UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

in cooperation with

STATE AGRICULTURAL EXPERIMENT STATIONS


Hard Spring Wheat Nursery Coordinator:
D.F. Garvin, Research Geneticist, USDA-ARS

Report prepared by D.F. Garvin and Z. Blankenheim

This is a joint progress report of cooperative investigations underway in the State Agricultural Experiment Stations and the Agricultural Research Service of the U.S. Department of Agriculture. It contains preliminary data which have not been sufficiently confirmed to justify general release, and interpretations may be modified after additional experimentation. Confirmed results will be published through established channels. This report is primarily a tool for use by cooperators and their official staffs, and for those persons having direct and special interest in the development of agricultural research programs.

This report includes data furnished by the State Agricultural Experiment Stations as well as by the Agricultural Research Service of the U.S. Department of Agriculture. This report is not intended for publication and should not be referred to in literature citations, nor quoted in publicity or advertising.

Use of the data may be granted for certain purposes upon written request to the agency or agencies involved.

Agricultural Research Service
U.S. Department of Agriculture
Midwest Area
St. Paul, Minnesota
December, 2006
## CONTENTS

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperating Agencies, Stations and Personnel</td>
<td>2</td>
</tr>
<tr>
<td>Provisional Policy for Protected or Patented Genes</td>
<td>4</td>
</tr>
<tr>
<td>Spring Wheat Production Statistics</td>
<td>5</td>
</tr>
<tr>
<td>Description and Summary of 2006 HRSWURN</td>
<td>6</td>
</tr>
<tr>
<td>Figure 1. Geographic Locations of 2006 HRSWURN</td>
<td>7</td>
</tr>
<tr>
<td>Table 1. List of Entries in the 2006 HRSWURN</td>
<td>8</td>
</tr>
<tr>
<td>Table 2. Nursery Locations and Comparative Plot Management Data</td>
<td>9</td>
</tr>
<tr>
<td>Tables 3-22. Nursery Data by Individual Location</td>
<td>10-29</td>
</tr>
<tr>
<td>Table 23. Summary of Trait Means Across Locations</td>
<td>30</td>
</tr>
<tr>
<td>Table 24. Yield Rankings by Location</td>
<td>31</td>
</tr>
<tr>
<td>Table 25. Summary of 2-Year Means Combined Over 2005-2006</td>
<td>32</td>
</tr>
<tr>
<td>Table 26. Seedling Leaf Rust Reactions, St. Paul, MN</td>
<td>33</td>
</tr>
<tr>
<td>Table 27. Stripe Rust Reactions, Pullman, WA</td>
<td>34</td>
</tr>
<tr>
<td>Table 28. <em>Fusarium</em> Head Blight Reactions, Crookston, MN</td>
<td>35</td>
</tr>
</tbody>
</table>
COOPERATING AGENCIES, STATIONS, AND PERSONNEL FOR THE 2006 HRSWURN

USDA-AGRICULTURAL RESEARCH SERVICE
National Program Leader M.W. Simmons
Midwest Area Director S. R. Shafer
Nursery Coordinator D.F. Garvin
    Plant Science Research Unit, St. Paul, MN
Quality Investigations G. Hareland
    Cereal Crops Research Unit, Fargo, ND
Disease Evaluations J. Kolmer
    Cereal Disease Laboratory, St. Paul, MN
Wheat Genetics, Physiology, Quality, and Disease Research Unit, Pullman, WA
Yue Jin Xianming Chen

MINNESOTA AGRICULTURAL EXPERIMENT STATION
St. Paul, University of Minnesota J. Anderson
    Agronomy and Plant Genetics
    Plant Pathology R. Dill-Macky
    Morris, West Central Experiment Station G. Nelson
    Crookston, Northwestern Experiment Station J. Wiersma

AGRICULTURE AND AGRI-FOOD CANADA
Winnipeg, Cereal Research Centre (Glenlea) G. Humphreys
    Breeding and Genetics T. Fetch
    Cereal Diseases B. McCallum
Swift Current, Semiarid Prairie Agricultural Research Centre R. DePauw
D. Dahlman

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION
Fargo, North Dakota State University W. Berzonsky
    Agronomy M. Mergoum
    Plant Pathology Robert Stack
Hettinger Research Extension Center E. Eriksmoen
Langdon Research Extension Center B. Hanson
Williston Research Extension Center N. Riveland
Carrington Research Extension Center B. Schatz

SOUTH DAKOTA AGRICULTURAL EXPERIMENT STATION
Brookings, South Dakota State University K. Glover
Entering Lines with Protected or Patented Genes into the Hard Red Spring Wheat Uniform Regional Nursery

The following information details the Hard Winter Wheat Regional Program position on this issue. Basically, the same situation exists in the Spring Wheat Region, and it is therefore suggested that these guidelines are appropriate and thus accepted for the Hard Red Spring Wheat Uniform Regional Nursery as well, until such a time as the participants agree to deviate from it:

From: Robert Graybosch, Coordinator of Hard Winter Wheat Region

A question has arisen as to whether wheat germplasm lines carrying protected or patented genes may be entered in the HWW regional program. We have decided to allow such submissions, on a provisional basis, for the 2001 nurseries. Submissions must adhere to the provisions below, and submissions of such lines after the 2001 year will depend upon the adoption of formal guidelines. We are in the process of drafting a formal plan, hopefully one that will be approved at the 2001 Hard Winter Wheat Workers Conference.

