USDA-ARS/
U.S. Wheat and Barley Scab Initiative
FY05 Preliminary Final Performance Report
July 14, 2006

Cover Page

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Fiscal Year:	**2005**
FY05 ARS Agreement ID:	**59-0790-5-081**
Agreement Title:	**Evaluation of Fungicides to Control of FHB on Soft Red Winter Wheat in Virginia.**
FY05 ARS Award Amount:	**$ 5,756**

USWBSI Individual Project(s)

USWBSI Research Area*	Project Title	ARS Adjusted Award Amount
CBC	Evaluation of Fungicides to Control of FHB on Soft Red Winter Wheat in Virginia.	$ 5,756
	Total Award Amount	**$ 5,756**

Erik L. Stromberg 16 July 2006

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: *Evaluation of Fungicides to Control of FHB on Soft Red Winter Wheat in Virginia.*

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

This project was part of a collaborative effort (Uniform Tests) to identify fungicide treatments that are effective and consistent in performance against FHB across multiple environments and wheat and barley cultivars. My part was to evaluate fungicide treatments to control FHB on soft red winter wheat in Virginia.

2. List the most important accomplishment and its impact (how is it being used?). Complete all three sections (repeat sections for each major accomplishment):

Accomplishment:

The fungicide trial was conducted at the Eastern Virginia Agriculture and Extension Center at Warsaw, VA. The soft red winter wheat cultivar Sisson, treated with Baytan 30 Flowable (1.5 fl. Ox. Product per CWT) for seedling diseases, was no-tillage planted into corn residues on 14 Oct 02 at a rate of 24 seeds/row ft in 7-in. spaced rows. Prior to planting the harvested corn stalks were chopped and flailed and a fertilizer containing 30 lbs N, 80 lbs P_2O_5, 80 lbs K_2O per A was broadcast. The field (Kempsville sandy loam, pH 6.5) was previously seeded to corn in 2002. The experimental design was a randomized complete block with four replications. Treatment units were seven 7-in. wide rows 25 ft long. On 14 Dec at Zadoks' Growth Stage (GS) 10, 0.4 fl oz/A of Finese herbicide was applied. Supplemental N at 25 lbs/A was applied on 21 Dec and again at 50 lbs/A on 16 Feb (GS 20), and a final application at 60 lbs/A in 15-0-0 formulation on 30 Mar (GS25). The wheat survived the winter in good condition. Powdery mildew was not a factor because of the effectiveness of Baytan 30 seed treatment and a moderate level of resistance in the cultivar.

All treatments were made with a CO_2-pressurized backpack sprayer equipped with a 5-ft boom and four dual Tee-Jet 8001 flat fan nozzles pointed forward and backwards at 45^o to the plane of the ground. The pair of nozzles was spaced 20 in. apart and 18 in. above plants delivering 25 gal/A at 40 psi. Treatments 2-5 were made in a 2.5 liter volume on 12 May (GS 59). On 1 Jun one hundred heads per plot were scored for incidence and severity for FHB from which the FHB INDEX was calculated. Plots were harvested with a Wintersteiger plot combine on 30 Jun. Grain samples were collected for 1000 kernel weight, bushel weight, and vomitoxin (DON) content. DON analyses were conducted in Dr. P. Hart's laboratory ay Michigan State University. Yield is expressed in bu/A at a standard 13.5% grain moisture.

All treatments reduced the incidence and severity of FHB compared to the non-treated control and the stripe rust on the flag leaf and flag-1 and were statistically significant ($P \leq 0.05$). All treatment statistically reduced ($P \leq 0.05$) the FHB Index, except the BAS 555 01/F 10 fl oz/A. All treatments had low levels of vomitoxin (DON), but none were statistically significant ($P \leq 0.05$) from the non-treated control. All treatments increased statistically significant ($P \leq 0.05$) the 1000 kernel weights and the bushel weights over the non-treated control.

Impact: The effectiveness of the fungicides was demonstrated for FHB control and particularly the control of stripe rust.

As a result of that accomplishment, what does your particular clientele, the scientific community, and agriculture as a whole have now that they didn't have before?:

Fungicides for the control of stripe was demonstrated for the first time in Virginia.

Unfortunately, the DuPont products did not arrive in time to be included in the 2005 evaluations.

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 the grant. Please reference each item using an accepted journal format. If you need more space, continue the list on the next page.

Stromberg, E.L. and C.C Kenley. 2006. Evaluation of fungicides for control of fusarium head blight (FHB) and stripe rust on wheat in Virginia, 2005. Fungicide & Nematicide Tests Vol. 41:CF017 (2 pages).