

# 2026

U.S. HARD RED  
SPRING WHEAT

*REGIONAL QUALITY REPORT*



U.S.  
Hard Red  
Spring  
*Wheat*

MINNESOTA  
MONTANA  
NORTH DAKOTA  
SOUTH DAKOTA  
IDAHO  
OREGON  
WASHINGTON

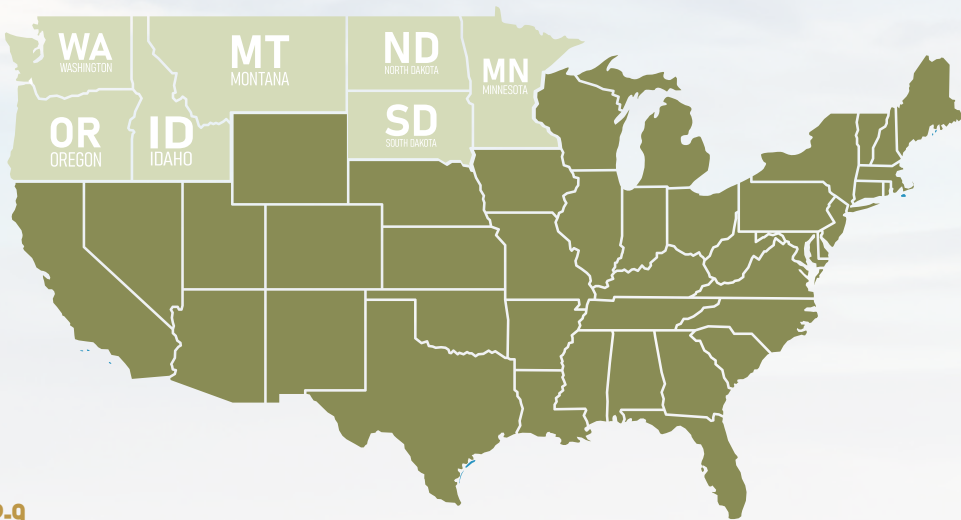


Table of Contents

Grading and Kernel Characteristics.....2-9

Milling Characteristics .....10-11

Physical Dough Characteristics .....12-14

Baking Characteristics.....15

Summary Information.....16

Laboratory Analysis .....17

Methods, Terms and Symbols.....18-19

Varietal Information.....20-23

THE ARISTOCRAT OF WHEAT

Hard Red Spring, a specialty wheat grown primarily in the Northern Plains of the United States - stands out as the aristocrat of wheat when it comes to baking bread. The high protein content and superior gluten quality of hard red spring wheat make it ideal for use in some of the world’s finest baked goods. Yeast breads, hard rolls, specialty products such as hearth breads, whole grain breads, bagels and pizza crusts look and taste their best when bake with top-quality spring wheat flour. Even frozen dough products are better with spring wheat because they can be stored longer than those made with lower protein wheats.

Flour mills in the United States and around the world also use hard red spring wheat extensively as a blending wheat to increase the gluten strength in a batch of flour. Adding hard red spring to lower protein wheat improves dough handling and mixing characteristics as well as water absorption. The resulting flour can be used to make an assortment of bread products, as well as Chinese-type noodles.

# OVERVIEW

Production of the 2026 hard red spring wheat crop declined 10%, reflecting reduced acreage and slightly lower average yields. The crop is characterized by high overall grades, although grade distribution is somewhat more variable than in recent years. Protein content is higher than last year and functional properties are consistent with a typical hard red spring wheat crop. Improvements are seen in loaf volume and other baking properties.

The 2026 crop averages a No. 1 Northern Spring (NS), consistent with recent years, although a greater portion falls within the Dark Northern Spring (DNS) subclass compared with 2025. A majority, 83%, of the crop graded a No. 1, however, a larger than normal percent of the crop fell into some lower grade levels, primarily due to test weight. The average test weight this year was 60.4 lbs./bu. (79.5 kg/hl), lower than last year and the five-year average as a result of drought stress, especially in western growing areas.

Damage was relatively low at 0.2% with an absence of disease pressure. Shrunken and broken kernels are higher than last year at 0.9%. Vitreous kernel content averaged 69%, higher than both last year and the five-year average. Higher vitreous kernel levels are seen across the region, with western areas showing the highest levels. The improvement in vitreousness is due to the relatively dry latter half of the growing season, and favorable harvest weather in a majority of the region.

The average protein level is 14.7% (12% moisture basis), 0.5% higher than last year, with distribution data indicating 70% of the crop is 14% protein or higher. A fairly dry harvest season produced a crop lower in moisture with an average of 11.8%. Thousand-kernel weight averaged 30 grams, and the proportion of large kernels was also notably lower, reflecting heat and drought stress during the growing season. Disease pressure was quite low and the average DON level of only 0.1 ppm reflects that. Falling number values are high in this year's crop with an average of 426 seconds.

Samples were milled using a Buhler laboratory mill. Average flour extraction was 67.4%, approximately one percentage point lower than in 2025, likely reflecting smaller kernel size. Flour ash content was slightly higher at 0.55%, while damaged starch was marginally lower at 6.8%. Flour viscosity averaged 618 B.U., higher than last year and consistent with the predominantly dry harvest period.

Physical dough testing indicates strength and performance comparable to the 2025 crop and typical of an average hard red spring wheat crop. Farinograph absorption averaged 63.7%, nearly identical to last year's value, while stability averaged 11.7 minutes, a slight increase. In general, regions in the western growing area show stability levels a bit higher than eastern areas. Extensograph data indicates a crop that is slightly more extensible and less resistant than last year. Alveograph values are similar to the 2025 crop with a W value of 395, very close to the five-year average.

Baking evaluations show a notable increase in loaf volumes, with this year's crop averaging 1038 cubic centimeters, compared to 944 for the five-year average. Bake absorptions are very similar to last year while crumb color, grain and texture scores and symmetry scores all improved.

Buyers can expect a high-grading crop with excellent protein content, higher vitreous kernel levels, minimal damage, and sound falling number values. However, variability in grade distribution, particularly related to test weight, does exist. Dough properties show very similar to last year's crop with loaf volume and other baking properties showing improvements. As always, diligence with contract specifications is essential to ensuring that wheat shipments consistently meet customer-defined quality and performance requirements.

| 2026 PRODUCTION DATA |      |      |                 |
|----------------------|------|------|-----------------|
|                      | 2026 | 2025 | 2021-25 AVERAGE |
| MILLION BUSHELS      |      |      |                 |
| Minnesota            | 63   | 76   | 73              |
| Montana              | 85   | 57   | 60              |
| North Dakota         | 228  | 277  | 259             |
| South Dakota         | 26   | 33   | 29              |
| ID/OR/WA             | 14   | 17   | 16              |
| U.S. Total           | 416  | 460  | 436             |
| MILLION METRIC TON   |      |      |                 |
| Minnesota            | 1.7  | 2.1  | 2.0             |
| Montana              | 2.3  | 1.6  | 1.6             |
| North Dakota         | 6.2  | 7.5  | 7.0             |
| South Dakota         | 0.7  | 0.9  | 0.8             |
| ID/OR/WA             | 0.4  | 0.5  | 0.4             |
| U.S. Total           | 11.3 | 12.5 | 11.8            |

Source: USDA 2026 Small Grains Summary

U.S.  
Hard Red  
Spring  
Wheat

MINNESOTA  
MONTANA  
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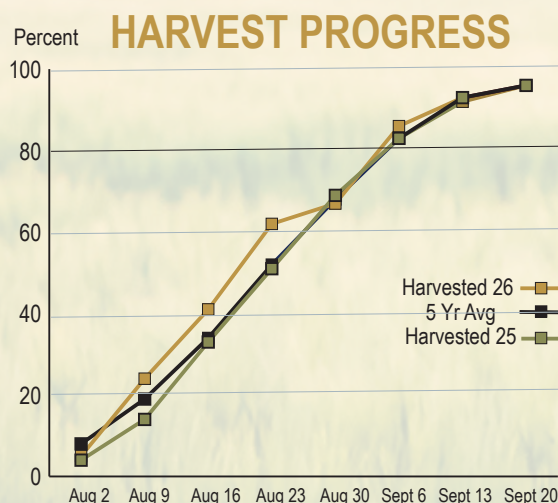
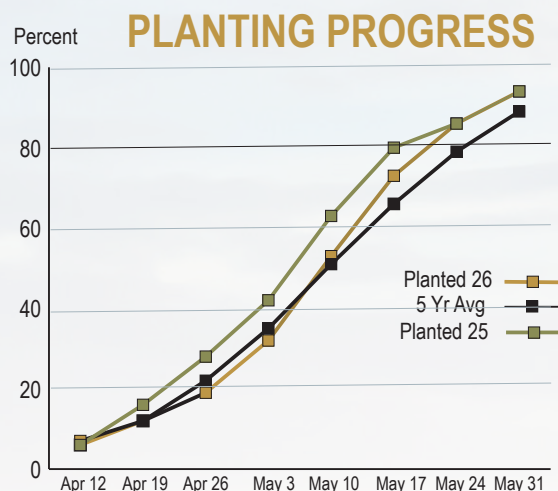
## SEASONAL CONDITIONS

**PLANTING** of the spring wheat crop started in southern areas in early April, however, producers in northern areas saw delays due to cool conditions and some rainfall. In general soil conditions were dry in western areas and mostly adequate in eastern areas. Planting picked up across the region in May, and despite some rain delays, most of the acres were planted by the end of the month, slightly ahead of average.

