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Project ID: 0405-DR-092 **FY03 ARS Agreement #: 59-0790-9-032**

Research Area: **CBC** **Duration of Award: 1 Year**

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

PROJECT 1 ABSTRACT
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Fungicide trials will be established on hard red spring wheat and hard red winter wheat at multiple sites in South Dakota. Trials will also be conducted on barley and durum as space allows. Treatments will, at a minimum, reflect uniform fungicide and uniform biological control treatments for Fusarium head blight (FHB) control that will be established by the Chemical and Biological control group, to be studied in multiple states where spring wheat/barley and winter wheat are grown in the United States. This core set of treatments across a number of states allows evaluation of products and methods for consistency in performance over a wide number of environments and across 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. The prospect for full labeling of any triazole fungicides by EPA appears to be in doubt, which makes the identification of new fungicide chemistries and modes of action is all the more critical. Further, it is important to identify products that offer control a wide range of diseases and not exclusively scab. 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.

These proposed studies will be accomplished with the assistance of several other projects at SDSU. Planting and harvest for some plots at some remote locations will be conducted by the spring and winter wheat breeding projects. Planting of winter wheat plots was completed in mid-September. Each year of this project has provided useful data that helps to identify upcoming products that may be implemented to help minimize the losses growers sustain due to FHB.

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 environmental where they are applied, however, biological treatments must be proved to be effective and reliable over a range of environments.

Additionally, studies have been initiated and will be continued with aerial application equipment to optimize fungicide application from the air using currently available equipment. The vast wheat acreage in South Dakota cannot be treated from the ground alone and alternative treatment methods must be developed for the best success in disease control for the producer with available technology.