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Project ID: FY08-CO-068

FY08 ARS Agreement #: 59-0790-5-078

Research Category: VDHR-SWW

Duration of Award: 1 Year

Project Title: Development of Wheat with Resistance to Scab Adapted to the Mid-Atlantic.

PROJECT 1 ABSTRACT

(1 Page Limit)

This project will include the following three objectives: **1)** Development of soft red winter wheat germplasm and cultivars adapted to the mid-Atlantic region with increased resistance (R) to Fusarium head blight (FHB); **2)** FHB screening of elite lines of the University of Maryland (UMD) breeding program; and **3)** FHB screening of the Uniform Southern, Northern Winter Wheat Scab nurseries and the statewide wheat variety test.

The first objective will be accomplished by backcrossing as well as pyramiding scab resistance in 3-way crosses. Marker-assisted selection will be used in selected crosses to increase the numbers of scab resistant progenies.

To address the second objective, a nursery with approximately 200 MD advanced lines and checks will be grown in Salisbury in the 2008/2009 season. Many are derived from the resistant lines Ning7840 and Pioneer 25R42. New entries will be tested in 2009/2010, these will include progenies derived from Truman. These lines will be haplotyped at the USDA Genotyping lab using known markers linked to scab QTLs.

For the third objective, Uniform FHB screening nurseries will be evaluated in the spring for scab incidence, severity, index, FDK, DON, and seed weight. Additionally, the entries in the statewide variety trial will also be tested in a similar fashion each year and results will be posted on the UMD Crops website (www.mdcrops.edu).

Results from this project will be communicated to wheat growers at extension meetings organized by the UMD extension service as well as MD grain growers (Maryland Grain Producers, MD Crop Improvement Association).