**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 2019**

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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.

Agricultural Research Service

U.S. Department of Agriculture

Midwest Area

St. Paul, Minnesota

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**2019 HARD RED SPRING WHEAT UNIFORM REGIONAL NURSERY REPORT**

**CONTENTS PAGE**

Cooperating Agencies, Stations and Personnel 2

Policy for Protected or Patented Genes 3

2019 Spring Wheat Production Statistics 4

Description and Summary of 2019 HRSWURN 5

Figure 1. Geographic Locations of 2019 HRSWURN 6

Table 1. List of Entries in the 2019 HRSWURN 7

Table 2. Nursery Locations and Comparative Plot Management Data 8

Tables 3-17. Nursery Data by Individual Location 9-23

Table 18. Summary of Trait Means Across Locations 24

Table 19. Yield Rankings by Location 25

Table 20. Seedling Leaf Rust Reactions, St. Paul, MN 26

Table 21. Seedling Stem Rust Reactions, St. Paul, MN 27-28

Table 22. Adult Plant Leaf and Stem Rust Reactions, St. Paul, MN 29

Table 23. Fusarium Head Blight (Scab) Reactions, St. Paul, MN 30

Table 24. Fusarium Head Blight (Scab) Reactions, Crookston, MN 31

Table 25. Molecular Marker Data for Agronomic Trait/Disease Resistance Genes 32

**COOPERATING AGENCIES, STATIONS, AND PERSONNEL FOR THE 2019 HRSWURN**

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**Entering Lines with Protected or Patented Genes into the Hard Red Spring Wheat Uniform Regional Nursery**

Transgenic wheat lines may be considered for the nursery 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. However, ultimately the decision whether to include or exclude such germplasm will reside with individual location cooperators.

**U.S. SPRING WHEAT PRODUCTION, 2019**

***SPRING WHEAT (OTHER THAN DURUM)*: Growers produced an estimated 562 million bushels of spring wheat. This production estimate is 10 percent lower than year 2018 production. Yield averaged 48.2 bushels per acre, a decrease of 0.1 bushels per acre from year 2018. Acres harvested totaled 11.7 million acres, which is approximately 10 percent lower than the acreage harvested in 2018.**

**Spring Wheat Production Statistics, 2017-2019\***

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Acres Harvested (x1000) | | |  | Production (x1000 Bushels) | | |  | Yield (Bushels/Acre) | | |
|  | 2017 | 2018 | 2019 |  | 2017 | 2018 | 2019 |  | 2017 | 2018 | 2019 |
| Minnesota | 1,130 | 1,570 | 1,400 |  | 75,710 | 92,630 | 79,800 |  | 67 | 59 | 57 |
| Montana | 2,290 | 2,820 | 2,760 |  | 48,090 | 95,880 | 102,120 |  | 21 | 34 | 37 |
| North Dakota | 5,050 | 6,490 | 5,950 |  | 207,050 | 318,010 | 291,550 |  | 41 | 49 | 49 |
| South Dakota | 670 | 965 | 605 |  | 20,770 | 40,530 | 26,015 |  | 31 | 42 | 43 |
| USA | 10,148 | 12,896 | 11,660 |  | 415,851 | 623,232 | 562,380 |  | 41 | 48.3 | 48.2 |

\* Source: National Agricultural Statistics Service: (https://quickstats.nass.usda.gov) as of 3-23-20.

**2019 NURSERY DESCRIPTION AND SUMMARY**

The Hard Red Spring Wheat Uniform Regional Nursery (HRSWURN) was planted for the 89th year in 2019. The nursery contained 34 entries submitted by 7 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 15 locations in 4 different states in the USA (MN, ND, SD, MT) and Canada (Brandon, Swift Current). All locations provided data included in this report (Figure 1, Table 2). Data summaries for each of the reporting locations are presented in individual tables. Overall means across locations for a set of core traits are summarized in Table 18, and yield rankings for individual locations are found in Table 19. Entries were also evaluated for various diseases at different locations; these can be found by looking at individual location data summaries. Leaf rust and stem rust resistance was evaluated in St. Paul, MN. These results are presented in Tables 20-22. Entries were evaluated for Fusarium head blight at St. Paul and Crookston, MN; these results are provided in Tables 23 and 24, respectively. Molecular marker genotyping for select agronomic, quality and disease resistance traits was also performed; this information is presented in Table 25. The highest average yielding location was Crookston, MN, with 90.1 Bu/Ac, while the lowest yielding location was Brookings, SD, with 27.0 Bu/Ac.

**Figure 1. Hard Red Spring Wheat Uniform Regional Performance Nursery Locations, 2019**

