

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

**Cover Page**

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<b>Year:</b>	<b>FY1999</b>

**Project**

<b>Program Area</b>	<b>Objective</b>	<b>Requested Amount</b>
Germplasm	Facilitate the international exchange of information and germplasm among wheat improvement programs involved with scab research.	\$40,000
Variety Development	To screen varieties for scab resistance in a uniform nursery.	\$10,000
	<b>Requested Total</b>	<b>\$50,000<sup>1</sup></b>

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Principle Investigator

Date

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<sup>1</sup> Note: The Requested Total and the Amount Granted are not equal.

**Project 1: Facilitate the international exchange of information and germplasm among wheat improvement programs involved with scab research.**

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

The major problem being addressed is the introduction and testing of potentially valuable international scab resistant germplasm. This program is still in its initial start up stages cooperating with CIMMYT. Dr. Yue Jin at South Dakota State University initiated an international nursery with cooperators in China and Japan for this year. The nursery at CIMMYT is to replace this nursery and add cooperators from additional countries in the world. Lucy Gilchrist is to be the coordinator at CIMMYT. In the year 2000, money will only be directed toward CIMMYT to fully fund the program. This nursery should provide a medium of exchange from scab resistant germplasm and to allow scab researchers the ability to obtain wide area testing of germplasm.

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

Dr. Yue Jin provided a list of the most resistant germplasm in his international nursery from 1998. He also coordinated the nursery internationally in 1999 and required ½ of the funding to provide support for several nurseries in China. These were ongoing projects which should terminate at the end of 1999. CIMMYT is to begin a nursery with ½ of the money and is initial startup phase. Both Yue Jin and R. Busch have provided an outline of possible methods of accomplishing this CIMMYT run nursery. Probably many details will need to be worked out with CIMMYT and we will need to have collaborators in the USA gather germplasm to send to CIMMYT for entry into the international nursery. Therefore the actual accomplishments have been completed for this year.

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

Objective for 1999 have been met.

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

Most significant accomplishments were initiating the nursery with CIMMYT and detailing the major objectives of the nursery. This project was not designed to produce referred publications. Dr. Yue Jin provided a report of the 1998 international scab nursery and provided seed of the most resistant entries for crossing purposes.

**Project 2: To screen varieties for scab resistance in a uniform nursery.**

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

The problem of testing scab resistant germplasm over environments is addressed in the Northern Midwest area including North Dakota, South Dakota, Minnesota, Manitoba (Ag. Canada), Saskatchewan (Ag. Canada), AgriPro, and Western Plant Breeders. Hard spring wheat and durum lines are grown in three locations in Minnesota, one location in South Dakota, two locations in North Dakota, and one location in Manitoba. This nursery is primarily for developed scab resistant germplasm to exchange germplasm for use as parents and to obtain a number of locations in one year since scab resistance is subject to large genotype x environment interactions. This is a continuation of regional cooperation among researcher, both public and private in the upper Midwest that was initiated in 1995 and has proven to be very valuable to cooperating researchers. The funding helps cover some of the expenses involved in coordinating the nursery.

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

The actual accomplishments are the same as the objectives. Data will be combined and provided to the collaborators as in the 1995-1998.

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

Not applicable

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

Minnesota added a more northern location to this nursery, located at Crookston, MN. This location is in the Red River Valley of the North and represents a major area for scab and wheat production. Only two sites were in the Red River Valley before, now three are available. Scab is a difficult disease to assess, and the *right amount* of disease is needed to allow maximum differential among entries. The readings are usually confounded by heading date so special precautions are needed for data collection. Data analyses must be evaluated by heading date to determine possible biases caused by differential heading.

Year: 1999  
PI: Bob Busch

Progress 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.

This project is not designed to produce publications, just reports.  
1998 Uniform Regional Scab Nursery for Spring Wheat Parents. 15 pages

About 30 copies distributed to interested individuals.