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Research Area: CBCC

Duration of Award: 1 Year

Project Title: Field Studies on Chemical and Biological Control of Fusarium Head Blight in South Dakota.

PROJECT 1 ABSTRACT

(1 Page Limit)

Fungicide trials will be established on hard red spring wheat and hard red winter wheat at multiple sites in South Dakota and on barley at one location. Treatments will reflect uniform fungicide and uniform biological control treatments for Fusarium head blight (FHB) control that will be established for the Chemical, Biological and Cultural Control research area and to be studied in multiple states where spring wheat/barley and winter wheat are grown in the United States. Study sites will be Groton, Watertown and Brookings, SD. The Brookings site will be inoculated with *Fusarium graminearum* conidia and mist irrigated for 14 days after flowering. The core set of six fungicide treatments compared to an untreated check across a number of states allows evaluation of products and methods for consistency in performance across the three environments and grain types affected by FHB. Also, because FHB does not occur every year in every location, regardless of attempts to ensure infection through added inoculum or misting systems, having the trials across environments increases the chance of favorable disease levels for evaluation across multiple sites.

The triazole fungicide Folicur (tebuconazole) has been granted special exemptions for use in recent years and the triazole fungicide Tilt (propiconazole) has been granted state labels for use against FHB in several states, but not South Dakota. However, the extension of the propiconazole label to Feekes 10.5, increases its usefulness, but still does not optimize the timing for the treatment or the suppression of deoxynivalenol (DON). The most efficacious fungicides identified are in the triazole group, yet EPA has not completed a final review of this chemistry. As such, full labeling of any triazole fungicides by EPA is uncertain. As such, providing data for special labels is a very important function of this research area. Greater study is needed to assure producers of the efficacy of these new fungicide treatments against multiple diseases and against all the risks of scab, not limited to the disease or yield losses, but also including the mycotoxin hazard.

The proposed studies will be accomplished in coordination with several other projects at SDSU. Planting and harvest for some plots at some remote locations will be conducted by the breeding projects.

This project serves two purposes in the overall scope of the US Wheat and Barley Scab Initiative. Screening of chemical treatments offer the best hope of immediate management tools for producers. Biological controls offer hope for low cost treatments with that may be very safe to the applicator, consumer, and have negligible impacts to the environment where they are applied, however, biological treatments must be proved to be effective and reliable over a range of environments.