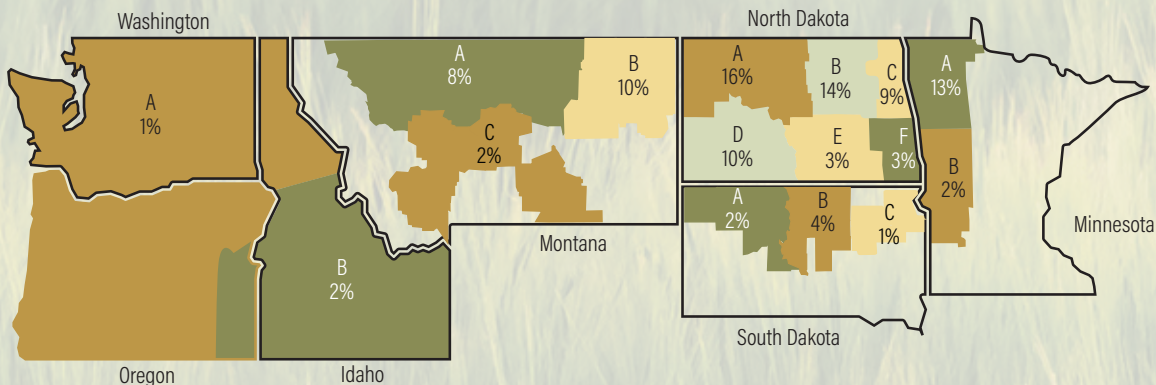
**EMERGENCE** was slow due to extreme weather conditions, including dry conditions, high winds, and temperature swings from unseasonably cold to unusually hot. Producers reported uneven emergence due to the variable weather and growing conditions. Temperatures moderated in mid-June and the crop began to develop at a normal pace. Precipitation amounts were quite inconsistent across the region during the growing season with spots of surplus moisture contrasting with areas of severe drought. In general, crop conditions were more favorable in eastern and some northern regions, while western areas saw more crop stress. Overall disease pressure was low, though isolated areas did see elevated pressure. Hot, dry temperatures returned mid-July, further stressing the crop and advancing maturity.

**HARVEST** began the end of July under mostly dry conditions. The first half of harvest went relatively quickly, but rains in September did cause some harvest delays, especially in northern areas. The majority of harvest was finished by mid-September, with only a small portion not harvested until the end of September.

**PRODUCTION** is down 10% this year due to a 5% reduction in planted acreage and lower overall yields as compared to last year. While the regional yield was lower than last year, the state yield in Montana was higher, and in general, yields were better than expected given the heat and drought stress during the growing season.



## APPROXIMATE SHARE OF REGIONAL PRODUCTION



# THE ARISTOCRAT OF WHEAT

**WHEAT GRADES** as defined by the Federal Grain Inspection Service (FGIS) of the USDA Grain Inspection, Packers and Stockyards Administration (GIPSA), reflect the general quality and condition of a representative sample. U.S. grades are based on test weight and include limits on damaged kernels, foreign material, shrunken and broken kernels, and wheat of contrasting classes. Each determination is made on the basis of the grain when free from dockage and shrunken and broken kernels.

**SUBCLASS** is as separate marketing factor based on the number of kernels that are dark, hard and vitreous. For hard red spring wheat, the subclasses are:

- **Dark Northern Spring (DNS)** – at least 75 percent or more dark, hard, vitreous kernels;
- **Northern Spring (NS)** – between 25 and 74 percent dark, hard, vitreous kernels;
- **Red Spring (RS)** – less than 25 percent dark, hard, vitreous kernels.

**OTHER BASIC CRITERIA** not included as grading factors but important in the U.S. wheat marketing system.

**PROTEIN** is probably the most important factor in determining the value of hard red spring wheat since it relates to many processing properties. In the U.S. market HRS prices are usually quoted for 14.0 percent protein (on a 12.0 percent moisture basis). Price premiums or discounts may be specified for halves, fifths and tenths of a percentage point above and below 14.0 percent.

**MOISTURE** content is an indicator of grain storability. Wheat with lower moisture content is generally more stable during storage and more profitable to a miller. U.S. HRS ranges from 12 to 13 percent.

**DOCKAGE** is any material easily removed from a wheat sample during cleaning using standard mechanical means. All U.S. grade and non-grade factors are determined only after dockage is removed.

**FALLING NUMBER** indicates the soundness of wheat or its alpha-amylase activity. Falling numbers above 300 seconds are most desired for baking products.

| HRS GRADING REQUIREMENTS               |             |      |      |      |      |
|----------------------------------------|-------------|------|------|------|------|
| GRADING FACTORS                        | U.S. GRADES |      |      |      |      |
|                                        | 1           | 2    | 3    | 4    | 5    |
| HARD RED SPRING - MINIMUM TEST WEIGHTS |             |      |      |      |      |
| Pounds per bushel                      | 58.0        | 57.0 | 55.0 | 53.0 | 50.0 |
| Kilograms per hectoliter               | 76.4        | 75.1 | 72.5 | 69.9 | 66.0 |
| MAXIMUM PERCENT LIMITS OF:             |             |      |      |      |      |
| Damaged kernels                        |             |      |      |      |      |
| Heat (part of total)                   | 0.2         | 0.2  | 0.5  | 1.0  | 3.0  |
| Total                                  | 2.0         | 4.0  | 7.0  | 10.0 | 15.0 |
| Foreign material                       | 0.4         | 0.7  | 1.3  | 3.0  | 5.0  |
| Shrunken/broken kernels                | 3.0         | 5.0  | 8.0  | 12.0 | 20.0 |
| Total                                  | 3.0         | 5.0  | 8.0  | 12.0 | 20.0 |
| Wheat of other class <sup>2</sup>      |             |      |      |      |      |
| Contrasting classes                    | 1.0         | 2.0  | 3.0  | 10.0 | 10.0 |
| Total <sup>3</sup>                     | 3.0         | 5.0  | 10.0 | 10.0 | 10.0 |
| Stones                                 | 0.1         | 0.1  | 0.1  | 0.1  | 0.1  |
| MAXIMUM COUNT LIMITS OF:               |             |      |      |      |      |
| Other material                         |             |      |      |      |      |
| Animal filth                           | 1           | 1    | 1    | 1    | 1    |
| Castor beans                           | 1           | 1    | 1    | 1    | 1    |
| Crotalaria seeds                       | 2           | 2    | 2    | 2    | 2    |
| Glass                                  | 0           | 0    | 0    | 0    | 0    |
| Stones                                 | 3           | 3    | 3    | 3    | 3    |
| Unknown foreign material               | 3           | 3    | 3    | 3    | 3    |
| Total <sup>4</sup>                     | 4           | 4    | 4    | 4    | 4    |
| Insect-damaged kernels                 | 31          | 31   | 31   | 31   | 31   |

U.S. sample grade is wheat that:

- Does not meet the requirements for U.S. Nos. 1, 2, 3, 4 or 5; or
- Has a musty, sour or commercially objectionable foreign odor (except smut or garlic odor); or
- Is heating or of distinctly low quality.
  - Includes damaged kernels (total), foreign material and shrunken and broken kernels.
  - Unclassed wheat of any grade may contain not more than 10.0 percent of wheat of other classes.
  - Includes contracting classes.
  - Includes any combination of animal filth, castor beans, crotalaria seeds, glass, stones or unknown foreign substance.

