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**Project Title:** Efficacy of a New Fungicide for FHB and DON Management in Indiana

### PROJECT 1 ABSTRACT

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Fusarium Head Blight (FHB) levels on wheat vary each year in Indiana, but the disease is consistently present and of concern to growers. In 2019, high levels of FHB and DON caused load rejections across Indiana. Cultivars with moderate resistance to FHB have not always provided desirable levels of disease control, and fungicides have become an important component in FHB and DON management plans. The overall goal of this project is to use an integrated approach that combines genetic resistance and fungicide application to achieve optimal FHB management. Continued testing of action thresholds for our climate is needed in order to provide informed fungicide spraying decisions. The proposed research would facilitate adoption of integrated FHB management to reduce losses from FHB.

The Objectives of this Proposal are to: 1) Evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON in soft winter wheat, with emphasis on a new fungicide, Miravis Ace; 2) Compare the efficacy of Miravis Ace<sup>®</sup> when applied at early heading or at anthesis to that of standard anthesis application of Prosaro<sup>®</sup> or Caramba<sup>®</sup>; 3) Generate data to further quantify the economic benefit of FHB/DON 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.

Expected Outcomes: This research will serve as a location in the cooperative multi-state studies comparing the effects of integrated management (IM) and uniform fungicide (UFT) trials for FHB and DON control in wheat. It will allow us to address some of the many questions being asked by stakeholders about the effectiveness, application timing, effectiveness towards other diseases, and yield and cost benefits of this new fungicide. Positive answers to these questions would revolutionize the way fungicides are recommended for FHB and DON management in Indiana.

The proposed research will be conducted at two Purdue research farms in West Lafayette, and Vincennes, Indiana. Wheat will be established each preceding fall for implementation of trials in the springs of 2021 to accomplish goals of the proposed work. Information from these research trials will improve recommendations for FHB and DON management for growers in Indiana on wheat. Information obtained from this research will also contribute to knowledge on integrated management of FHB across differential environmental locations in the Midwest.