

## FY16 USWBSI PROJECT ABSTRACT

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**Project ID: FY16-IM-013**

**ARS Agreement #: 59-0206-4-018**

**Research Category: MGMT**

**Duration of Award: 1 Year**

**Project Title: Efficacy and Curative Effects of Fungicides for FHB and DON Management in Ohio.**

### PROJECT 1 ABSTRACT

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The overall goal of this round of the MGMP-CP is to develop more robust guidelines to provide producers with additional and more effective options for managing FHB and DON. The specific objectives of this proposed research project are to:

1. Determine the efficacy and economics of integrating pre- and post-anthesis fungicide applications and cultivar resistance to minimize losses due to FHB and DON.
2. Investigate the curative effect of Prosaro® and Caramba® on FHB and DON.

Results from these experiments will improve our understanding of the efficacy and economics of more robust integrated strategies for FHB and DON management. In addition, invaluable information pertaining to the mode of action of Prosaro and Caramba and insights into their effects on infection and symptom development will be gained from this project.

To accomplish the goal and objectives of this project, field and growth chamber/greenhouse experiments will be conducted during the 2015-2016 and 2016-2017 growing seasons. In all cases, the experimental design will be a randomized complete block, with a split-plot arrangement of treatment factors. There will be four replicate blocks. For Objective 1, fungicide treatment programs, consisting of **1)** an untreated check, **2)** Prosaro at anthesis; **3)** Prosaro at anthesis followed by Caramba 4 days later; **4)** Caramba at anthesis followed by tebuconazole 4 days later; **5)** Proline at anthesis followed by tebuconazole 4 days later; and **6)** an untreated, non-inoculated check, will be applied to plots of susceptible, moderately susceptible, and moderately resistant cultivars. For Objective 2, for both field and growth chamber experiments, 14 fungicide treatments consisting of preventative (before infection) and curative (after infection) applications of Prosaro and Caramba, will be evaluated. These treatments will be applied to plots of a moderately resistant and a susceptible cultivar in the field, and evaluated under point and spray inoculations in the growth chamber. For both objectives, FHB, DON and yield will be quantified, and efficacy will be defined in terms of percent control relative to the untreated susceptible check. Statistical models will be fitted to all data to determine the main and interaction effects of treatment programs and cultivar, and to model the temporal change in efficacy in response to curative applications.

Finding from these experiments will be used to develop new, and improve existing, management guidelines for FHB, providing stakeholders with more options and greater flexibility in terms of fungicide application programs for minimizing losses caused by FHB and DON.