## U.S. Hard Red Spring Wheat

MINNESOTA

MONTANA

NORTH DAKOTA

SOUTH DAKOTA

IDAHO

OREGON

WASHINGTON

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MINNESOTA

MONTANA

NORTH DAKOTA

SOUTH DAKOTA

IDAHO

OREGON

WASHINGTON

| 2026 WHEAT GRADING DATA          |             |       |             |                              |                    |                        |                       |
|----------------------------------|-------------|-------|-------------|------------------------------|--------------------|------------------------|-----------------------|
| STATE AND CROP<br>REPORTING AREA | TEST WEIGHT |       | DAMAGE<br>% | SHRUNKEN/BROKEN<br>KERNELS % | TOTAL<br>DEFECTS % | U.S. GRADE<br>SUBCLASS | VITREOUS<br>KERNELS % |
|                                  | LBS/BU      | KG/HL |             |                              |                    |                        |                       |
| MINNESOTA                        |             |       |             |                              |                    |                        |                       |
| Area A                           | 61.1        | 80.4  | 0.3         | 0.5                          | 0.8                | 1 NS                   | 60                    |
| Area B                           | 61.5        | 80.9  | 0.3         | 0.4                          | 0.7                | 1 NS                   | 56                    |
| State Avg. 2026                  | 61.2        | 80.4  | 0.3         | 0.5                          | 0.8                | 1 NS                   | 59                    |
| State Avg. 2025                  | 61.8        | 81.2  | 0.4         | 0.4                          | 0.8                | 1 NS                   | 59                    |
|                                  |             |       |             |                              |                    |                        |                       |
| MONTANA                          |             |       |             |                              |                    |                        |                       |
| Area A                           | 59.8        | 78.7  | 0.0         | 1.5                          | 1.5                | 1 DNS                  | 91                    |
| Area B                           | 59.2        | 77.9  | 0.3         | 1.8                          | 2.1                | 1 DNS                  | 80                    |
| Area C                           | 59.2        | 77.9  | 0.1         | 1.0                          | 1.1                | 1 NS                   | 70                    |
| State Avg. 2026                  | 59.4        | 78.2  | 0.2         | 1.6                          | 1.8                | 1 DNS                  | 83                    |
| State Avg. 2025                  | 60.9        | 80.1  | 0.6         | 0.9                          | 1.5                | 1 NS                   | 73                    |
|                                  |             |       |             |                              |                    |                        |                       |
| NORTH DAKOTA                     |             |       |             |                              |                    |                        |                       |
| Area A                           | 60.2        | 79.2  | 0.2         | 0.8                          | 1.0                | 1 NS                   | 57                    |
| Area B                           | 61.6        | 81.0  | 0.1         | 0.4                          | 0.5                | 1 NS                   | 63                    |
| Area C                           | 61.3        | 80.6  | 0.3         | 0.4                          | 0.7                | 1 NS                   | 71                    |
| Area D                           | 59.1        | 77.8  | 0.2         | 1.2                          | 1.4                | 1 DNS                  | 78                    |
| Area E                           | 60.0        | 78.9  | 0.1         | 0.8                          | 0.9                | 1 NS                   | 63                    |
| Area F                           | 60.8        | 80.0  | 0.4         | 0.8                          | 1.2                | 1 NS                   | 74                    |
| State Avg. 2026                  | 60.5        | 79.6  | 0.2         | 0.7                          | 0.9                | 1 NS                   | 66                    |
| State Avg. 2025                  | 62.1        | 81.7  | 0.5         | 0.5                          | 1.0                | 1 NS                   | 57                    |
|                                  |             |       |             |                              |                    |                        |                       |
| SOUTH DAKOTA                     |             |       |             |                              |                    |                        |                       |
| Area A                           | 58.4        | 76.9  | 0.6         | 1.5                          | 2.1                | 1 NS                   | 63                    |
| Area B                           | 60.5        | 79.6  | 0.0         | 0.7                          | 0.7                | 1 DNS                  | 75                    |
| Area C                           | 60.6        | 79.7  | 0.0         | 0.6                          | 0.6                | 1 NS                   | 62                    |
| State Avg. 2026                  | 59.9        | 78.8  | 0.2         | 0.9                          | 1.1                | 1 NS                   | 70                    |
| State Avg. 2025                  | 60.2        | 79.2  | 0.7         | 0.6                          | 1.3                | 1 NS                   | 42                    |
|                                  |             |       |             |                              |                    |                        |                       |
| IDAHO • OREGON • WASHINGTON      |             |       |             |                              |                    |                        |                       |
| Area A                           | 61.9        | 81.4  | 0.1         | 0.7                          | 0.8                | 1 DNS                  | 86                    |
| Area B                           | 61.8        | 81.3  | 0.4         | 1.0                          | 1.4                | 1 DNS                  | 82                    |
| State Avg. 2026                  | 61.9        | 81.3  | 0.2         | 0.8                          | 1.0                | 1 DNS                  | 84                    |
| State Avg. 2025                  | 62.8        | 82.5  | 0.0         | 0.4                          | 0.4                | 1 DNS                  | 94                    |
|                                  |             |       |             |                              |                    |                        |                       |
| REGION AVERAGE                   |             |       |             |                              |                    |                        |                       |
| Avg. 2026                        | 60.4        | 79.5  | 0.2         | 0.9                          | 1.1                | 1 NS                   | 69                    |
| Avg. 2025                        | 61.8        | 81.3  | 0.5         | 0.5                          | 1.0                | 1 NS                   | 60                    |
| Five-Year Avg                    | 61.6        | 81.0  | 0.3         | 0.7                          | 1.0                | 1 NS                   | 67                    |

