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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Year:	**FY2001 (approx. May 01 – April 02)**
Grant Number:	**59-0790-0-064**
Grant Title:	**Fusarium Head Blight Research**
FY01 ARS Award Amount:	**$ 9,735**

Project

Program Area	Project Title	Requested Amount
Variety/Uniform	Developing new SRWW germplasm with resistance to scab	$ 17,640
	Total Amount Requested	**$17,640**

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Principal Investigator Date

(Form – FPR01)

Project 1: Developing new SRWW germplasm with resistance to scab

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

Major problem is the rapid and effective incorporation of resistance to scab from exotic sources into adapted soft red winter wheat (SRWW) germplasm. The approach is to use backcrossing, three-way crossing into adapted wheat lines and varieties as well as marker-assisted selection (MAS) by incorporation of the Sumai 3 allele and other exotic alleles into the Maryland breeding program. We have started a marker-assisted selection program in collaboration with the USDA in Manhattan (Kansas) through which we will screen early generations of wheat crosses for the presence of markers linked to scab resistance. Segregating populations developed from the crosses described above are being screened under field conditions by using corn infested with Fusarium that is spread in the spring. Conditions favorable for disease development are aided with daily sprinkle irrigation before and during wheat flowering. Selected progenies from the segregating populations will be screened this year in Kansas.

2. What were the most significant accomplishments?

One hundred and thirty-six initial one-way crosses were made between exotic and adapted wheat genotypes in 2001. These were backcrossed or top-crossed (three-way cross) with adapted parental genotypes during the 2002 crossing season. The adapted lines were selected from the breeding program that are being used as parents in crosses while the exotic lines comprised germplasm from China, Korea, Japan and South America. Seventy wheat early segregating populations were advanced for scab screening. Progenies of segregating populations were screened under field conditions (with artificial scab inoculation). Lines with sound grain will be advanced for further testing in 2002/2003.

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.

Costa, J.M., and K. Salmon. 2001. Screening of wheat germplasm for polymorphism of SSR markers located on 3B. 2001 National Fusarium Head Blight Forum. Cincinnati, Ohio.