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

Cover Page

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Year:	**FY1999**
Grant Number:	**59-0790-9-040**
Grant Title:	**Fusarium Head Blight Research**
Amount Granted:	**$14,634.00**

Project

Program Area	Objective	Requested Amount
Variety Development	Accelerate development of resistant varieties.	$15,000
	Requested Total	$15,000[1]

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Principle Investigator Date

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

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Project 1: Accelerate development of resistant varieties.

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

The overall objective of the project is to accelerate development of wheat varieties and germplasm adapted to the Gulf Coast that are resistant to fusarium head blight (FHB). The Gulf Coast is a unique wheat-growing region that is not suitable for most wheat varieties due to low vernalization and high disease pressure. Objectives will be accomplished by: (1) Participating in regional screening nurseries(2) Initiating a recurrent selection program, and (3) Incorporating FHB resistant lines into the LAES breeding program.

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

The Uniform Scab Nursery was planted at Baton Rouge in November, 1998. The winter was quite mild and only one entry headed out. This nursery did not provide any useful data as a result. Resistant lines from this nursery, based on data from other locations, will be used in the crossing program, by artificially extending the vernalization period to facilitate timely heading. A Southern Regional Scab nursery, coordinated by NC State University will be grown in the 1999-2000 season.

Seventy-six segregating populations were obtained from the University of Arkansas. These populations are derived from backrosses or topcrosses of adapted varieties onto single crosses between adapted lines and Chinese or CIMMYT sources of FHB resistance. 5000 heads were selected from superior plants within each population in April, based on adaptation, plant type, and resistance to diseases. These will be grown as headrows and screened for FHB resistance under inoculated field conditions, in the 1999-2000 growing season. Superior rows be advanced to yield trials and crosses.

Adapted populations containing the MS3 source of males sterility were grown and selected at Baton Rouge. The selected populations have been through 10 cycles of recombination and selection, are genetically very broad-based, with about 60% adapted background and 40% 'exotic' sources of disease resistance. The selected MS3 plants will serve as the MS source of the recurrent selection program under development.

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

The objectives were reasonably well met, particularly since the research was completed prior to receipt of funding.

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

A broad collection of germplasm has been assimilated and is being incorporated into backgrounds adapted to the Arkansas-Louisiana-Mississippi region. Cooperative efforts have been established and will be expanded . All three initiatives made expected progress.

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