# U.S. Hard Red Spring Wheat

MINNESOTA

MONTANA

NORTH DAKOTA

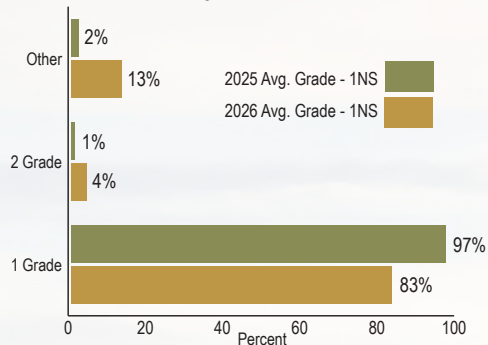
SOUTH DAKOTA

IDAHO

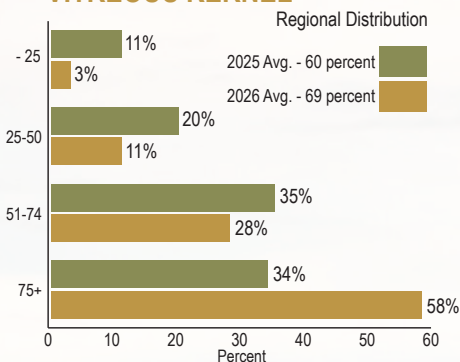
OREGON

WASHINGTON

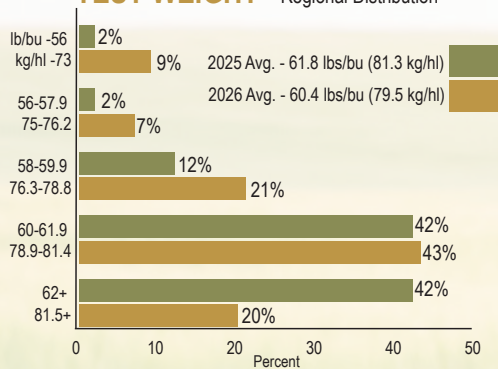
## GRADE – Regional Distribution



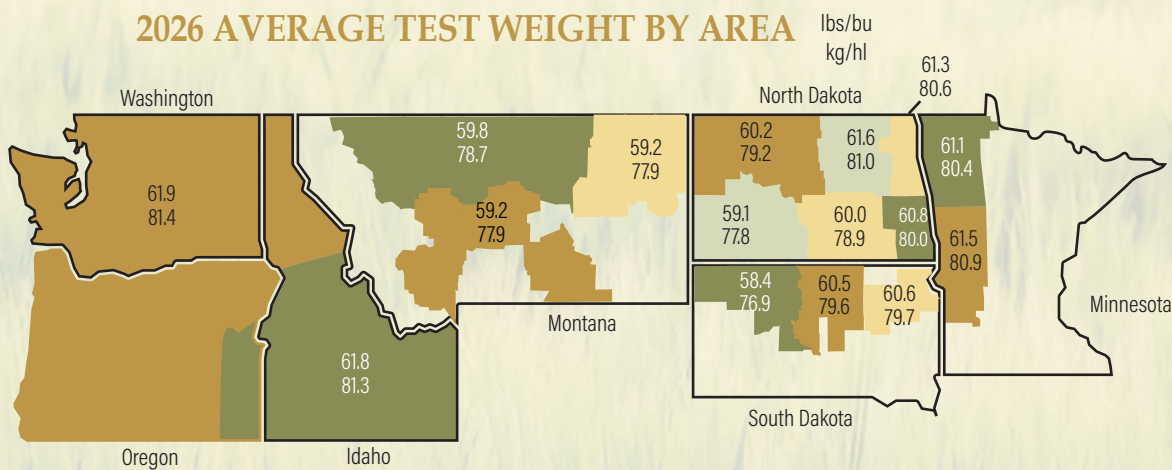
## VITREOUS KERNEL



## TEST WEIGHT – Regional Distribution



## 2026 AVERAGE TEST WEIGHT BY AREA



# U.S. Hard Red Spring Wheat

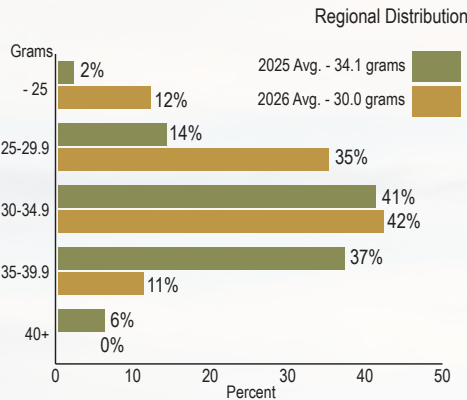
## 2026 OTHER KERNEL QUALITY DATA

| STATE AND CROP<br>REPORTING AREA | DOCKAGE<br>% | MOISTURE<br>% | 1000 KERNEL<br>WEIGHT G | KERNEL DIST.<br>MED/LGE % | PROTEIN 12%/0%<br>MOISTURE BASIS % | DON<br>(PPM) | WHEAT<br>ASH% | FALLING NUMBER<br>(SEC) | ZELENY<br>SED (CC) |
|----------------------------------|--------------|---------------|-------------------------|---------------------------|------------------------------------|--------------|---------------|-------------------------|--------------------|
| MINNESOTA                        |              |               |                         |                           |                                    |              |               |                         |                    |
| Area A                           | 0.5          | 12.5          | 31.7                    | 52/45                     | 14.2/16.1                          | 0.1          | 1.48          | 437                     | 66                 |
| Area B                           | 0.4          | 12.7          | 32.2                    | 47/51                     | 14.8/16.8                          | 0.1          | 1.58          | 427                     | 66                 |
| State Avg. 2026                  | 0.5          | 12.5          | 31.8                    | 51/46                     | 14.3/16.2                          | 0.1          | 1.49          | 436                     | 66                 |
| State Avg. 2025                  | 0.4          | 12.9          | 34.8                    | 39/60                     | 13.9/15.8                          | 0.4          | 1.48          | 411                     | 63                 |
| MONTANA                          |              |               |                         |                           |                                    |              |               |                         |                    |
| Area A                           | 0.7          | 10.4          | 28.7                    | 64/30                     | 14.3/16.3                          | 0.0          | 1.56          | 433                     | 70                 |
| Area B                           | 0.9          | 10.9          | 27.7                    | 67/25                     | 15.4/17.5                          | 0.1          | 1.62          | 402                     | 68                 |
| Area C                           | 1.4          | 10.6          | 31.3                    | 63/34                     | 15.7/17.8                          | 0.4          | 1.61          | 432                     | 69                 |
| State Avg. 2026                  | 0.9          | 10.7          | 28.5                    | 65/28                     | 15.0/17.1                          | 0.1          | 1.60          | 418                     | 69                 |
| State Avg. 2025                  | 1.3          | 11.0          | 33.8                    | 54/44                     | 14.9/16.9                          | 0.1          | 1.50          | 390                     | 69                 |
| NORTH DAKOTA                     |              |               |                         |                           |                                    |              |               |                         |                    |
| Area A                           | 0.5          | 12.5          | 29.4                    | 60/36                     | 14.6/16.6                          | 0.3          | 1.54          | 374                     | 69                 |
| Area B                           | 0.7          | 12.6          | 32.3                    | 50/48                     | 14.1/16.0                          | 0.3          | 1.54          | 456                     | 68                 |
| Area C                           | 0.7          | 12.5          | 32.5                    | 52/46                     | 14.3/16.3                          | 0.1          | 1.55          | 412                     | 68                 |
| Area D                           | 0.9          | 11.4          | 25.7                    | 73/19                     | 15.6/17.7                          | 0.1          | 1.59          | 422                     | 67                 |
| Area E                           | 0.7          | 12.1          | 28.9                    | 67/30                     | 15.1/17.2                          | 0.2          | 1.60          | 459                     | 63                 |
| Area F                           | 0.6          | 12.4          | 30.8                    | 55/42                     | 14.8/16.8                          | 0.1          | 1.61          | 486                     | 63                 |
| State Avg. 2026                  | 0.7          | 12.3          | 30.0                    | 59/37                     | 14.7/16.7                          | 0.2          | 1.56          | 420                     | 68                 |
| State Avg. 2025                  | 0.5          | 12.5          | 34.3                    | 39/60                     | 14.2/16.2                          | 0.2          | 1.51          | 409                     | 66                 |
| SOUTH DAKOTA                     |              |               |                         |                           |                                    |              |               |                         |                    |
| Area A                           | 1.4          | 11.3          | 25.3                    | 76/16                     | 14.8/16.8                          | 0.0          | 1.70          | 429                     | 58                 |
| Area B                           | 0.5          | 11.4          | 28.7                    | 69/28                     | 15.3/17.4                          | 0.1          | 1.58          | 496                     | 53                 |
| Area C                           | 0.4          | 12.7          | 30.7                    | 59/39                     | 14.9/16.9                          | 0.1          | 1.65          | 435                     | 49                 |
| State Avg. 2026                  | 0.7          | 11.5          | 27.9                    | 70/26                     | 15.1/17.2                          | 0.1          | 1.62          | 472                     | 54                 |
| State Avg. 2025                  | 0.7          | 12.7          | 30.3                    | 55/43                     | 14.1/16.1                          | 0.6          | 1.61          | 401                     | 54                 |
| IDAHO • OREGON • WASHINGTON      |              |               |                         |                           |                                    |              |               |                         |                    |
| Area A                           | 0.3          | 8.9           | 37.3                    | 40/58                     | 13.6/15.5                          | 0.1          | 1.47          | 435                     | 66                 |
| Area B                           | 0.6          | 8.5           | 32.4                    | 51/46                     | 14.5/16.5                          | 0.2          | 1.66          | 427                     | 62                 |
| State Avg. 2026                  | 0.4          | 8.7           | 35.3                    | 44/53                     | 14.0/15.9                          | 0.1          | 1.55          | 432                     | 64                 |
| State Avg. 2025                  | 0.3          | 9.5           | 35.4                    | 45/54                     | 13.8/15.7                          | 0.1          | 1.49          | 375                     | 63                 |
| REGION AVERAGE                   |              |               |                         |                           |                                    |              |               |                         |                    |
| Avg. 2026                        | 0.7          | 11.8          | 30.0                    | 59/36                     | 14.7/16.7                          | 0.1          | 1.56          | 426                     | 67                 |
| Avg. 2025                        | 0.6          | 12.3          | 34.1                    | 42/56                     | 14.2/16.2                          | 0.3          | 1.51          | 405                     | 65                 |
| Five-Year Avg                    | 0.6          | 12.2          | 32.5                    | 49/48                     | 14.4/16.3                          | 0.2          | 1.53          | 396                     | 65                 |

