

USDA-ARS / USWBSI
FY03 Final Performance Report (approx. May 03 – April 04)
July 15, 2004

Cover Page

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| Year: | FY2003 (approx. May 03 – April 04) |
| FY03 ARS Agreement ID: | NA |
| FY03 ARS Agreement Title: | Coordination of a Uniform Regional Scab Nursery for Spring Wheat Parents. |
| FY03 ARS Award Amount: | \$ 7,989 |

USWBSI Individual Project(s)

| USWBSI Research Area * | Project Title | ARS Adjusted Award Amount |
|-------------------------------|---|----------------------------------|
| VDUN | Coordination of a Uniform Regional Scab Nursery for Spring Wheat Parents. | \$ 7,989 |
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| | Total Amount Recommended | \$ 7,989 |

Principal Investigator

Date

 * BIO – Biotechnology
 CBC – Chemical & Biological Control
 EDM – Epidemiology & Disease Management
 FSTU – Food Safety, Toxicology, & Utilization
 GIE – Germplasm Introduction & Enhancement
 VDUN – Variety Development & Uniform Nurseries

Project 1: *Coordination of a Uniform Regional Scab Nursery for Spring Wheat Parents.*

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

The significant environmental effect associated with the wheat disease scab (*Fusarium* head blight) poses an obstacle for public and private sector programs seeking to develop more scab-resistant germplasm. Undertaking multisite evaluations across a range of environments is the only way to adequately assess scab resistance in germplasm. The Uniform Regional Scab Nursery for Spring Wheat Parents (URSN) seeks to address this need. Interested parties from academia and private companies nominate germplasm for scab resistance evaluation at field locations in Minnesota, North Dakota, South Dakota, and Canada that provide conditions to enhance scab development on wheat. Both hard red spring wheat and durum wheat can be included in the URSN. The coordinator sets the final URSN entry list and oversees seed distribution to locations. In turn, a core group of scientists (who submit the majority of the entries) manage the locations and collect disease-related data. These data are supplied to the coordinator, who oversees its collation and statistical analysis, and produces an annual report. An additional aspect of the URSN is to encourage open and free germplasm exchange, in order to foster cooperation among breeders in efforts to develop scab resistant germplasm.

2. What were the most significant accomplishments?

The URSN was grown for the 9th year in 2003, at six mist-irrigated locations (Brookings, SD, St. Paul and Crookston, MN, Prosper and Langdon, ND, and Glenlea, Manitoba, Canada), and at two locations (St. Paul and Barnesville, MN) where supplemental mist irrigation was not used (“dryland screening locations”). A total of 41 germplasm entries were included, including three resistant and two susceptible checks. The other 36 entries were contributed by university, industry, or national wheat breeding programs. Five of these entries were durums, and five were USDA PI genotypes that are possible new sources of scab resistance. Scab resistance-related trait data from the locations were compiled and analyzed, and the annual report that was produced provides individual location data summaries, data summaries across locations, and comparisons of results obtained at the mist-irrigated locations vs. dryland screening locations. This expanded version of the annual report has been disseminated both by hard copy mailings, and by placing the report on the USWBSI and Graingenes web sites. This nursery continues to function as a vehicle for exchange of germplasm among spring wheat breeders in the Upper Midwest, and as an excellent source of data on wheat scab resistance from the field. For the 2004 season, a similar number of entries are being evaluated, and dryland screening locations are being included again.

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 your 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 designed specifically to produce a non-peer reviewed annual report for distribution to Nursery cooperators and other interested parties.

GARVIN, D.F, AND BLANKENHEIM, Z. 2004. Report of the 2003 Uniform Regional Scab Nursery for Spring Wheat Parents. Hard copies distributed to nursery cooperators and other interested parties, and the report is also made available at the USWBSI web site (<http://www.scabusa.org/>) and through the Graingenes web site (<http://wheat.pw.usda.gov>).