

PI: Gary Bergstrom

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

Project ID: FY14-IM-010

ARS Agreement #: New Agreement (Expiring Agreement # 59-0206-9-056)

Research Category: MGMT

Duration of Award: 1 Year

Project Title: Integrated Management Strategies to Reduce FHB and DON in New York.

PROJECT 1 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. The experiment will be conducted at the Cornell University Musgrave Research Farm in Aurora, New York and will involve no-till planting of wheat into soybean stubble. The design is a randomized complete block with a split-plot arrangement of cultivar as the whole plot and fungicide treatment as the sub-plot. There will be six replicates with sub-plot size of 10 ft wide × 20 ft. The trial will be managed according to the standard agronomic practices in New York. Prosaro (6.5 fl oz/A + 0.125% Induce) applications will be made using a sprayer equipped with paired Twinjet or flat fan XR8001 nozzles, mounted at an angle (30° from the horizontal) forward and backward and calibrated to deliver at a rate of 10 to 20 gallons per acre. All sub-plots (with the exception of sub-plots of one non-inoculated treatment) will be inoculated with a *Fusarium graminearum* spore suspension (40,000 spores/ml or more based on cooperators' experience) at Feekes 10.51 and again 5-7 days later, in each case following the application of fungicide and suitable time for drying. FHB intensity will be assessed in each plot at the soft dough growth stage, Feekes 11.2. At each assessment, FHB severity will be determined visually on 60-100 spikes per plot, and incidence, diseased head severity, and index calculated as described previously. 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 one of the USWBSI-funded DON Testing Laboratory of Dr. Dong at University of Minnesota for DON analysis. The farm's onsite weather station will be used to collect temperature, relative humidity, surface wetness, rainfall, wind speed, and solar radiation data at regular intervals from Feekes GS 7 (stem elongation) to harvest.