

**U.S. Wheat and Barley Scab Initiative  
Annual Progress Report  
September 18, 2000**

**Cover Page**

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<b>Year:</b>	<b>FY2000</b>
<b>Grant Number:</b>	<b>59-0790-0-061</b>
<b>Grant Title:</b>	<b>Fusarium Head Blight Research</b>
<b>Amount Granted:</b>	<b>\$5,000.00</b>

**Project**

<b>Program Area</b>	<b>Objective</b>	<b>Requested Amount</b>
Chemical & Biological Control	Provide guidance in how best to use the biocontrol agents in a commercial wheat-production system and how effective they may be in more adverse environments.	\$9,000.00
	<b>Requested Total</b>	<b>\$9,000.00<sup>1</sup></b>

\_\_\_\_\_  
Principal Investigator

\_\_\_\_\_  
Date

<sup>1</sup> Note: The Requested Total and the Amount Granted are not equal.

**Project 1: Provide guidance in how best to use the biocontrol agents in a commercial wheat-production system and how effective they may be in more adverse environments.**

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

Wheat producers in South Dakota and adjacent states have seen dramatic outbreaks of Fusarium head blight (FHB) in recent years. The 1999 epidemic in South Dakota produced FHB at the highest levels since 1996.

The problem is being addressed through examining novel methods for managing Fusarium head blight through the use of biological agents (bacterial strains) that have been shown to have anti-fungal activity. Seven treatments and an untreated control were compared on two hard red spring wheat cultivars and the plots were evaluated for disease suppression.

2. Please provide a comparison of the actual accomplishments with the objectives established.

Results are incomplete. Indications are that there may be differences between the agents tested and the untreated control. The plots were treated, evaluated and harvested.

3. What were the reasons established objectives were not met? If applicable.

Data analysis is not yet complete. Yield and test weights were just completed (9/14/00). Data collection is still underway for vomitoxin (DON) levels, Fusarium damaged kernels (FDK), and protein. Due to weather conditions at Brookings, SD in 2000, the wheat crop developed faster than in 1999. No tradesmen (electricians) were available in time to connect the electricity to the mist irrigation system. As such, no misting was applied to this trial. The irrigation system was completed in late July.

4. What were the most significant accomplishments this past year?

The mist irrigation system has been purchased and assembled for future use. Laboratory workers have gained additional experience in working with the agents. Delivery of the bacteria used was successful through standard fungicide application equipment. Tours were held to demonstrate that biological control agents may be effective as anti-fungal or disease suppression treatments.

Year: 2000  
PI: Bruce Bleakley  
Grant: 59-0790-0-061

Progress Report

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.

Luo, Yongmei. 2000. *Bacillus* strains as biological control agents of tan spot and *Fusarium* head blight of wheat. MS Thesis. South Dakota State University

Draper, M.A. 1999. Managing wheat scab with fungicides. Ag Horizons Conference (The Annual Meeting of the SD Crop Improvement Association, SD Oilseed Council, SD Wheat Commission, and SD Seed Trade Association). December 13-15, 1999. Pierre, SD.

Draper, M.A. 1999. Managing disease risk in a no-till system. Annual Meeting of the South Dakota No-Till Association. December, 16, 1999. Mitchell, SD.

Draper, M.A. 2000. Managing plant diseases in cereals. County crop clinic. February 15, 2000. Onida, SD.

Draper, M.A. 2000. Managing plant diseases in winter cereals. County crop clinic. February 1, 2000. Presho, SD.

Draper, M.A. 2000. Managing plant diseases in winter cereals. County crop clinic. February 7, 2000. Burke, SD.

Draper, M.A. 2000. Managing plant diseases in cereals. County crop clinic. March 9, 2000. Bristol, SD.

Draper, M.A. 2000. Managing *Fusarium* head blight (scab) with fungicides. Poster presented at APS NC Division Meeting, June 16-18, 2000. Columbus, OH.

Draper, M.A. 2000. Managing scab and leaf disease in wheat. Brookings crops tour. June 21, 2000. Brookings, SD.

Draper, M.A. 2000. Managing scab and leaf disease in wheat. NE Farm crops tour. July 7, 2000. South Shore, SD.

Draper, M.A. 2000. Managing scab and leaf disease in wheat. Brown County crops tour. July 10, 2000. Groton, SD.