

PI: Gary Bergstrom

PI's E-mail: gcb3@cornell.edu

Project ID: FY12-IM-012

ARS Agreement #: 59-0206-9-056

Research Category: MGMT

Duration of Award: 1 Year

Project Title: Integrating Multiple Management Strategies to Minimize Losses Due to FHB and DON in New York.

PROJECT 2 ABSTRACT

(1 Page Limit)

As part of a multi-state Coordinated Project coordinated by Pierce Paul, field experiments will be conducted to investigate the effects of variety resistance and fungicide application on FHB and DON accumulation in winter wheat. Two independent experiments will be conducted at the Cornell University Musgrave Research Farm in New York so that integrated management is examined under two different cropping environments that are common in New York. One experimental environment will involve planting wheat into soybean stubble. The second experimental environment will involve no-till planting of wheat into corn stubble following grain corn harvest. This will provide two contrasting environments in terms of exposure to within-field inoculum (expected to be greater in corn debris) as well as to different weather conditions at the time of flowering and early grain development. The design is a split-split-plot, with variety as the whole-plot, inoculation as sub-plot and fungicide treatment as the sub-sub-plot. There will be four replicates with plot size of 10 ft wide \times 20 ft. In each whole plot, there will be two sub-plots, one spray-inoculated and the other left without inoculation. Plots will be divided into sub-plots, one treated with Prosaro (6.5 fl oz/A + 0.125%) and the other left untreated. A single fungicide application will be made on the time of early anthesis (Feekes GS 10.5.1) for each variety. The four soft red winter wheat varieties include one moderately susceptible (Pioneer 25R34) and two varieties with putative moderate resistance (Otsego and Pioneer 25R46) and one variety (Truman) with proven moderate resistance, each grown widely in New York. At each assessment, FHB severity will be determined visually for each sub-plot, and incidence, diseased head severity, and index calculated as described. The presence and flag leaf severity (as a percentage) of any foliar diseases will also be determined. Plots will be harvested with a plot combine and yield and test weight determined. Grain from all plots will be rated to determine the percentage of Fusarium damaged kernels (FDK). Grain samples from each plot will be sent to the USWBSI-funded DON Testing Laboratories in St. Paul, MN for DON analysis.