

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

Cover Page

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Year:	FY2000
Grant Number:	59-0790-9-059
Grant Title:	Fusarium Head Blight Research
Amount Granted:	\$20,000.00

Project

Program Area	Objective	Requested Amount
Epidemiology	Development of integrated management approaches to scab control.	\$19,626.00
Chemical & Biological Control	Identify safe fungicides that are most effective against FHB and evaluate across wheat classes and varieties, barley varieties, and environments.	\$5,000.00
	Requested Total	\$24,626.00¹

Principal Investigator

Date

¹ Note: The Requested Total and the Amount Granted are not equal.

Project 1: Development of integrated management approaches to scab control.

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

This project is designed to study the effect of crop management, especially crop rotation and tillage, on the development of Fusarium head blight (FHB) in wheat. Variables included crop rotation, reduced tillage vs. no-till, cultivar selection, and the use of fungicides for the control of Fusarium head blight. Results from 1999 and 2000 demonstrate a direct relationship between the previous crop and the amount of plant debris on the soil surface and level of initial inoculum of Fusarium graminearum. The highest conidial counts in both years were from plots that were cropped to corn the previous year and the wheat was planted no-till. The highest level of Fusarium head blight and the lowest yields were also obtained from the plots planted after corn using a no-till planting system. Conversely, the lowest levels of FHB and the highest yields were from plots planted after soybean. There were cultivar differences for both FHB and yield, as well as other foliar diseases.

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

The objectives were to compare several management systems to provide growers with the risk/benefits of several choices for wheat production. We were successful in completing these objectives, especially with respect to FHB and several other diseases, e.g. Septoria leaf blight, gray leaf spot on corn and soybean cyst nematode on soybean. We confirmed that wheat following corn had the greatest risk of FHB, but the risk could be reduced by disking the corn stalks prior to planting wheat. In addition, planting wheat after soybean also reduced the level of soil-borne diseases, especially Fusarium root rot, and resulted in the highest yields.

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

Not applicable

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

We confirmed in 2000 that wheat planted after corn under no-till had the greatest risk of FHB. The use of minimum tillage on corn stalks prior to planting wheat, greatly reduced the level of initial inoculum of FHB and also reduced soil-borne root rots of wheat. The most effect rotation was to plant wheat after soybean, but it was very important to consider other soybean diseases, e.g. soybean cyst nematode and Sudden Death Syndrome.

Project 2: Identify safe fungicides that are most effective against FHB and evaluate across wheat classes and varieties, barley varieties, and environments.

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

The objective of this project is very specific; what are the most effect fungicides for the control of FHB on winter wheat. In 1999 and 2000, we had relatively low levels of FHB, but we were still able to identify the most effective fungicides. However, the reduction of scab infection (% spikes infected) did not always result in very low levels of DON.

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

The initial objective was to evaluate several fungicides for the control of FHB and that was accomplished in both 1999 and 2000.

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

Not applicable

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

Identification of most effective compounds for control of FHB.

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.

A research paper is being written at this time – however, we are still waiting for DON levels from some wheat samples for 2000.