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PROJECT 1 ABSTRACT
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This project is a continuation of the barley resistance*fungicide research conducted for the last 3 years in Raleigh, North Carolina. Our barley research responds to the increased interest in the Mid-Atlantic states in growing winter barley for malting purposes.

The project is now adapted to utilize the CP-IM protocol for Objective 1: ***Evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON in all major grain classes, with emphasis on a new fungicide, Miravis Ace®.*** Starting in fall 2017, we will conduct a field experiment in our misted, inoculated FHB nursery at Raleigh, North Carolina, using three winter barley cultivars with different levels of resistance to FHB: Violetta (MR), Thoroughbred (MR/MS), and Flavia (S). All are medium- to late-maturing malting barley varieties that are in commercial cultivation and are being used in breeding programs. Violetta and Flavia are medium-late two-row varieties, while Thoroughbred is a medium-maturing six-row type that (unusually) has acceptable malt quality.

Inoculation will be with Fusarium-infected corn spawn applied in three batches at one-week intervals, starting three weeks before anticipated heading of the earliest variety (Thoroughbred). We will use the six standard CP-IM fungicide treatments for Objective 1. Four additional fungicide treatments will be added if resources allow. All standard data will be collected.

The treatments will allow comparisons of the efficacy of Miravis Ace to that of Prosaro® and Caramba®, and of three fungicide timings (spikes half emerged, spikes just fully emerged, and 6 days after spikes fully emerged). They will also allow estimation of the mean benefits of fungicide application, cultivar resistance, and the combination of the two in terms of yield, test weight, and DON reduction.