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Project Title: Uniform Fungicide Trials for Management of FHB and DON in Wisconsin.

PROJECT 1 ABSTRACT

(1 Page Limit)

Understanding the effect of foliar fungicides for control of Fusarium head blight (FHB) and deoxynivalenol (DON) will help producers in Wisconsin make better disease management decisions. With a large dairy industry in the state, wheat grain and straw bedding is used extensively for more than one purpose. Proper evaluation of the latest foliar fungicides will enable improved management information to be provided to growers and consultants. Furthermore, data from these trials will be incorporated into modeling efforts to improve overall risk predictions for FHB and DON.

This trial will be conducted at the Arlington Agricultural Research Station (ARS), Arlington, WI. We will establish the trial and may utilize a macroconidia application at flowering similar to our work in the integrated management trials. We propose to use the commercial winter wheat variety Kaskaskia based on results from our wheat variety trials that have shown this to be a susceptible wheat variety. Furthermore, this is a popular winter wheat variety for growers in Wisconsin. We will also monitor weather conditions with an Onset Weather Station that we have at the Arlington ARS. This weather station has a rain bucket, temperature and RH probe, two leaf wetness sensors (30" and 48"), and soil moisture and soil temperature probes. Our overall experimental design is a randomized complete block with a minimum of 4 replications. In Wisconsin, our wheat plots are typically established as 8' x 25' and we propose to use that size for this study. Fungicide treatments will be applied with a spray boom equipped with forward- and backward-facing nozzles (30° from the horizontal). Our experimental layout will provide space for 12 fungicide treatments that will be determined over the winter. If 12 treatments are not needed, plots that are left untreated will serve as additional check controls.

At soft dough (Feekes 11.2), FHB incidence and severity will be assessed for each plot by examining 20 heads at 5 arbitrarily selected locations per plot, and FHB index will be calculated. Additionally, incidence and severity of foliar diseases will be assessed on the flag leaves at the same time. Plots will be harvested to determine yield, and grain samples from each plot will be evaluated for percentage Fusarium-damaged kernels. Grain samples from each plot will be sent to one of the USWBSI-funded DON testing laboratories for DON analysis.

Application of results/technology transfer-Wisconsin and region: In Wisconsin, we have several tools to provide information back to stakeholders, including the Field Crops Plant Pathology website (<http://fyi.uwex.edu/fieldcroppathology>), the Soybean and Small Grains Agronomy website (<http://coolbean.info>), and the Soy Report blog (<http://thesoyreport.blogspot.com>). Overall, this trial will improve our knowledge of the use of foliar fungicides for control of FHB and DON. On a national level, our data and information will form an integrated set of results for SCABSMART as part of a national publication on integrated management guidelines for FHB and DON.