PI: Sneller, Clay **PI's E-mail: sneller.5@osu.edu**

Project ID: FY08-SN-128 **FY08 ARS Agreement #: 59-0790-4-101**

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

Project Title: Uniform Nursery for SRWW and Development Scab Resistance Varieties for Ohio.

PROJECT 1 ABSTRACT

(1 Page Limit)

Fusarium Head Blight (FHB) of wheat caused by the fungus *Fusarium graminearum* causes extensive yield and quality losses. The fungus produces a toxin called DON. In 2006, high DON levels in Ohio forced some mills to import non-FHB infested grain. The deployment of high-yielding FHB resistant wheat varieties is a critical component of effective economic control. Breeding for FHB resistance is difficult due to low heritability and complex genetics of resistance. Development of a resistance requires screening many lines to combine FHB resistance with the other traits required in an economically viable cultivar. Marker–assisted selection (MAS) is useful in breeding for FHB resistance. But MAS by itself will not produce the needed level of resistance as currently available genes confer only partial resistance and must be placed in a moderately resistant genetic background to provide adequate field resistance and low DON. It is our aim to use MAS and phenotypic selection in a program that will insure a steady release of FHB resistant cultivars while building parents for future success. Our objectives are

1. Evaluate the FHB resistance of all breeding lines in OSU program develop and populations from which FHB resistant cultivars can be developed in the future.
2. Evaluate the FHB resistance of cultivars in the OSU Commercial Cultivar Trial.
3. Backcross FHB resistance QTLs into promising OSU breeding lines in early stages of their evaluation.
4. Coordinate a uniform nursery for evaluating FHB reaction in SWW adapted to the northern US.