of regional collaborative research with the USDA-ARS Genotyping Lab to rapidly introgress and pyramid FHB resistance genes into elite cultivars or parental lines. We plan to complement the moderate resistance of soft wheat lines with exotic resistance QTLs in an accelerated backcrossing scheme using high-throughput genotyping that should provide timely release of backcross derived varieties in the eastern wheat region and rapidly supply improved parents for forward breeding. We will also validate the effect of the QTL used in the backcrossing by creating near isogenic lines (NILs) for QTL combinations in different genetic backgrounds.