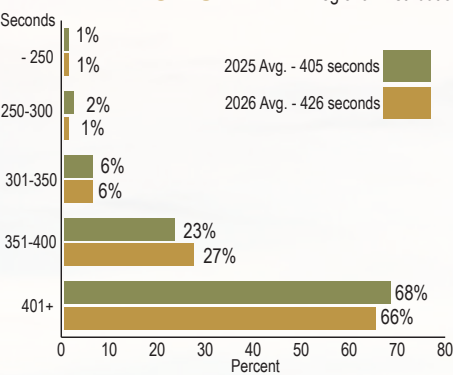
U.S.  
Hard Red  
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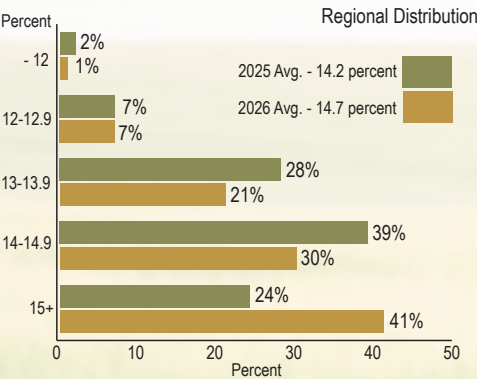
1000 KERNEL WEIGHT



FALLING NUMBER - Regional Distribution

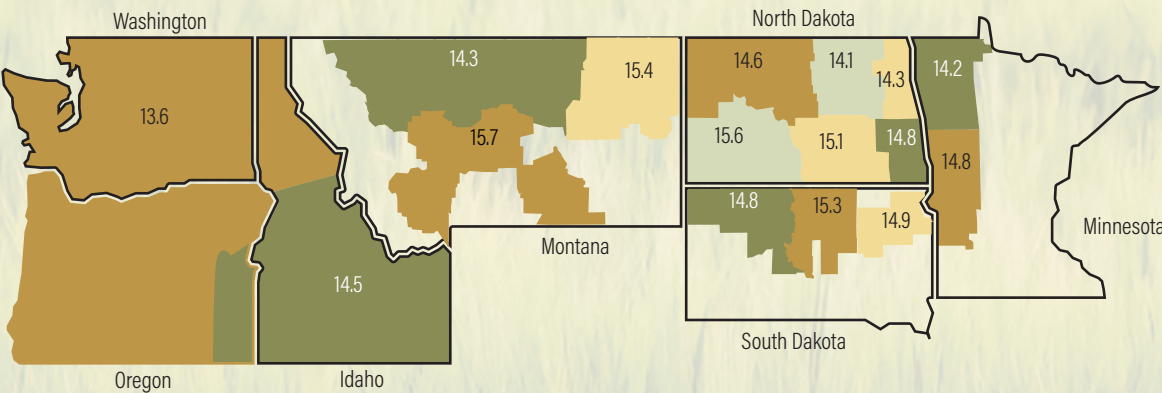


PROTEIN - 12% MOISTURE



2026 AVERAGE WHEAT PROTEIN BY AREA

12% Moisture Basis - (Percent)



# U.S. Hard Red Spring Wheat

| 2026 FLOUR QUALITY DATA*      |                    |             |                                |                 |          |                            |              |              |              |                |                                    |
|-------------------------------|--------------------|-------------|--------------------------------|-----------------|----------|----------------------------|--------------|--------------|--------------|----------------|------------------------------------|
| STATE AND CROP REPORTING AREA | FLOUR EXTRACTION % | FLOUR ASH % | FLOUR PROTEIN (14% MOISTURE) % | STARCH DAMAGE % | SRC: GPI | WATER/ 50% SUCROSE SRC (%) | NA2CO3 SRC % | WET GLUTEN % | GLUTEN INDEX | FALLING NUMBER | AMYLOGRAPH VISCOSITY 65 G FL B.U.. |
| MINNESOTA                     |                    |             |                                |                 |          |                            |              |              |              |                |                                    |
| Area A                        | 68.1               | 0.53        | 13.0                           | 6.6             | 0.72     | 67/112                     | 146/90       | 33.7         | 96           | 388            | 612                                |
| Area B                        | 67.7               | 0.56        | 13.5                           | 6.3             | 0.66     | 67/112                     | 131/88       | 34.4         | 92           | 430            | 685                                |
| State Avg. 2026               | 68.0               | 0.53        | 13.1                           | 6.6             | 0.71     | 67/112                     | 144/90       | 33.8         | 95           | 394            | 622                                |
| State Avg. 2025               | 69.0               | 0.57        | 13.1                           | 6.8             | 0.66     | 71/117                     | 142/97       | 34.2         | 97           | 407            | 508                                |
| MONTANA                       |                    |             |                                |                 |          |                            |              |              |              |                |                                    |
| Area A                        | 67.0               | 0.53        | 13.3                           | 7.0             | 0.72     | 72/121                     | 160/99       | 34.6         | 91           | 459            | 827                                |
| Area B                        | 66.3               | 0.56        | 14.3                           | 6.5             | 0.68     | 71/120                     | 148/96       | 36.9         | 90           | 416            | 631                                |
| Area C                        | 67.0               | 0.59        | 14.7                           | 6.7             | 0.67     | 73/123                     | 150/100      | 38.3         | 82           | 460            | 601                                |
| State Avg. 2026               | 66.7               | 0.55        | 14.0                           | 6.7             | 0.69     | 72/121                     | 153/98       | 36.2         | 89           | 438            | 704                                |
| State Avg. 2025               | 67.2               | 0.52        | 13.8                           | 6.8             | 0.74     | 74/127                     | 171/106      | 37.5         | 91           | 406            | 561                                |
| NORTH DAKOTA                  |                    |             |                                |                 |          |                            |              |              |              |                |                                    |
| Area A                        | 67.2               | 0.54        | 13.6                           | 6.6             | 0.69     | 69/115                     | 144/93       | 34.3         | 95           | 399            | 533                                |
| Area B                        | 68.6               | 0.54        | 13.0                           | 7.1             | 0.67     | 70/113                     | 140/94       | 33.5         | 93           | 410            | 588                                |
| Area C                        | 68.5               | 0.54        | 13.3                           | 6.7             | 0.71     | 70/114                     | 147/92       | 34.2         | 94           | 401            | 659                                |
| Area D                        | 65.9               | 0.57        | 14.3                           | 6.9             | 0.71     | 71/118                     | 151/95       | 36.6         | 88           | 417            | 552                                |
| Area E                        | 67.3               | 0.57        | 14.1                           | 6.8             | 0.67     | 70/115                     | 137/91       | 36.1         | 86           | 401            | 577                                |
| Area F                        | 68.1               | 0.58        | 13.6                           | 7.2             | 0.64     | 71/117                     | 136/94       | 34.6         | 95           | 415            | 797                                |
| State Avg. 2026               | 67.6               | 0.55        | 13.6                           | 6.8             | 0.69     | 70/115                     | 144/93       | 34.6         | 92           | 406            | 586                                |
| State Avg. 2025               | 68.6               | 0.52        | 13.2                           | 7.1             | 0.67     | 72/118                     | 149/101      | 33.7         | 96           | 404            | 552                                |
| SOUTH DAKOTA                  |                    |             |                                |                 |          |                            |              |              |              |                |                                    |
| Area A                        | 67.4               | 0.61        | 13.7                           | 6.4             | 0.62     | 68/114                     | 127/90       | 32.4         | 93           | 431            | 578                                |
| Area B                        | 67.6               | 0.58        | 14.0                           | 7.2             | 0.62     | 70/114                     | 128/93       | 36.2         | 83           | 433            | 601                                |
| Area C                        | 66.0               | 0.65        | 13.6                           | 8.3             | 0.58     | 75/121                     | 129/100      | 34.9         | 89           | 400            | 583                                |
| State Avg. 2026               | 67.4               | 0.59        | 13.9                           | 7.1             | 0.62     | 70/115                     | 128/93       | 35.0         | 86           | 429            | 593                                |
| State Avg. 2025               | 68.6               | 0.62        | 12.9                           | 7.1             | 0.64     | 71/115                     | 134/96       | 32.4         | 94           | 415            | 534                                |
| IDAHO • OREGON • WASHINGTON   |                    |             |                                |                 |          |                            |              |              |              |                |                                    |
| Area A                        | 67.1               | 0.62        | 13.1                           | 7.0             | 0.67     | 72/120                     | 146/99       | 31.9         | 94           | 477            | 656                                |
| Area B                        | 64.7               | 0.55        | 13.6                           | 7.3             | 0.61     | 74/127                     | 140/103      | 37.0         | 80           | 449            | 633                                |
| State Avg. 2026               | 66.1               | 0.59        | 13.3                           | 7.1             | 0.65     | 73/123                     | 144/101      | 33.9         | 88           | 466            | 647                                |
| State Avg. 2025               | 67.1               | 0.56        | 13.3                           | 7.1             | 0.66     | 75/126                     | 154/108      | 35.1         | 87           | 433            | 547                                |
| REGION AVERAGE                |                    |             |                                |                 |          |                            |              |              |              |                |                                    |
| Avg. 2026                     | 67.4               | 0.55        | 13.6                           | 6.8             | 0.69     | 70/116                     | 145/94       | 34.8         | 92           | 414            | 618                                |
| Avg. 2025                     | 68.4               | 0.53        | 13.2                           | 7.0             | 0.68     | 72/119                     | 149/101      | 34.2         | 95           | 407            | 545                                |
| Five-Year Avg                 | 68.3               | 0.50        | 13.1                           | 6.3             | 0.69     | 71/117                     | 148/98       | 34.2         | 93           | 398            | 632                                |

