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Project ID: FY12-NW-010

ARS Agreement #: 59-0206-9-086

Research Category: VDHR-NWW

Duration of Award: 1 Year

Project Title: Discovering, Understanding, and Utilizing Wheat Genes for FHB Resistance in Ohio.

PROJECT 1 ABSTRACT

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Developing new cultivars with resistance to *Fusarium graminearum* the primary method of controlling scab. Resistance must be combined with high yield for the new cultivars to gain grower acceptance. Each of these traits (Yield, FHB resistance) is difficult to breed for singularly, and obtaining a good combination of each is very difficult. Thus we need to use multiple approaches to be successful. The proposed project combines traditional breeding and MAS to produce high levels of FHB resistance in a large set of lines. These lines are subsequently screened for yield as well as other traits. Our specific objectives are

1. Generate new populations of inbred lines from parents chosen to facilitate recombination of genes from elite and exotic sources for yield, adaptation to Ohio, and resistance to FHB and other diseases
2. Use parents generated by MAS as parents to pyramid QTL for FHB resistance
3. Use best lines in crossing program to initiate backcross and recurrent selection populations.
4. Screen inbred lines for FHB resistance in misted and inoculated FHB nurseries

Collectively these objectives provide us the best chance to produce new cultivars adapted to Ohio with high yield and good FHB resistance. The project will screen over 9,000 wheat lines for resistance, make numerous crosses for FHB resistance, and employ MAS for key genes.