Provisional plan for the submission of lines with patented or protected genes:

Definition: "protected" gene = a gene whose use is restricted by patents, Material Transfer Agreements, or other types of research agreements.

Wheat lines carrying such traits may be entered in the 2001 HWW Regional nurseries (RGON, SRPN, NRPN) under the following conditions:

1. Cooperators may cross with the line in question. Thereafter, the cooperator making such crosses must either have their own research agreement with the trait owner, or, if such an agreement is lacking, they must remove the trait from breeding populations by selection.
2. The owner of the trait has been informed of the submission, and that they agree to the conditions set forth in #1.
3. All other uses of the line are governed by the Wheat Workers Code of Ethics.
4. The trait may not have been inserted into the wheat genome by genetic engineering. In other words, the wheat line in question may not be transgenic.

At this point in time, transgenics may not be entered in the program. I am certain this question will arise in the near future, so I have contacted USDA-APHIS regarding this point. If you are interested in the details, the attached file contains the pertinent points of our e-mail exchange (note by HRSW coordinator: this file is not included in this report). The APHIS responses are in bold. To make a long story short - transgenic wheat lines will be allowed in the regional program only if they have been granted permanent non-regulated status. Non-regulated status is granted only after the originator files a formal petition to de-regulate a line with APHIS.

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SPRING WHEAT PRODUCTION, 2006

SPRING WHEAT OTHER THAN DURUM  Growers produced an estimated 460.5 million bushels of spring wheat. This production estimate is approximately 8.7 percent lower than year 2005 production, and approximately 19.1 percent lower than 2004. Yield averaged 33.2 bushels per acre, a decrease of 3.9 bushels per acre from year 2005, and 10 bushels per acre lower than in year 2004. Area harvested totaled approximately 13.9 million acres, which is slightly greater than the acreage harvested in 2005.

<table>
<thead>
<tr>
<th></th>
<th>Acres Harvested (x1000)</th>
<th>Production (x1000 Bushels)</th>
<th>Yield (Bushels/Acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minnesota</td>
<td>1,610</td>
<td>1,730</td>
<td>1,650</td>
</tr>
<tr>
<td>Montana</td>
<td>2,850</td>
<td>2,550</td>
<td>2,900</td>
</tr>
<tr>
<td>North Dakota</td>
<td>5,950</td>
<td>6,600</td>
<td>6,850</td>
</tr>
<tr>
<td>South Dakota</td>
<td>1,530</td>
<td>1,690</td>
<td>1,420</td>
</tr>
<tr>
<td>USA</td>
<td>13,174</td>
<td>13,609</td>
<td>13,878</td>
</tr>
</tbody>
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The Hard Red Spring Wheat Uniform Regional Nursery (HRSWURN) was planted for the 78th year in 2006. The nursery contained 35 entries submitted by 12 different scientific or industry breeding programs, and 5 checks (Table 1). Trials were conducted as randomized complete blocks with three replicates except where noted. The HRSWURN was planted at 21 locations in 7 different states in the USA (MN, ND, SD, MT, NE, WY, and WA), and two Canadian provinces (Manitoba and Saskatchewan). Twenty locations provided data for inclusion in this report (Figure 1, Table 2). Data summaries for each of these locations are presented in Tables 3 through 22. For each location summary, entries are listed in descending order of yield. Overall means across locations for a set of core traits are summarized in Table 23, and yield rankings for individual locations are found in Table 24. Two-year means for entries previously entered in the 2005 HRSWURN are presented in Table 25. Entries were also evaluated for various diseases at different locations; these can be found by looking at individual location data summaries. Seedling leaf rust resistance was evaluated in St. Paul, MN, and stripe rust evaluations were run in fields near Pullman, WA. These data are presented in Tables 26 and 27 respectively. Lastly, entries were evaluated in a *Fusarium* head blight nursery at Crookston, MN; these results are provided in Table 28. The highest average yielding location was Winnipeg, Canada, with 79.2 Bu/Ac, while the lowest yielding location was Williston, ND, with 31.2 Bu/Ac. The average yield for 19 combined locations where the nursery was replicated was 58.1 Bu/Ac.
Figure 1. Hard Red Spring Wheat Uniform Regional Nursery, Reporting Locations, 2006