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PROJECT 1 ABSTRACT

(1 Page Limit)

Foliar fungicides and disease resistance have not provided acceptable control of FHB and DON when used independently. For example, the best available fungicides and application technology only suppress FHB/DON by 30-50%. In addition, wheat varieties with high resistance to FHB are currently unavailable. Conceptually, integrated control (i.e., fungicide and resistance) should maximize the strengths of both disease control methods, while minimizing their weaknesses. The result should be more complete FHB/DON control. Integrated pest management (IPM) methods have been around for many years in a variety of pest-crop systems. However, until recently, insufficient information existed for the development an integrated FHB/DON control program. Work funded by the USWBSI since 1998 has helped to identify fungicides and moderately resistant wheat varieties which can be used to develop an integrated approach to FHB/DON control. Thus, a National Uniform Trial on Integrated Control of FHB was initiated in 2007. The objectives of this trial are to 1) evaluate the benefits of combining host resistance and fungicide for FHB/DON management; 2) generate data aimed at increasing grower adoption of integrated FHB management strategies; and 3) generate data for use in refining USWBSI-funded FHB forecast models. Kentucky will participate in the multi-state, multi-year Integrated Uniform Trial by evaluating the benefits of combining host resistance and fungicides for FHB/DON management in a test located at the University of Kentucky Research and Education Center, Princeton, KY. A standardized protocol, developed by FHB experts in North America, will be followed. The test will study variety (one susceptible and two resistant varieties) x fungicide treatment (Prosaro-treated vs. non-treated) in a no-till environment. The proposed study is intended to provide data for multi-state analyses of variety x fungicide. This information will be used to refine state, regional, and national FHB control recommendations. Results will also be used to refine FHB predictive models. The ultimate goal of the project is to decrease the overall risk of FHB epidemics in the U.S. through enhanced grower adoption of integrated FHB/DON management programs. Food safety will be enhanced though lower levels of DON in the food supply. FHB and DON data from the test will be transmitted to Dr. Pearce Paul at the Ohio State University for use in multi-state analyses of treatments. Appropriate environmental data will be transmitted to Dr. Erick DeWolf at Kansas State University for use in refining existing FHB predictive models.