U.S. Wheat and Barley Scab Initiative
Annual Progress Report
September 15, 1999

Cover Page

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Year:	**FY1999**
Grant Number:	**59-0790-9-080**
Grant Title:	**Fusarium Head Blight Research**
Amount Granted:	**$16,260.00**

Project

Program Area	Objective	Requested Amount
Food Safety, Toxicology, Utilization	Investigate utilization of contaminated grain.	$16,666
	Requested Total	$16,666[1]

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Principle Investigator Date

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

Project 1: Investigate utilization of contaminated grain.

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

Fusarium head blight has become a severe and devastating problem in areas of the United States which produce small grains. This plant disease and the mycotoxin, deoxynivalenol (DON, vomitoxin), associated with it may present a serious public health concern and lead to price discounts for infected grain. The objectives of this project are intended to lead to methods to control DON concentrations in post-harvest foods and feeds so that infected grains can be utilized without food safety concerns.

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

Objective 1. Improve and adapt current analytical methods for deoxynivalenol detection and quantitation for use with processed food samples. This will be done in collaboration with Dr. Howard Casper at NDSU.

Work on this project has been delayed while efforts have been made to fill a technical support position to assist with this portion of the project.

Objective 2. To determine the fate of deoxynivalenol in food processing systems (wheat-based foods). This will be done in collaboration with Dr. Lloyd Bullerman at the University of Nebraska-Lincoln and Dr. Howard Casper at NDSU.

A working plan for this collaborative work is currently being arranged.

Objective 3. Evaluate methods to control *Fusarium* growth and deoxynivalenol production during the malting of scab infected barley. This will done in collaboration with Dr. Paul Schwarz and Dr. Jurgen Schwarz at NDSU.

Preliminary screening of physical methods to control *Fusarium* growth in barley during steeping have been completed. Irradiation appears to be the most promising method and will be further optimized.

Objective 4. Determine physiological and environmental signals for mycotoxin production in *Fusarium graminearum* strains. This will be done in collaboration with Dr. Robert Stack at NDSU.

Preliminary testing of the virulence levels of the strains to be examined are being completed by Dr. Stack.

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

Although some progress has been made, it has taken longer than expected to hire the technical support for the project. This has delayed the progress somewhat, but the position has recently been filled.

4. What were the most significant accomplishments this past year?
   Completion of preliminary studies for objectives 3 and 4.

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.

Wolf-Hall, C. E., P. Schwarz, J. Schwarz and J. Gillespie. 1999. Evaluation of Physical Treatments to Prevent *Fusarium* Growth During Barley Malting. Poster presented at the 1999 American Society of Brewing Chemists Annual Meeting, Phoenix, AZ, June 19-23.