

**PI:** Pierce Paul**PI's E-mail:** paul.661@osu.edu**Project ID:** FY18-IM-004**ARS Agreement #:** *New***Research Category:** MGMT**Duration of Award:** 1 Year**Project Title:** Efficacy of a New Fungicide Combined with Cultivar Resistance for FHB and DON Management in Ohio.**PROJECT 1 ABSTRACT**

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It is well established that Demethylation Inhibitors (DMI) fungicides are the most effective for Fusarium head blight (FHB) and deoxynivalenol (DON) management. But the repeated use of this chemistry is not a good fungicide resistance management strategy. *The overall goal of this project is to evaluate the efficacy of a new fungicide, Miravis Ace®, against FHB and DON on soft red winter wheat (SRWW) and winter malting barley (WMB) in Ohio.* The specific objectives are to: **1.** Evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON, with emphasis on Miravis Ace; **2.** Compare the efficacy of Miravis Ace when applied at heading or at anthesis to that of industry standards Prosaro® or Caramba®; **3.** Generate data to further quantify the economic benefit of FHB management strategies; **4.** Develop more robust “*best-management practices*” for FHB and DON; and **5.** Generate data to validate and advance the development of FHB and DON risk prediction models. To accomplish these objectives, two integrated management trials (IM) and a uniform fungicide (UFT) trial will be conducted. **SRWW IM:** Four cultivars with different levels of resistance to FHB will be subjected to six fungicide x timing x inoculation treatment combinations: **1.** an untreated, inoculated check; **2.)** Prosaro (6.5 fl. oz.) at anthesis, inoculated; **3.** Miravis Ace (13.7 fl. oz.) at anthesis, inoculated; **4.** Miravis Ace at Feekes 10.3, inoculated; **5.** Prosaro at anthesis, non-inoculated; and **6.** an untreated, non-inoculated check. For the **WMB IM**, three cultivars and six fungicide treatments (**1.** an untreated check; **2.** Prosaro at 6.5 fl. oz. at anthesis; **3.** Miravis Ace at 11.5 fl. oz. at Feekes 10.3; **4.** Miravis Ace at 11.5 fl. oz. at anthesis; **5.** Miravis Ace at 13.7 fl. oz. (high rate) at Feekes 10.3; and **6.** Miravis Ace at 13.7 fl oz. at anthesis) will be evaluated. **SRWW UFT:** 10 fungicide treatments (**1.** an untreated check; **2.** Prosaro at 6.5 fl. oz. at anthesis; **3.** Caramba at 13.5 fl. oz. at anthesis; **4.** Miravis Ace at 13.7 fl. oz. at Feekes 10.3; **5.** Miravis Ace at 13.7 fl. oz. at anthesis; **6.** Miravis Ace at anthesis followed by Prosaro 4 days after; **7.** Miravis Ace at anthesis followed by Caramba four days after; **8.** Miravis Ace at anthesis followed by Folicur at 4 fl. oz. 4 days after); **9.** Miravis Ace at 4 days after anthesis; and **10.** Prosaro at 4 days after anthesis) will be evaluated on a susceptible cultivar in a spawn- and spray-inoculated and mist-irrigated trial. In all trials, FHB, DON, FDK, foliar diseases severity, yield, and test weight data will be collected. Results from these trials will allow us to evaluate the efficacy of Miravis Ace in single and sequential treatment programs relative to standard anthesis application of Prosaro and Caramba. These findings will add flexibility to FHB management programs on SRWW and new information for malting barley in Ohio.