

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

Cover Page

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Year:	FY2000
Grant Number:	
Grant Title:	Fusarium Head Blight Research
Amount Granted:	\$45,000.00

Project

Program Area	Objective	Requested Amount
Biotechnology	Study the disease cycle of the head scab fungus <i>Gibberlla zeae</i> using genomics technology	\$25,000.00
Networking & Facilitation Office	Improve research results by increasing information hosted on the Initiative's website	\$20,000.00
	Requested Total	\$45,000.00

Principal Investigator

Date

Project 1: Study the disease cycle of the head scab fungus *Gibberella zeae* using genomics technology

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

Although *Gibberella zeae* is a major plant pathogen, very little is known of the fungus, its genome structure, or the pattern of activity of its genes. The project is providing a database of ESTs (Expressed Sequence Tags) to identify a large number of *Gibberella* genes. This is being accomplished by performing single DNA sequencing reactions on cDNA clones from the fungus. The project includes the sequencing reactions, processing the DNA sequences, and providing the data and other bioinformatics assistance to the research community.

2. Please provide a comparison of the actual accomplishments with the objectives established. The project goal was to perform sequencing reactions on 5000 *Gibberella* cDNA clones. Currently approximately 1000 reactions have been accomplished. The data has been transmitted to Dr. Frances Trail for evaluation. Dr. Trail has determined that the cDNA library used for these first clones is highly redundant for a few cDNA species. On Olin Anderson's recommendation, Dr. Trail is constructing a new library and will be subtracting the redundant clones before the remainder of the sequencing phase continues.

Lower sequencing costs have allowed the commitment of 5000 sequencing reactions to be modified to now be 5000 successful ESTs generated. Normally, approximately 20-30% of sequencing reactions fail, which would have resulted in 3500-4000 successful ESTs under the original plan.

3. What were the reasons established objectives were not met? If applicable. Objectives are not yet met, but should be complete before Dec. 2000. Cessation of DNA sequencing is to allow a better set of samples to be prepared in Dr. Trail's laboratory, and will result in more useful data than rushing to finish sequencing with a lesser quality set of samples.

4. What were the most significant accomplishments this past year? Generating the first set of *Gibberella* ESTs and determining an optimal approach to complete this EST project.

Project 2: Improve research results by increasing information hosted on the Initiative's website

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

Communication among Scab Initiative biotechnology laboratories has not been as efficient as would be most effective in utilizing Initiative resources. In addition, data on certain types of molecular markers, particularly microsatellites, is not readily available to Initiative projects. The objective of this project is to develop a set of web resources to address both of these issues.

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

The objectives of the project are to provide a set of web resources for Scab Initiative biotechnology projects. To accomplish those objectives, one year of half-time support was provided for a Computer Specialist position to work with the ARS, Albany bioinformatics staff. The project will effectively initiate on August 28, 2000 when the recruited candidate begins the Computer Specialist position.

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

Delays in project initiation were due to difficulties in recruiting a suitable candidate for the position. The funds for this project will be carried forward to cover the one year of support, starting on the official start date for the Computer Specialist.

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

Filling the Computer Specialist position.

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.

None