\*In 2025, a new Buhler lab mill was used. It is the same size and model as previous, but direct comparisons of flour data to 2024 and five-year averages needs to be taken into consideration.

# U.S. Hard Red Spring *Wheat*

MINNESOTA

MONTANA

NORTH DAKOTA

SOUTH DAKOTA

IDAHO

OREGON

WASHINGTON

## TERMS DEFINED

- **FLOUR** is evaluated for several factors to determine overall milling efficiency grade, soundness and functional properties.
- **EXTRACTION**, or the proportion of the wheat kernel that can be milled into flour, is important to mill profitability. For purposes of this survey, test milling was conducted with a Buhler Laboratory mill. Results are suitable for comparison between crop years, however yields are lower than those obtained in commercial mills.
- Another measure of milling efficiency and of flour grade is the ash content, or mineral residue, remaining after incineration of a sample.
- **STARCH DAMAGE** measures physical damage to a proportion of the starch granules of flour. The level directly affects water absorption and dough mixing properties.
- **WET GLUTEN** provides a quantitative measure of the gluten forming proteins in the flour that are primarily responsible for its dough mixing and baking properties.
- **FALLING NUMBER** measures enzyme activity in flour. A fast time indicates high activity, revealing too much sugar and too little starch. Since starch provides bread's supporting structure, too much activity results in sticky dough and poor texture in finished products.

# U.S. Hard Red Spring Wheat

- MINNESOTA
- MONTANA
- NORTH DAKOTA
- SOUTH DAKOTA
- IDAHO
- OREGON
- WASHINGTON

- Physical characteristics of dough are evaluated to reveal useful information about variations in flour types, processing requirements and expected end-product quality.
- A farinograph traces a curve during the dough mixing process to record variations in gluten development and the breakdown of gluten proteins over time. Water absorption indicates the amount of water that can be added to the flour until the dough reaches a definite consistency. Peak time indicates the number of minutes required to achieve this level of dough consistency and mixing tolerance indicates the stability of the dough. Both peak time and stability are related to dough strength.

| 2026 FLOUR QUALITY DATA       |              |               |               |          |                   |
|-------------------------------|--------------|---------------|---------------|----------|-------------------|
| STATE AND CROP REPORTING AREA | ABSORPTION % | PEAK TIME MIN | STABILITY MIN | MTI B.U. | QUALITY NUMBER MM |
| MINNESOTA                     |              |               |               |          |                   |
| Area A                        | 61.6         | 6.6           | 11.6          | 25       | 141               |
| Area B                        | 62.6         | 7.0           | 10.3          | 28       | 132               |
| State Avg. 2026               | 61.7         | 6.7           | 11.4          | 25       | 140               |
| State Avg. 2025               | 62.5         | 7.5           | 12.4          | 26       | 145               |
| MONTANA                       |              |               |               |          |                   |
| Area A                        | 63.9         | 7.5           | 12.2          | 17       | 162               |
| Area B                        | 64.6         | 8.5           | 12.3          | 26       | 164               |
| Area C                        | 66.4         | 7.8           | 8.8           | 28       | 146               |
| State Avg. 2026               | 64.5         | 8.0           | 11.8          | 23       | 161               |
| State Avg. 2025               | 65.4         | 7.3           | 11.2          | 24       | 145               |
| NORTH DAKOTA                  |              |               |               |          |                   |
| Area A                        | 63.9         | 7.3           | 12.7          | 22       | 159               |
| Area B                        | 63.1         | 7.2           | 10.3          | 33       | 133               |
| Area C                        | 63.3         | 6.8           | 10.7          | 27       | 137               |
| Area D                        | 64.9         | 7.7           | 13.9          | 14       | 179               |
| Area E                        | 64.9         | 7.3           | 10.3          | 23       | 150               |
| Area F                        | 63.7         | 8.4           | 12.2          | 28       | 152               |
| State Avg. 2026               | 63.8         | 7.3           | 11.8          | 24       | 152               |
| State Avg. 2025               | 63.6         | 7.4           | 11.6          | 25       | 143               |
| SOUTH DAKOTA                  |              |               |               |          |                   |
| Area A                        | 63.3         | 7.7           | 11.9          | 20       | 155               |
| Area B                        | 64.6         | 7.4           | 9.5           | 27       | 141               |
| Area C                        | 65.7         | 6.9           | 8.0           | 36       | 117               |
| State Avg. 2026               | 64.3         | 7.4           | 10.0          | 26       | 143               |
| State Avg. 2025               | 62.1         | 7.4           | 10.3          | 30       | 130               |
| IDAHO - OREGON - WASHINGTON   |              |               |               |          |                   |
| Area A                        | 62.9         | 9.5           | 13.3          | 19       | 185               |
| Area B                        | 66.6         | 7.6           | 10.0          | 24       | 146               |
| State Avg. 2026               | 64.4         | 8.7           | 12.0          | 21       | 169               |
| State Avg. 2025               | 64.2         | 7.6           | 9.9           | 26       | 138               |
| REGION AVERAGE                |              |               |               |          |                   |
| Avg. 2026                     | 63.7         | 7.4           | 11.7          | 24       | 152               |
| Avg. 2025                     | 63.6         | 7.4           | 11.5          | 25       | 142               |
| Five-Year Avg                 | 62.8         | 7.6           | 13.4          | 22       | 168               |

