

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

**Cover Page**

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<b>Year:</b>	<b>FY2004</b>
<b>FY04 ARS Agreement ID:</b>	<b>NA</b>
<b>FY04 ARS Agreement Title:</b>	<b>Integrated Project - Ground and Aerial Application of Fungicides for Improved FHB Control.</b>
<b>FY04 ARS Award Amount:</b>	<b>\$ 71,887</b>

**USWBSI Individual Project(s)**

<b>USWBSI Research Area*</b>	<b>Project Title</b>	<b>ARS Adjusted Award Amount</b>
CBC	Integrated Project - Ground and Aerial Application of Fungicides for Improved FHB Control.	\$ 71,877
	<b>Total ARS Award Amount</b>	<b>\$ 71,887</b>

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Principal Investigator

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Date

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\* 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: *Integrated Project - Ground and Aerial Application of Fungicides for Improved FHB Control.***

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

Fusarium head blight (FHB) is a major disease of wheat and barley in several small grain production areas in the United States and with only limited control as a result of new cultural practices and new resistant cultivars, aerial application technologies that enhance the efficacy of fungicides with aerial spray applications was examined. Six aerial application treatments were assessed for deposition amount and characteristics over three plots of hard red spring wheat. Spray deposition from each treatment was assessed for total deposits of active ingredient as well as coverage of wheat head. The resulting deposition data was analyzed for maximum deposition and coverage. Results were provided to cooperators for use in analysis of post harvest studies.

**2. What were the most significant accomplishments?**

**Accomplishment:** There is limited data available on the deposition characteristics such as amount, drop size, and coverage of aerial applied treatments on wheat. A number of studies have emphasized that increased deposition is a major factor in fungicidal efficacy. Six treatments based on three spray rates and two droplet sizes were assessed for deposition characteristics. Results demonstrated that lower spray rates combined with larger droplet sizes resulted in maximum deposition on wheat.

**Impact:** The collected data set is the first of its kind for aerially applied sprays on wheat. The results combined with the detailed account of application techniques provides applicators, crop consultants and future researchers with guidance on methods to increase deposition from aerial fungicide applications for increase efficacy.

**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?**

The published data will provide applicators and crop consultants a new tool to use in combating Fusarium Head Blight in wheat. This data set is the first of its kind for aerially applied sprays on wheat.

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

Presentations:

Fritz, B.K., W. C. Hoffmann. 2005. Aerial application technologies for maximizing spray deposition on wheat heads. American Society of Agricultural Engineers/National Agricultural Aviation Association Joint Technical Session, December 5, 2005. Reno, NV. (to be presented)

Journals:

Fritz, B.K., I. W. Kirk, W. C. Hoffmann, D. E. Martin, V. Hofman, C. Hollingsworth, M. McMullen and S. Halley. 2005. Aerial application methods for increasing spray deposition on wheat heads. Crop Science (in submission).