

**U.S. Wheat and Barley Scab Initiative
 FY02 Final Performance Report (approx. May 02 – April 03)
 July 15, 2003**

Cover Page

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Grant Number:	59-0790-9-040
Grant Title:	Fusarium Head Blight Research
FY02 ARS Award Amount:	\$ 20,012

Project

Program Area	Project Title	USWBSI Recommended Amount
VDUN	Development of FHB Resistant Wheat Genotypes Adapted to the Gulf Coast.	\$20,512
	Total Amount Recommended	\$20,512

Stephen A. Harrison

7/15/03

Principal Investigator

Date

Project 1: Development of FHB Resistant 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 2002-03 growing season. FHB was more severe in the rice growing region of southwest Louisiana. 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 plots were planted at Baton Rouge (south) and Winnsboro (north) Louisiana. The south Louisiana screening plots were lost to heavy rainfall but the early generation material and crossing program were relatively unaffected. The Southern Regional Scab Nursery (SRSN) was planted at Winnsboro along with numerous FHB breeding lines in an inoculated field trial. Scab incidence was relatively light at Winnsboro. Dr. Boyd Padgett (pathologist) prepared inoculum for both locations and participates fully in all FHB research. There was a severe Scab epidemic in a non-inoculated yield trial in southwest Louisiana. All entries in this trial were hand-harvested and threshed to obtain data on scabby seed percent and DON. Collections were made from this site and added to the isolate mix used for inoculation. Samples were also sent to the USDA Cereal Disease Lab for testing.

Eighty eight LAES breeding lines were evaluated in three replicated trials at Winnsboro. 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.

All entries in the Louisiana statewide wheat performance trials were also screened for reaction to FHB at both locations. Headrows from FHB crosses were generation advanced at Baton Rouge but scab data was not obtained because planting was delayed and stands were poor as a result of late planting and heavy rainfall. Forty-seven crosses were made in the spring of 2003 for FHB resistance. Crosses made in 2003 included ND2928 and VA01W476 as new sources of resistance and a number of resistant lines developed by Gene Milus.

Approximately 5000 F3:4 and F4:5 headrows will be evaluated in Baton Rouge during the 2003-2004 growing season. Cooperation with CIMMYT (Uruguay) and the University of Arkansas (Dr. Gene Milus) contributed significantly to the development of FHB resistant populations and lines.

FY02 (approx. May 02 – April 03)

PI: Harrison, Stephen

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FY02 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