UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

in cooperation with

STATE AGRICULTURAL EXPERIMENT STATIONS

Report on Hard Red Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 2009

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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. Accuracy of information within this report is not guaranteed by the U.S. Government.

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

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2009 HARD RED SPRING WHEAT UNIFORM REGIONAL NURSERY REPORT

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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.

U.S. SPRING WHEAT PRODUCTION, 2009

***SPRING WHEAT (OTHER THAN DURUM)*: Growers produced an estimated 584.4 million bushels of spring wheat. This production estimate is approximately 6.6 percent higher than year 2008 production. Yield averaged 45 bushels per acre, an increase of 4.5 bushels per acre from year 2008. Area harvested totaled approximately 12.95 million acres, which is 4.2% lower than the acreage harvested in 2008.**

Spring Wheat Production Statistics, 2007-2009*

	Acres Harvested (x1000)			Production (x1000 Bushels)			Yield (Bushels/Acre)		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Minnesota	1,650	1,800	1550	79,200	100,800	82,150	48	56	53
Montana	2,400	2,480	2350	55,200	59,520	70,500	23	24	30
North Dakota	6,500	6,400	6300	234,000	246,400	289,800	36	38.5	46
South Dakota	1,340	1,520	1470	52,260	68,400	64,680	39	45	44
USA	12,942	13,517	12,955	479,623	548,004	584,411	37	40.5	45

* Source: National Agricultural Statistics Service: (http://www.nass.usda.gov/QuickStats/PullData_US.jsp) on 1-25-10.

2009 NURSERY DESCRIPTION AND SUMMARY

The Hard Red Spring Wheat Uniform Regional Nursery (HRSWURN) was planted for the 81st year in 2009. The nursery contained 32 entries submitted by 8 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 18 locations in 6 different states in the USA (MN, ND, SD, MT, WY, and WA), and two Canadian provinces (Manitoba and Saskatchewan). All locations provided data included in this report (Figure 1, Table 2). Data summaries for each of these locations are presented in Tables 3 through 20. 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 21, and yield rankings for individual locations are found in Table 22. Two-year means for entries entered previously in the 2008 HRSWURN are presented in Table 23. Entries were also evaluated for various diseases at different locations; these can be found by looking at individual location data summaries. Leaf rust resistance was evaluated in St. Paul, MN, and stripe rust evaluations were completed at two field locations in WA. These rust data are presented in Tables 24 and 25 respectively. Entries were evaluated in *Fusarium* head blight nurseries at Crookston and St. Paul, MN; these results are provided in Tables 26 and 27. Molecular marker genotyping for select traits was also performed; this information is presented in Table 28. The highest average yielding location was Powell, WY, with 114 Bu/Ac, while the lowest yielding location was Groton, SD, with 40 Bu/Ac.

Figure 1. Hard Red SpringWheat Uniform Regional Nursery Reporting Locations, 2009