

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

Cover Page

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Project

Program Area	Objective	Requested Amount
Biotechnology	Study trichothecene resistant genes from wheat.	\$33,000
	Requested Total	\$33,000 ¹

Principle Investigator

Date

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

Project 1: Study trichothecene resistant genes from wheat.

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

We are looking for wheat genes that are able to provide resistance to the fungal toxin DON with the ultimate goal of engineering fungal-resistant lines of wheat. We are making cDNA libraries from infected/non-infected Frontana wheat heads as well as from wheat tissue culture exposed/not exposed to toxin. Toxin-degrading genes in these libraries will be isolated by transforming toxin-sensitive yeast, plating onto toxin-containing medium, and selecting colonies that grow. The cloned genes will then be sequenced and gene function analyzed in Co-PI Susan McCormick's lab.

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

RNA has been isolated at Co-PI Gary Muehlbauer's lab at the University of Minnesota from non-infected (control) and *Fusarium* infected Frontana wheat heads as well as from Frontana tissue cultures not-exposed (control) and exposed to DON. The latter was done in an effort to distinguish plant from fungal genes that provide resistance to toxin. From this RNA, Alexander's lab in Peoria has made cDNA libraries. These accomplishments cover the first two steps in our stated objective. We are presently screening the libraries for toxin-resistant genes.

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

none

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

The isolation of RNA and the subsequent formation of cDNA libraries.

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.