

PI: Frances Trail

PI's E-mail: trail@msu.edu

Project ID: FY09-TR-034

FY09 ARS Agreement #: 59-0790-6-068

Research Category: PBG

Duration of Award: 1 Year

Project Title: Use of Avirulent Strains for Protection against Head Scab and for Increased Yield.

PROJECT 1 ABSTRACT

(1 Page Limit)

Biological control has been used in the field to reduce aflatoxin contamination in cotton and increase yield and protect from disease in tomato. From previous work funded by USWBSI and by outside sources, we have screened over 2000 random insertional mutants for loss of pathogenicity. From this screen, we identified nine mutants that had lost their ability to cause disease. Interestingly, these mutants varied in their effect on wheat. Three of the most interesting avirulent isolates increased grain yield (seed number) in colonized plants. Above the inoculation point, these strains also increased grain weight. Interestingly, the three strains also have very different DON phenotypes. The characterization of these three strains as to their potential to use for biological control is the goal of this project. In addition, the information will add to our understanding of regulation of DON biosynthesis.

The proposed research addresses two of the Research Priorities for PBG: (1) Characterize plant-fungal interactions in plant lines being developed by researchers in the USWBSI. (2) Develop new strategies for reducing the impact of FHB and associated mycotoxin contamination in barley and wheat.