0203-DR-101 Chemical and biological trials for Fusarium head blight (FHB) management.

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PROJECT ABSTRACT
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The greatest impact to date in managing FHB has been through the use of chemical controls. In many cases, growers have seen suppression of FHB greater than 50% field severity. As a part of this study, several trial locations will be planted to hard red spring wheat, hard red winter wheat, barley, and possibly durum. Fungicide trials will be established on hard red spring wheat and hard red winter wheat at multiple sites in South Dakota. Some of these treatments will reflect uniform fungicide treatments for Fusarium head blight (FHB) control that will be established across states where spring wheat/barley and winter wheat are grown in the United States. A core set of treatments across many states allows evaluation of products and methods for consistency in performance over a wide number of environments and across grain types affected by FHB. These sites will be treated with a standardized set of eight core treatments and other fungicidal and biological agents for evaluation of FHB suppression. The core treatments will include an untreated check, and recommended rates of Folicur, BAS 505, AMS 21619, AMS 21619 + Folicur, OH182.9, TrigoCor 1448, and TrigoCor 1448 + Folicur.

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 is expected to receive full labeling in 2002. Additionally, the triazole fungicide Tilt (propiconazole) has been granted state labels for use against FHB in several states, but not South Dakota. It is important to identify products that offer control a wide range of diseases and not scab, exclusively. Stripe rust and leaf rust epidemics in South Dakota in 2001 have changed the way growers perceive Folicur use. Greater study is needed to assure producers of the efficacy of these treatments against FHB and other diseases that occur simultaneously.

Other treatments will be added as space allows. Data collected will include incidence, head severity and field severity of FHB, leaf disease on the flag leaf, DON content, Fusarium damaged kernels (FDK), protein in the seed, grain yield and test weight. In addition to the chemical agents tested, several biological agents will be included. At least one site, Brookings, SD, will be mist irrigated during the prime crop stage for infection. *Fusarium graminearum* inoculum may be added to the plot areas as needed. The method of challenge inoculum will either be inoculated corn grain or spray inoculation with macroconidia.

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 and may be acceptable for organic producers.