**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 2018**

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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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**2018 HARD RED SPRING WHEAT UNIFORM REGIONAL NURSERY REPORT**

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**COOPERATING AGENCIES, STATIONS, AND PERSONNEL FOR THE 2018 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, 2018**

***SPRING WHEAT (OTHER THAN DURUM)*: Growers produced an estimated 623 million bushels of spring wheat. This production estimate is 50 percent higher than year 2017 production. Yield averaged 48.3 bushels per acre, an increase of 7.3 bushels per acre from year 2017. Acres harvested totaled 12.9 million acres, which is approximately 27 percent higher than the acreage harvested in 2017.**

**Spring Wheat Production Statistics, 2016-2018\***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Acres Harvested (x1000) | | |  | | | Production (x1000 Bushels) | | |  | Yield (Bushels/Acre) | | |
|  | 2016 | 2017 | 2018 | |  | 2016 | | 2017 | 2018 |  | 2016 | 2017 | 2018 |
| Minnesota | 1,250 | 1,130 | 1,560 | |  | 74,340 | | 75,710 | 92,630 |  | 59 | 67 | 59 |
| Montana | 2,110 | 2,290 | 2,850 | |  | 75,960 | | 48,090 | 95,880 |  | 36 | 21 | 34 |
| North Dakota | 5,850 | 5,070 | 6,500 | |  | 269,100 | | 207,870 | 318,010 |  | 46 | 41 | 49 |
| South Dakota | 1,050 | 670 | 1,020 | |  | 47,250 | | 20,770 | 40,530 |  | 45 | 31 | 42 |
| USA | 11,303 | 10,159 | 12,900 | |  | 534,027 | | 416,236 | 623,000 |  | 47.2 | 41 | 48.3 |

\* Source: National Agricultural Statistics Service: (https://quickstats.nass.usda.gov) as of 3-27-19.

**2018 NURSERY DESCRIPTION AND SUMMARY**

The Hard Red Spring Wheat Uniform Regional Nursery (HRSWURN) was planted for the 88th year in 2018. The nursery contained 33 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 16 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 19, and yield rankings for individual locations are found in Table 20. 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 21-23. Entries were evaluated for Fusarium head blight at St. Paul, MN; these results are provided in Table 24. 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 Bozeman, MT, with 93.8 Bu/Ac, while the lowest yielding location was Groton, SD, with 34.7 Bu/Ac.

**Figure 1. Hard Red Spring Wheat Uniform Regional Performance Nursery Locations, 2018**

