

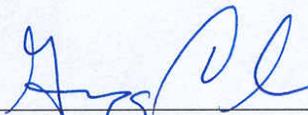
**USDA-ARS/  
U.S. Wheat and Barley Scab Initiative  
FY06 Final Performance Report (approx. May 06 – April 07)  
July 16, 2007**

**Cover Page**

<b>PI:</b>	Gregg Carlson
<b>Institution:</b>	South Dakota State University
<b>Address:</b>	Plant Science Department Box 2207A Brookings, SD 57007-1090
<b>E-mail:</b>	Gregg.Carlson@SDSTATE.EDU
<b>Phone:</b>	605-688-4761
<b>Fax:</b>	605-688-4024
<b>Fiscal Year:</b>	2006
<b>USDA-ARS Agreement ID:</b>	59-0790-4-097
<b>USDA-ARS Agreement Title:</b>	Field Studies on Chemical and Biological Control of Fusarium Head Blight in South Dakota.
<b>FY06 ARS Award Amount:</b>	\$ 14,276

**USWBSI Individual Project(s)**

USWBSI Research Area *	Project Title	ARS Award Amount
CBCC	Field Studies on Chemical and Biological Control of Fusarium Head Blight in South Dakota.	\$ 14,276
	<b>Total Award Amount</b>	<b>\$ 14,276</b>

  
Principal Investigator

11 July 07  
Date

\* CBCC – Chemical, Biological & Cultural Control  
EEDF – Etiology, Epidemiology & Disease Forecasting  
FSTU – Food Safety, Toxicology, & Utilization of Mycotoxin-contaminated Grain  
GET – Genetic Engineering & Transformation  
HGR – Host Genetics Resources  
HGG – Host Genetics & Genomics  
PGG – Pathogen Genetics & Genomics  
VDUN – Variety Development & Uniform Nurseries

**Project 1:** *Field Studies on Chemical and Biological Control of Fusarium Head Blight in South Dakota.*

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

Fusarium head blight can only be managed by a combination of cultural and chemical means. In many cases, producers have to compromise on cultural approaches at disease management and become reliant on chemical control. Fusarium head blight is an erratic problem in SD, but was severe over a wide area of the state in 2005; however, the impact of Fusarium head blight was significantly reduced in 2006 due to statewide drought. The continued availability of tebuconazole (Folicur, Orius, Embrace, and TebuStar) via Section 18 has become widely accepted among growers and has become a common production input in some parts of the state. More effective fungicides or application methods are needed to provide better disease control and improve the profit margin of producers. Awareness of FHB risk has been elevated and is a significant consideration in grower decisions.

We have continued to screen products through the uniform fungicide trial, participated in the “mini”-uniform biological trial, and have also screened SDSU biological products in the field for Dr. Bruce Bleakley.

**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:**

Success in using the uniform trials to show producers that fungicides can make a difference in FHB suppression. The identified products tebuconazole, metconazole, and prothioconazole continue to be the most efficacious fungicide chemistries.

**Impact:**

It was expected that the first products would be fully labeled by EPA in July of 2006; however, continued delays in full registration of tebuconazole required continued Section 18's. Full registration of a new product, Bayer's Proline (prothioconazole) was given in early 2007. This finally puts the tools in the hands of the producer without the need for special labels. More so, some of the next “next generation” fungicides will be acted on by EPA in 2007, providing the potential for better suppression than producers have had with tebuconazole alone.

**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?**

In 2008, the producer will have a more efficacious product than they have had in previous years and with special labels.

**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.**

Paul, P., D Hershman, M. Draper and L Madden. 2006. Effect of fungicides on FHB and DON in wheat – 2006 uniform fungicide trials. National Fusarium Head Blight Forum. December 10-12, 2006, Research Triangle Park, NC, Proceedings, p.15.

Ruden, K.R., M.A. Draper, and S.M. Thompson. 2007. 2006 Field Plot Summaries: Plant Disease and Fungicide Trials. SDSU Extension Service. 70 p. online at <http://plantsci.sdstate.edu/planthealth/Pubs/2005DataBook.pdf>

Ruden, K.R., B.E. Ruden, K.D. Glover, S.M. Thompson, K. Maxson-Stein and M.A. Draper. 2006. 2006 uniform fungicide performance trials for the suppression of Fusarium head blight in South Dakota. National Fusarium Head Blight Forum. December 10-12, 2006, Research Triangle Park, NC, Proceedings, p.19.

Ruden, K.R., B. Bleakley, S.M. Thompson, K. Maxson-Stein and M.A. Draper. 2006. 2006 uniform trials for the performance of biological control agents in the suppression of Fusarium head blight in South Dakota. National Fusarium Head Blight Forum. December 10-12, 2006, Research Triangle Park, NC, Proceedings, p.20.

Yuen, G.Y., C.C. Jochum, K.R. Ruden, L.E. Sweets, B.H. Bleakley, and M.A. Draper. 2006. 2006 results from the standardized evaluation of biological agents for control of Fusarium head blight on wheat and barley. National Fusarium Head Blight Forum. December 10-12, 2006, Research Triangle Park, NC, Proceedings, p.27.

### Presentations

Ruden, B.E. 2006. Managing crop diseases with fungicides. SD No-Till Conference. December 12, 2006, Mitchell, SD.

Ruden, B.E. 2006. Soybean to Wheat to Corn, Season long disease protection. SD Commercial Pesticide Applicators Training. January 22 - February 12, 2007, Aberdeen, Watertown, Brookings, Pierre, Mitchell, Yankton and Sioux Falls, SD.

Ruden, B.E. 2006. Soybean to Wheat to Corn, Season long disease protection. Area Crop Meetings. January 1, 2007-February 13, 2007, Aberdeen, Bristol, Britton and Watertown, SD.