

**USDA-ARS / USWBSI
FY04 Final Performance Report
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Cover Page

PI:	Arvydas Grybauskas
Institution:	University of Maryland
Address:	Dept. of Nat. Res. and Landscape Arch. 2102 Plant Sci. Bldg. 036 College Park, MD 20742-4452
E-mail:	arvydas@umd.edu
Phone:	301-405-1602
Fax:	301-314-9308
Year:	FY2004 (approx. May 04 – April 05)
FY04 ARS Agreement ID:	59-0790-4-103
FY04 ARS Agreement Title:	Fusarium Head Blight Uniform Fungicide Trial in Maryland.
FY04 ARS Award Amount:	\$ 7,805

USWBSI Individual Project(s)

USWBSI Research Area*	Project Title	ARS Adjusted Award Amount
CBC	Fusarium Head Blight Uniform Fungicide Trial in Maryland.	\$ 7,805
	Total ARS Award Amount	\$ 7,805

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
(Form – FPR04)

Project 1: *Fusarium Head Blight Uniform Fungicide Trial in Maryland.*

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

The primary problem that is being addressed is the need for effective tools for the management of a Fusarium Head Blight and testing them in the mid-Atlantic region. Registered fungicides are not adequate by themselves. There are only a few cultivars of soft red winter wheat purported to have some resistance. However these are only slightly better than susceptible cultivars and are inadequate by themselves in a severe epidemic. Furthermore, production practices like no-till production of wheat after a corn crop that increase the risk of FHB outbreaks are becoming more popular. Experimental and off-label applications of fungicides have been shown on occasion to provide greater efficacy for control but parameters for their application need to be investigated to determine if adequate levels of control can be achieved consistently. Field trials examining registered and experimental fungicides and biocontrol agents, and application timing experiments are being conducted to determine if fungicidal controls can be implemented. This study is a part of the uniform fungicide trials conducted in multiple states to ensure results are obtained and consistent across environments.

2. What were the most significant accomplishments?

The uniform fungicide trial was conducted at the University of Maryland with the following modification. The protocol in the uniform trial is to apply treatments at initiation of flowering (10-15% of heads with anthers). We also included a second set of treatments that were applied 3 days after flowering to simulate what may happen during an epidemic when weather might prevent fungicide applications at the onset of flowering. The best application timing was at the initiation of flowering. Although for many of the treatments there were no significant differences in disease measurements across application dates, when yield is included in the consideration applications made at flowering produced better yields with higher quality seed. At the flower initiation timing, only the experimental compounds significantly reduced disease incidence and severity, increased yields and reduced toxins below the control. The registered products, Folicur and Tilt, had no significant efficacy in the management of Fusarium head blight. The experimental compounds that were tested were JAU 6476 from Bayer and V-10116 from Valent.

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?:

These products show great promise in improving disease management as part of an integrated approach. Even the best products under severe conditions are inadequate by themselves, and from this study in particular it is clear that even a three day delay in application can reduce the efficacy of the materials. We clearly need to continue the search for fungicides and to examine their efficacy in combination with resistance.

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.

Grybauskas, A. P. 2005. Extension programs and field crop disease management research in Maryland in 2004. NJ-Del-Mar-VA-PA plant pathologist association annual meeting. May 4, 2005, Newark, DE.

Grybauskas, A. P. 2005. Field tour for EPA regulatory personnel – Wheat head blight and soybean rust management with fungicides, Beltsville, MD June 14, 2005.

Grybauskas, A. P. 2005. Wye Twilight Tour – Disease Management Update, Queenstown, MD. May 25, 2005.