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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Year:	**FY2002 (approx. May 02 – April 03)**
Grant Number:	**59-0790-9-036**
Grant Title:	**Fusarium Head Blight Research**
FY02 ARS Award Amount:	**$ 73,378**

Project

Program Area	Project Title	USWBSI Recommended Amount
VDUN	Development of hard red spring wheat cultivars resistant to scab.	$75,212
	Total Amount Recommended	**$75.212**

Mohamed Mergoum 06-27-03

Principal Investigator Date

(Form – FPR02)

Project 1: Development of hard red spring wheat cultivars resistant to scab.

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

Fusarium Head Blight (FHB), a major problem for Hard Red Spring Wheat (HRSW) in North Dakota (ND) and neighboring states is reducing significantly the grain yield levels and quality characteristics. FHB had tremendous implications on HRSW producers, uses and export market particularly in ND. This problem have been resolved by the development and selection of elite parental genotypes, elite lines and breeding populations to incorporate diverse genetic resistance to FHB with desired agronomic and quality traits into a HRSW cultivar adapted to ND. The combination of several types of genetic resistance to FHB from diverse germplasm sources into adapted cultivars should provide a strategic long-term solution to the control of FHB not only in ND but in the entire HRSW growing region

2. What were the most significant accomplishments?

- Advanced elite breeding lines derived from populations involving sources of resistance to FHB other than the type II resistance of Chinese source Sumai-3 (on 3BS-Chromosome) were tested and screened for their resistance to FHB under field and greenhouse conditions.

- Advanced lines from crosses involving Type II resistance from the Chinese Sumai-3 and type I resistance mainly from the Brazilian source were evaluated under field conditions.

- Resistance from durum wheat located on chromosome 3A was successfully transferred to spring wheat and derived lines are being tested and screened under greenhouse and field conditions.

- Two breeding lines (ND747 and ND751) selected from crosses involving Sumai-3 with FHB resistance less than Alsen variety (registered in 2000 as the first cultivar that has moderate FHB resistance from Sumai-3) were presented and accepted for a pre-release by pre-release ND committee in early 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.

Abstracts published in refereed Journals:

Stack, R. W., R. C. Frohberg, and M. Mergoum. 2002. Fusarium Head Blight Incidence in a Hexaploid Wheat Population Derived from Lines with Type I Resistance. In Agronomy Abstracts. ASA, Indianapolis, IN., USA.

Stack, R. W., R. C. Frohberg, and M. Mergoum. 2002. Fusarium Head Blight Type II Resistance of a Spring Wheat Population Derived from a Hungarian Winter Wheat. In Agronomy Abstracts. ASA, Indianapolis, IN., USA.

Reports in Proceedings:

Stack, R.W., R.C. Frohberg and M. Mergoum. 2002. Fusarium Head Blight Type II Resistance of a spring wheat population derived from a Hungarian winter wheat. Proc 2002 Nat. Fusarium Head Blight Forum p 216.

Stack, R.W., R.C. Frohberg, and M. Mergoum. 2002. Fusarium Head Blight in Hexaploid Wheat Populations Derived from Lines with Type I Resistance to FHB. Proc 2002 Nat. Fusarium Head Blight Forum p 265.