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Project Title: Fungicide Efficacy Evaluations for Managing Scab in Louisiana Wheat.

PROJECT 1 ABSTRACT

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Fusarium Head Blight (FHB), *Fusarium graminearum*, is a major concern for wheat producers in the United States. The disease is present in Louisiana wheat and can be severe when conditions favor disease development. Periods of high humidity during flowering are common along the Gulf Coast and can fuel epidemics. Furthermore, increased use of minimum tillage practices in corn and wheat production systems have the potential to increase the threat of this disease in the state.

The objective of this project is to evaluate fungicide efficacy and application timings for FHB management at multiple locations in Louisiana. Fungicides will be evaluated in small field plot tests conducted at the LSU AgCenter Ben Hur Research Station (South Louisiana), Macon Ridge Research Station (Northeast Louisiana), and the Rice Research Station (Southwest Louisiana). A fourth location may be used. Each location represents a unique environment (e.g. weather, soil type). Fungicide treatments set forth by the USWBSI Chemical and Biological Control Committee will be replicated (4 to 6 replicates) arranged in a randomized complete block design. To enhance disease pressure, test sites will be infested with corn seed colonized by *F. graminearum*. Field infestations will be accomplished by distributing *F. graminearum* colonized corn into plots several weeks prior to flowering and several weeks thereafter, if necessary. A conidial spore suspension of *F. graminearum* may be used as an alternative inoculation method. An overhead misting system will be utilized to create conditions favorable for disease development. Treatments will be applied using a handheld CO₂ charged spray boom outlined by USWBSI fungicide test protocol. Disease incidence and severity will be assessed, as well as seed quality (scabby kernels and DON analysis). Plot yields and test weights will be recorded for each plot. Disease assessment data, grain quality measurements, and yields will be compared using appropriate statistical procedures.

The data generated for fungicide efficacy against FHB in Louisiana is limited. This project will begin to provide that information. The growing conditions in Louisiana are unique compared to other wheat-producing regions. The results from this project will demonstrate whether fungicide performance is consistent across multiple environments and identify any weakness and benefits of selected fungicides and timings.

The data generated from these studies will be used to help strengthen the research priority put forth by the USWBSI Chemical and Biological Control: Collaborative efforts (Uniform Tests) to evaluate advanced fungicide and BCA treatments for effective and consistent performance against FHB of wheat (all classes) and barley across multiple environments.