Project Abstract

Project Title:	Integrated disease management for FHB and DON in Missouri	
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Yield losses attributed to FHB in Missouri have the potential to be substantial, especially in areas where winter wheat is planted directly into corn stubble. In 2020 and 2021, cool, wet conditions during the flowering period led to high levels of FHB development in many of the wheat producing areas of the state. Through utilizing an integrated disease management program with both genetic resistance and a well-timed fungicide application, economic losses from FHB can be reduced. *However, substantial losses may still be realized even when optimal practices are followed.* Continued testing of integrated management strategies is needed to improve upon these practices and reduce of FHB and DON. The goals of this research are to identify the utility of newly available fungicide products for FHB management as compared to industry standards and in an integrated FHB management system.

The objectives of this research are:

Objective 1: Integrated Management) Evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON in all major grain classes, with emphasis on the new fungicides, Sphaerex and Prosaro Pro

Objective 2: Uniform Fungicides) Compare the efficacy of a standard anthesis application of Sphaerex or Prosaro Pro as compared to a standard application of Prosaro or Caramba

The research approaches to be utilized to accomplish the project goals within the period of proposed work include the establishment of two core soft red winter wheat trials conducted at two locations each in Missouri every year: an integrated management trial and a uniform fungicide trial. Cultivars will be selected with susceptibility and moderate resistance to FHB according to trial needs. Trials also will be artificially inoculated to ensure disease establishment and one trial will be mist irrigated.

End-user benefits of this research include: data generated will be used to improve FHB management recommendations for Missouri growers, will aid in the development of relevant, timely integrated FHB management information for the region and grain class and information gathered will contribute to a national dataset which will serve to improve upon our understanding of how FHB management practices impact disease development across environments. Also, results will be used to address the research need focusing on the validation and refinement of the FHB risk management tool as well as to evaluate Sphaerex and Prosaro Pro as they compare to current industry standards Prosaro and Caramba as part of an integrated FHB management program.