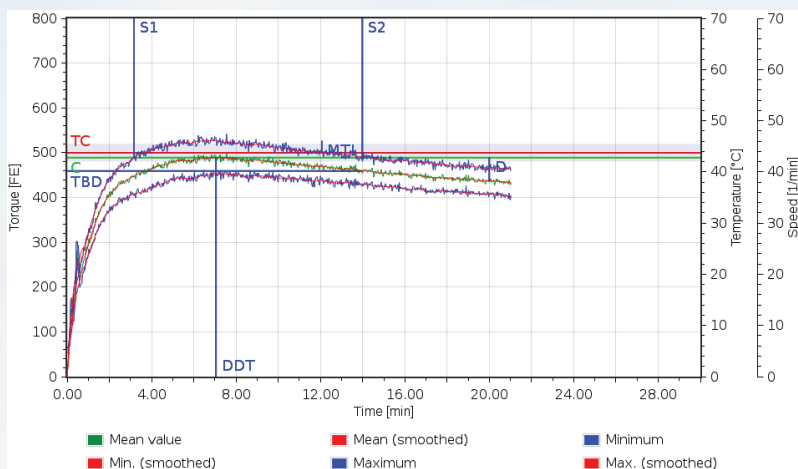
U.S.  
Hard Red  
Spring  
*Wheat*

| 2026 PHYSICAL DOUGH QUALITY      |                            |                           |               |                             |                            |               |         |         |              |                                |
|----------------------------------|----------------------------|---------------------------|---------------|-----------------------------|----------------------------|---------------|---------|---------|--------------|--------------------------------|
| STATE AND CROP<br>REPORTING AREA | EXTENSIBILITY<br>45 MIN CM | RESISTANCE<br>45 MIN B.U. | AREA SQ<br>CM | EXTENSIBILITY<br>135 MIN CM | RESISTANCE<br>135 MIN B.U. | AREA SQ<br>CM | P<br>MM | L<br>MM | P/L<br>RATIO | W JOULES<br>X 10 <sup>-4</sup> |
| MINNESOTA                        |                            |                           |               |                             |                            |               |         |         |              |                                |
| Area A                           | 179                        | 640                       | 147           | 174                         | 836                        | 179           | 83      | 132     | 0.63         | 371                            |
| Area B                           | 16.1                       | 496                       | 103           | 17.7                        | 744                        | 169           | 83      | 128     | 0.65         | 338                            |
| State Avg. 2026                  | 176                        | 620                       | 141           | 174                         | 823                        | 178           | 83      | 131     | 0.63         | 366                            |
| State Avg. 2025                  | 16.4                       | 621                       | 128           | 16.1                        | 951                        | 187           | 92      | 130     | 0.70         | 402                            |
| MONTANA                          |                            |                           |               |                             |                            |               |         |         |              |                                |
| Area A                           | 174                        | 586                       | 130           | 16.1                        | 936                        | 191           | 103     | 120     | 0.86         | 424                            |
| Area B                           | 19.2                       | 569                       | 141           | 16.9                        | 842                        | 178           | 97      | 140     | 0.69         | 447                            |
| Area C                           | 18.0                       | 440                       | 106           | 18.8                        | 702                        | 168           | 98      | 134     | 0.73         | 406                            |
| State Avg. 2026                  | 18.4                       | 560                       | 133           | 16.8                        | 862                        | 182           | 99      | 131     | 0.76         | 433                            |
| State Avg. 2025                  | 179                        | 542                       | 125           | 14.2                        | 915                        | 159           | 102     | 136     | 0.75         | 443                            |
| NORTH DAKOTA                     |                            |                           |               |                             |                            |               |         |         |              |                                |
| Area A                           | 19.5                       | 494                       | 128           | 19.1                        | 711                        | 173           | 90      | 137     | 0.66         | 415                            |
| Area B                           | 19.9                       | 519                       | 132           | 19.2                        | 681                        | 165           | 84      | 131     | 0.64         | 355                            |
| Area C                           | 19.2                       | 571                       | 141           | 16.9                        | 758                        | 160           | 96      | 118     | 0.81         | 394                            |
| Area D                           | 16.3                       | 527                       | 105           | 17.8                        | 796                        | 172           | 108     | 110     | 0.98         | 424                            |
| Area E                           | 18.8                       | 444                       | 107           | 18.3                        | 661                        | 150           | 93      | 119     | 0.78         | 354                            |
| Area F                           | 18.7                       | 506                       | 120           | 19.3                        | 750                        | 184           | 94      | 122     | 0.77         | 396                            |
| State Avg. 2026                  | 18.9                       | 516                       | 125           | 18.5                        | 726                        | 168           | 93      | 126     | 0.74         | 394                            |
| State Avg. 2025                  | 17.2                       | 593                       | 127           | 16.6                        | 856                        | 175           | 96      | 130     | 0.74         | 426                            |
| SOUTH DAKOTA                     |                            |                           |               |                             |                            |               |         |         |              |                                |
| Area A                           | 16.6                       | 519                       | 111           | 16.8                        | 783                        | 162           | 99      | 108     | 0.92         | 362                            |
| Area B                           | 16.5                       | 442                       | 95            | 15.5                        | 695                        | 135           | 98      | 106     | 0.92         | 343                            |
| Area C                           | 176                        | 429                       | 100           | 19.0                        | 637                        | 152           | 96      | 114     | 0.84         | 349                            |
| State Avg. 2026                  | 16.6                       | 462                       | 100           | 16.2                        | 714                        | 144           | 98      | 107     | 0.91         | 349                            |
| State Avg. 2025                  | 170                        | 496                       | 107           | 16.5                        | 705                        | 144           | 87      | 124     | 0.70         | 345                            |
| IDAHO • OREGON • WASHINGTON      |                            |                           |               |                             |                            |               |         |         |              |                                |
| Area A                           | 18.8                       | 534                       | 126           | 174                         | 874                        | 190           | 91      | 135     | 0.67         | 405                            |
| Area B                           | 16.4                       | 434                       | 94            | 15.3                        | 831                        | 150           | 107     | 119     | 0.90         | 392                            |
| State Avg. 2026                  | 178                        | 494                       | 113           | 16.6                        | 857                        | 174           | 97      | 129     | 0.76         | 400                            |
| State Avg. 2025                  | 16.8                       | 457                       | 98            | 15.4                        | 993                        | 176           | 90      | 132     | 0.69         | 370                            |
| REGION AVERAGE                   |                            |                           |               |                             |                            |               |         |         |              |                                |
| Avg. 2026                        | 18.4                       | 537                       | 127           | 17.8                        | 772                        | 171           | 93      | 127     | 0.74         | 395                            |
| Avg. 2025                        | 171                        | 578                       | 124           | 16.2                        | 872                        | 172           | 95      | 131     | 0.73         | 415                            |
| Five-Year Avg                    | 170                        | 572                       | 122           | 14.5                        | 954                        | 168           | 92      | 130     | 0.70         | 408                            |

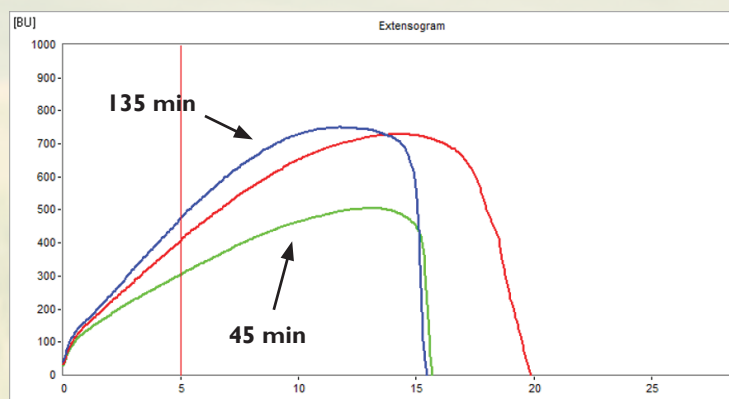
# U.S. Hard Red Spring Wheat

MINNESOTA  
MONTANA  
NORTH DAKOTA  
SOUTH DAKOTA  
IDAHO  
OREGON  
WASHINGTON

## 2026 AVERAGE FARINOGRAM



## 2026 AVERAGE EXTENSIGRAM



The extensigram measures dough strength by stretching a piece of dough on a hook until it breaks. The apparatus traces a curve that measures extensibility, resistance to extension and the area beneath the curve, or energy value.



