

**USDA-ARS / USWBSI
FY04 Final Performance Report
July 15, 2005**

Cover Page

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Year:	FY2004 (approx. May 04 – April 05)
FY04 ARS Agreement ID:	59-0790-4-125
FY04 ARS Agreement Title:	Uniform Trial to Evaluate Efficacy of Fungicides and Biologicals Against Fusarium Head Blight.
FY04 ARS Award Amount:	\$ 13,659

USWBSI Individual Project(s)

USWBSI Research Area*	Project Title	ARS Adjusted Award Amount
CBC	Uniform Trial to Evaluate Efficacy of Fungicides and Biologicals Against Fusarium Head Blight.	\$ 13,659
	Total ARS Award Amount	\$ 13,659

Principal Investigator

Date

* BIO – Biotechnology
CBC – Chemical & Biological Control
EDM – Epidemiology & Disease Management
FSTU – Food Safety, Toxicology, & Utilization
GIE – Germplasm Introduction & Enhancement
VDUN – Variety Development & Uniform Nurseries

Project 1: *Uniform Trial to Evaluate Efficacy of Fungicides and Biologicals Against Fusarium Head Blight.*

1. What major problem or issue is being resolved and how are you resolving it?

Scab or Fusarium head blight (FHB) continues to be a problem on soft red winter wheat grown in Missouri. Although a state wide epidemic has not occurred for several years, each year there are areas within the state that have weather conditions favorable for disease development as the winter wheat crop is flowering. Producers in these areas see a direct impact from yield reduction and may see an indirect impact due to DON levels or quality issues when the grain is marketed. High levels of FHB in the crop or of DON in the grain also cause significant problems for elevators accepting the grain and processors trying to use the grain. One management option would be the use of fungicides to minimize FHB infection. The Uniform Scab Fungicide Trial was set up to identify safe fungicides that are effective against FHB. The trial has been expanded to include biological control agents that might be effective against FHB. A given set of fungicides and biological control agents is evaluated for consistency of performance across a number of wheat classes and varieties, barley classes and environments. For the fungicide portion of the uniform trial, the emphasis is on new fungicide chemistries, new combinations of products or more concise application timing. In the biologicals portion of the uniform trial, the emphasis has shifted to biologicals available in formulations that would be practical for on-farm use. The identification of safe fungicides or the development of safe, easy to use biological control agents which effectively control FHB would benefit producers, agribusinesses and ultimately consumers. The set of fungicides and biological control agents for the Uniform Scab Trial were evaluated on two soft red winter varieties in Missouri during the 2004-2005 season. The field work for this trial has just been completed. Samples have been submitted for DON analysis and data is being analyzed for the annual trial report.

2. What were the most significant accomplishments?

The Uniform Trial to evaluate efficacy of fungicides and biologicals against Fusarium head blight was conducted in Missouri this season. Planting went well and the stands were good both last fall and this spring. Weather conditions during flowering were conducive to the development of FHB. Fungicide treatments were applied at the appropriate timings. This year most of the biological agents were supplied in sufficient quantity or formulation so no additional increase of biological inoculum was necessary. This was a significant improvement over previous years in which inoculum had to be increased prior to application. Application of the biological agents went very well. Unfortunately weather conditions from flowering on were not favorable for FHB. Both incidence and severity of FHB were low when those ratings were taken in the field. Scabby kernel counts are being done right now but initial results show low levels of scabby kernels from plots in this year's trial. Thus trial results from Missouri are not likely to provide significant differences between treatments in the Uniform Trial for 2005. But the strength of the Uniform Fungicide and Biological Trials has been and continues to be in the replication of the same set of treatments across a number of locations. Although results in one location in a given year may not be statistically significant, across all of the locations there will be significant results that provide valuable information for all wheat and barley producing areas of the U.S.

Include below a list of the publications, presentations, peer-reviewed articles, and non-peer reviewed articles written about your work that resulted from all of the projects included in your grant. Please reference each item using an accepted journal format. If you need more space, continue the list on the next page.

Presentations:

Crop Injury Diagnostic Clinic, Field Crop Disease Session, July 2004, Columbia, MO

Update on Field Crop Diseases during Commercial Pesticide Applicator Training and Recertification, January 2005- multiple locations throughout the state

Wheat Diseases, MFA Training, February 2005, Columbia, MO

Hail School, June 2004, Columbia, MO (multi-state meeting)

Wheat tours at Lamar and Columbia, spring of 2005

Teleconference calls with Extension field staff during spring of 2005

Newsletter articles and news releases during spring of 2005

Missouri data was also submitted to appropriate coordinators for inclusion in the reports for the Uniform Wheat Fungicide Trials and the Uniform Biologicals Trials