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**Research Category: MGMT**

**Duration of Award: 1 Year**

**Project Title: Uniform Biocontrol Agent Test for Control of Fusarium Head Blight and Deoxynivalenol.**

### **PROJECT 1 ABSTRACT**

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In order to identify fungicides and biological products that are effective in minimizing damage from Fusarium head blight (FHB), uniform trials for FHB control have been established in spring wheat/barley regions and in winter wheat regions of the United States. The establishment of a uniform trial consisting of a core set of treatments across a number of states allows evaluation of products and application methods for consistency of 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, having multiple sites for the uniform trial increases the chance of favorable results at some locations each year.

The first years of the Uniform Fungicide Trial resulted in changes in products labeled for use for the management of FHB by producers. Over the years of the Uniform Fungicide and Biologicals Trials, results in locations with FHB indicated favorable control with many of the tested products. Changes in application technology, which have improved efficacy, have also been incorporated into the Uniform Trials.

The University of Missouri has cooperated in the Uniform Fungicide and Biological Trials for a number of years. The 2009 Uniform Biologicals was conducted at the Bradford Research Center east of Columbia, MO. Conditions were quite favorable for the development of Fusarium head blight and good results were obtained the Uniform Biological Trial. The 2008-2009 trial included a double yeast, supplied by David Schisler; and a commercially available biological control agent Taegro. These products were applied at varying wheat growth stages and alone and in combination with the fungicide Prosaro. The Fusarium (% plot severity) was significantly lower for all of the treatments on the susceptible variety "Elkhart" but none of the treatments were significantly different than the untreated control on the moderately resistant variety "Roane". DON levels in Elkhart were similar for all the untreated control and all of the treatments except Prosaro applied at early flowering followed by the double yeast five days later. The Prosaro early followed by double yeast later had significantly lower DON level. For the variety Roane overall DON levels were lower for all treatments and there were no significant differences between the untreated control and the seven treatments. For the six trials conducted in three states, head severity and index in the biological treatments were significantly lower than the control.

The proposal for the 2009-2010 season is to continue participation in the Uniform Biological Control Agent Trial. Two winter wheat varieties of varying susceptibility to FHB were planted during the fall of 2009 so that applications of biologicals can be made during the 2010 growing season.

This proposal is directly in line with goal #3 of the FHB Management Research Area, i.e. to develop the next generation of management tools for FHB/DON control. The Uniform Biological Trial evaluates biological control agents that are close to marker use against registered products with the objective of finding more effective products to use in managing FHB and thus reducing DON levels in grain.