

**U.S. Wheat and Barley Scab Initiative
 FY01 Final Performance Report (approx. May 01 – April 02)
 July 15, 2002**

Cover Page

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Grant Number:	59-0790-9-040
Grant Title:	Fusarium Head Blight Research
FY01 ARS Award Amount:	\$ 19,469

Project

Program Area	Project Title	Requested Amount
Variety/Uniform	Development of FHB Resistant SRW Wheat Genotypes Adapted to the Gulf Coast	\$ 20,000
	Total Amount Requested	\$ 20,000

Stephen A. Harrison | July 15, 2002
 Principal Investigator | Date

Project 1: Development of FHB Resistant SRW Wheat Genotypes Adapted to the Gulf Coast

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

Moderately high levels of FHB occurred in many grower fields across Louisiana during the 2001-02 growing season. The overall objective of this 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) Crossing adapted soft wheat lines and varieties with genotypes having resistance to FHB

2. What were the most significant accomplishments?

Significant progress was made in development of FHB resistant varieties and germplasm for the Gulf Coast. FHB research was conducted at Baton Rouge (south) and Winnsboro (north) Louisiana. The Southern Regional Scab Nursery (SRSN) was also evaluated at both locations. Significant levels of scab occurred at both locations, but large variation in heading date (due to differential vernalization), and significant leaf rust and Septoria leaf blotch confounded results at Baton Rouge. Excellent FHB notes were collected on this nursery at Winnsboro under the direction of Dr. Boyd Padgett (pathologist), who prepared inoculum for both locations and participates fully in all FHB research.

Ninety LAES breeding lines were evaluated in replicated trials at both locations. The FHB resistance in this material came from CIMMYT lines including the 'Catbird' series and Chinese sources such as the 'Sumai' group. Each plot was inoculated under a mist system and rated for scab incidence, severity, and seed shriveling. Selected lines will be advanced to the 2003-04 SRSN. There were significant differences among lines for FHB ratings, grain yield, and grain quality.

All entries in the Louisiana statewide wheat performance trials were also screened for reaction to FHB at both locations. Headrows from FHB crosses were evaluated at Baton Rouge. Twenty crosses in the F1 generation, from 2001 crosses were advanced at Baton Rouge. FHB sources include MN98513 and ND2928; Freedom, and PI531193, as well as Chinese lines. Sixteen F2 populations were advanced at Baton Rouge. Plants within each population were selected for heading date (vernalization and photoperiod), plant type, and disease resistance. Approximately 200 heads were harvested from each population to become F3 populations in 2002-03. Nineteen new populations were initiated by crossing locally adapted material with FHB resistance sources. Cooperation with CIMMYT (Uruguay) and the University of Arkansas (Dr. Gene Milus) contributed significantly to the development of FHB resistant populations and lines.

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FY01 Final Performance Report

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