

Project Abstract

Project Title:	Fungicide Combinations and Genetic Resistance for FHB and DON Management in Maryland	
Principal Investigator:	Nidhi Rawat	University of Maryland

FHB has been a major challenge to small grain farmers in the state of Maryland due to several compounding factors. Maryland has wet spring seasons, which is the time of highest susceptibility to *Fusarium graminearum* infections. Farmers practice No-Tillage agriculture, and often follow corn: wheat or corn: barley rotations. The overall project goal is to analyze and compare different chemistries, their combinations, and timings, as well as the effect of genetic resistance on the overall efficacy of FHB and DON management in wheat and barley.

Project Objectives:

- 1) Evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON in soft red winter wheat and barley, with emphasis on new combination fungicides, Prosaro Pro[®] and Sphaerex[®].
- 2) Compare the efficacy of Prosaro Pro and Sphaerex to that of Prosaro[®], Caramba[®], and Miravis Ace[®].
- 3) Generate data to further quantify the economic benefit of FHB and DON management programs.

For the wheat IM trial 4 wheat and barley cultivars (with different levels of FHB resistance) will be tested at two locations across Maryland. Five fungicide treatments, all applied at Feekes 10.5.1 will be: 1) Inoculated check, 2) non-inoculated check, 3) Prosaro, 4) Miravis Ace, 5) Prosaro Pro, and 6) Sphaerex. For the Unified Fungicide Trials: A susceptible cultivar will be subjected to at least nine fungicide treatments plus an untreated check: 1) Inoculated check, 2) Prosaro, 3) Caramba, 4) Miravis Ace, 5) Prosaro Pro, 6) Sphaerex, 7) Miravis Ace fb tebuconazole; 8) Miravis Ace fb Prosaro Pro, 9) Miravis Ace fb Sphaerex. Individual treatments and the first application of combined treatments will be made at Feekes 10.5.1 for wheat and, Feekes 10.5 (head emergence) for barley. The second applications will be made 4-6 days later.

In all trials, Prosaro, Caramba, Miravis Ace, tebuconazole, Sphaerex, and Prosaro Pro will be applied at the lowest label-recommended rates for FHB suppression, along with a non-ionic surfactant, and FHB, DON, grain yield, and test weight will be quantified. Data from this study will also be used to validate and refine the web-based FHB risk assessment tool to help guide fungicide application decision-making.