PI: Nathan Kleczewski **PI's E-mail:** nathank@illinois.edu

Project ID: FY20-KL-010 **ARS Agreement #:** *59-0206-8-211*

Research Category: MGMT **Duration of Award:** 1 Year

Project Title: Assessing Cross Resistance and Baseline Sensitivity to SDHI Fungicides in F. graminearum

PROJECT 1 ABSTRACT

(1 Page Limit)

Fungicides are commonly used as part of an integrated management plan to reduce Fusarium head blight caused predominantly by the fungus, F. graminearum. Research has demonstrated that the application of Prosaro®, Caramba®, and Proline® within 5 days of the start of flowering can provide approximately 52% reduction in visual symptoms of the disease and 45% reduction in vomitoxin. In 2019 In 2019, Syngenta released Miravis Ace, a premix fungicide that contains an active ingredient in the "second generation" succinate dehydrogenase fungicide class (adepidyn; SDHI, FRAC group 7) and a triazole, for use in suppressing FHB. This is the first fungicide containing an active ingredient other than a DMI labelled for use in suppressing FHB; however, other second-generation SDHI active ingredients have been used for several years for suppressing other fungal diseases in wheat and other cropping systems, corn and soybeans. Continuous selection pressure resulting from the consistent use of site-specific fungicide active ingredients may lead to rapid development of fungicide resistance in fungal populations. SDHI resistance has been observed in other pathosystems, including diseases in wheat and barley; however, no studies have examined populations of *F. graminearum*. Our **goal** is to generate baseline sensitivities for adepidyn and select second-generation fungicide active ingredients in *F. graminearum* populations across wheat and barley production regions in the US. This will be accomplished through **1)** obtaining historic vouchers of this fungus that were not been exposed to second generation SDHI's and **2)** assess current sensitivity profiles of *F. graminearum* to adepidyn by collecting Miravis Ace treated and untreated grain from the IM-CP coordinated project participants.

PI: Nathan Kleczewski **PI's E-mail:** nathank@illinois.edu

Project ID: FY20-IM-017 **ARS Agreement #:** *59-0206-8-211*

Research Category: MGMT **Duration of Award:** 1 Year

Project Title: Integrated Management of FHB in Illinois Wheat

PROJECT 2 ABSTRACT

(1 Page Limit)

Illinois produces approximately 500,000 acres of soft red winter wheat annually. Significant reductions in yield and quality have resulted from Fusarium head blight (FHB) and associated mycotoxins (DON). Replicated research trials funded by the USWBSI have demonstrated that the use of a moderately Resistant wheat variety, combined with the application of Caramba®, Prosaro®, or Proline® fungicides within 5 days of flowering can reduce FHB and DON by approximately 70% compared to non-treated, Susceptible varieties. In 2019 a new fungicide, Miravis Ace, was released for use in wheat production systems. One of the claims of this product is that it can suppress FHB and DON at superior levels when compared to Caramba, Prosaro, and Proline, and that it can provide suppression of FHB when applied as early as 50% head emergence. Currently, data gathered my members of the USWBSI IM-CP is limited and results are variable.

The **goal** of this project is to assess the utility of Miravis® Ace, compared to Caramba, Prosaro, and Proline and develop a better sense of the application window for this new fungicide. To accomplish this goal we will conduct a set of experiments that 1) assess the Miravis Ace, Caramba, and Prosaro when applied at 50% head emergence, flowering, and 5 days post Flowering on two SRWW wheat varieties of contrasting FHB reaction, 2) assess Miravis Ace applied at FGS 10.3 compared to standard flowering windows as part of a 2-pass fungicide application system. In addition, data will be generated to further refine the FHB prediction tool by including and monitoring non-inoculated and non-inoculated/treated plots. Data will be used as part of a larger integrated management project and data used to guide local and national extension recommendations.