# U.S. Hard Red Spring Wheat

MINNESOTA

MONTANA

NORTH DAKOTA

SOUTH DAKOTA

IDAHO

OREGON

WASHINGTON

| 2026 BAKING DATA              |                     |                            |                |                   |             |             |          |
|-------------------------------|---------------------|----------------------------|----------------|-------------------|-------------|-------------|----------|
| STATE AND CROP REPORTING AREA | BAKING ABSORPTION % | *DOUGH HANDLING PROPERTIES | LOAF VOLUME CC | GRAIN AND TEXTURE | CRUMB COLOR | CRUST COLOR | SYMMETRY |
| MINNESOTA                     |                     |                            |                |                   |             |             |          |
| Area A                        | 62.7                | 7.0                        | 1015           | 75                | 75          | 10.0        | 7.0      |
| Area B                        | 63.4                | 9.0                        | 1010           | 8.5               | 8.0         | 10.0        | 8.0      |
| State Avg. 2026               | 62.8                | 7.3                        | 1014           | 76                | 76          | 10.0        | 7.1      |
| State Avg. 2025               | 64.3                | 9.8                        | 911            | 72                | 74          | 10.0        | 7.2      |
| MONTANA                       |                     |                            |                |                   |             |             |          |
| Area A                        | 64.0                | 8.0                        | 1000           | 75                | 8.0         | 10.0        | 7.0      |
| Area B                        | 65.6                | 9.0                        | 1090           | 8.0               | 9.0         | 10.0        | 8.0      |
| Area C                        | 67.5                | 8.0                        | 1060           | 8.0               | 8.0         | 10.0        | 9.0      |
| State Avg. 2026               | 65.2                | 8.5                        | 1051           | 78                | 8.5         | 10.0        | 7.7      |
| State Avg. 2025               | 66.8                | 8.3                        | 1024           | 78                | 8.1         | 9.6         | 8.4      |
| NORTH DAKOTA                  |                     |                            |                |                   |             |             |          |
| Area A                        | 65.3                | 9.0                        | 1075           | 8.5               | 8.0         | 10.0        | 9.0      |
| Area B                        | 62.8                | 8.0                        | 1010           | 75                | 75          | 10.0        | 8.0      |
| Area C                        | 64.4                | 8.0                        | 1035           | 8.0               | 8.0         | 10.0        | 9.0      |
| Area D                        | 67.6                | 8.0                        | 1045           | 8.0               | 8.0         | 10.0        | 10.0     |
| Area E                        | 65.3                | 10.0                       | 1070           | 8.0               | 8.5         | 10.0        | 9.0      |
| Area F                        | 63.4                | 8.0                        | 1020           | 75                | 8.0         | 10.0        | 8.0      |
| State Avg. 2026               | 64.9                | 8.4                        | 1044           | 8.0               | 7.9         | 10.0        | 8.9      |
| State Avg. 2025               | 64.4                | 8.4                        | 933            | 76                | 74          | 9.8         | 7.8      |
| SOUTH DAKOTA                  |                     |                            |                |                   |             |             |          |
| Area A                        | 63.1                | 7.0                        | 960            | 75                | 7.0         | 10.0        | 7.0      |
| Area B                        | 64.7                | 8.0                        | 990            | 8.0               | 8.5         | 10.0        | 8.0      |
| Area C                        | 65.8                | 9.0                        | 1065           | 8.0               | 8.0         | 10.0        | 9.0      |
| State Avg. 2026               | 64.4                | 7.8                        | 988            | 7.9               | 8.0         | 10.0        | 7.8      |
| State Avg. 2025               | 63.3                | 7.5                        | 929            | 78                | 7.9         | 9.5         | 7.8      |
| IDAHO • OREGON • WASHINGTON   |                     |                            |                |                   |             |             |          |
| Area A                        | 64.9                | 8.0                        | 1030           | 75                | 8.5         | 10.0        | 8.0      |
| Area B                        | 67.6                | 8.0                        | 1115           | 8.5               | 8.0         | 10.0        | 9.0      |
| State Avg. 2026               | 66.0                | 8.0                        | 1064           | 7.9               | 8.3         | 10.0        | 8.4      |
| State Avg. 2025               | 66.7                | 7.2                        | 984            | 7.9               | 8.2         | 10.0        | 8.8      |
| REGION AVERAGE                |                     |                            |                |                   |             |             |          |
| Avg. 2026                     | 64.6                | 8.2                        | 1038           | 7.9               | 8.0         | 10.0        | 8.3      |
| Avg. 2025                     | 64.7                | 8.5                        | 942            | 7.6               | 7.6         | 9.8         | 7.8      |
| Five-Year Avg                 | 66.4                | 8.7                        | 944            | 7.7               | 7.9         | 9.9         | 8.2      |

U.S.  
Hard Red  
Spring  
Wheat

MINNESOTA  
MONTANA  
NORTH DAKOTA  
SOUTH DAKOTA  
IDAHO  
OREGON  
WASHINGTON

| 2026 RECENT QUALITY TRENDS   |           |           |           |           |           |           |                   |
|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-------------------|
| CROP YEAR                    | 2026      | 2025      | 2024      | 2023      | 2022      | 2021      | FIVE-YEAR AVERAGE |
| WHEAT GRADING                |           |           |           |           |           |           |                   |
| Test Weight (lbs/bu)         | 60.4      | 61.8      | 61.3      | 61.2      | 62.1      | 61.5      | 61.6              |
| Test Weight (kg/hl)          | 79.5      | 81.3      | 80.6      | 80.4      | 81.7      | 80.8      | 81.0              |
| Vitreous Kernels (%)         | 69        | 60        | 66        | 57        | 73        | 81        | 67                |
| 1000 Kernel Weight (gm)      | 30.0      | 34.1      | 32.5      | 34.5      | 30.9      | 30.6      | 32.5              |
| Protein: 12%/0% moisture     | 14.7/16.7 | 14.2/16.2 | 13.9/15.8 | 14.1/16.0 | 14.2/16.1 | 15.4/17.4 | 14.4/16.3         |
| Ash: 14% moisture (%)        | 1.56      | 1.51      | 1.57      | 1.48      | 1.56      | 1.52      | 1.53              |
| Falling Number (sec)         | 426       | 405       | 401       | 389       | 390       | 398       | 396               |
| FLOUR DATA                   |           |           |           |           |           |           |                   |
| Extractions (%)              | 67.4      | 68.4      | 69.0      | 69.9      | 67.0      | 67.4      | 68.3              |
| Ash: 14% moisture (%)        | 0.55      | 0.53      | 0.50      | 0.47      | 0.49      | 0.50      | 0.50              |
| Protein: 14% moisture (%)    | 13.6      | 13.2      | 12.6      | 12.8      | 12.7      | 14.3      | 13.1              |
| Wet Gluten (%)               | 34.8      | 34.2      | 33.1      | 33.3      | 33.1      | 37.1      | 34.2              |
| Falling Number (sec)         | 414       | 407       | 393       | 386       | 393       | 409       | 398               |
| Amylograph Peak Viscosity    |           |           |           |           |           |           |                   |
| 65g FL (B.U.)                | 618       | 545       | 564       | 618       | 730       | 705       | 632               |
| PHYSICAL DOUGH PROPERTIES    |           |           |           |           |           |           |                   |
| Farinograph:                 |           |           |           |           |           |           |                   |
| Absorption (%)               | 63.7      | 63.6      | 61.6      | 62.9      | 63.0      | 62.8      | 62.8              |
| Peak Time (min)              | 7.4       | 7.4       | 7.1       | 8.2       | 7.3       | 8.1       | 7.6               |
| Stability (min)              | 11.7      | 11.5      | 11.7      | 15.2      | 12.5      | 16.2      | 13.4              |
| Extensograph:                |           |           |           |           |           |           |                   |
| Extensibility-45 min (cm)    | 18.4      | 17.1      | 17.8      | 16.7      | 16.3      | 16.8      | 17.0              |
| Resistance-45 min (B.U.)     | 537       | 578       | 511       | 615       | 541       | 615       | 572               |
| Area-45 min (sq cm)          | 127       | 124       | 114       | 130       | 113       | 130       | 122               |
| Alveograph:                  |           |           |           |           |           |           |                   |
| P (mm)                       | 93        | 95        | 86        | 96        | 96        | 85        | 92                |
| L (mm)                       | 127       | 131       | 131       | 119       | 129       | 140       | 130               |
| W (joules x10 <sup>4</sup> ) | 395       | 415       | 386       | 411       | 412       | 415       | 408               |
| BAKING DATA                  |           |           |           |           |           |           |                   |
| Absorption (%)               | 64.6      | 64.7      | 64.3      | 64.9      | 70.6      | 67.2      | 66.4              |
| Dough Handling Properties    | 8.2       | 8.5       | 9.0       | 8.7       | 8.9       | 8.7       | 8.7               |
| Loaf Volume (CC)             | 1038      | 942       | 960       | 969       | 931       | 918       | 944               |
| Grain and Texture            | 7.9       | 7.6       | 7.7       | 7.8       | 7.8       | 7.8       | 7.7               |
| Crumb Color                  | 8.0       | 7.6       | 7.7       | 8.0       | 8.0       | 8.0       | 7.9               |
| Crust Color                  | 10.0      | 9.8       | 9.9       | 9.9       | 10.0      | 9.8       | 9.9               |
| Symmetry                     | 8.3       | 7.8       | 8.5       | 8.4       | 8.5       | 8.0       | 8.2               |

# U.S. Hard Red Spring Wheat

MINNESOTA

MONTANA

NORTH DAKOTA

SOUTH DAKOTA

IDAHO

OREGON

WASHINGTON

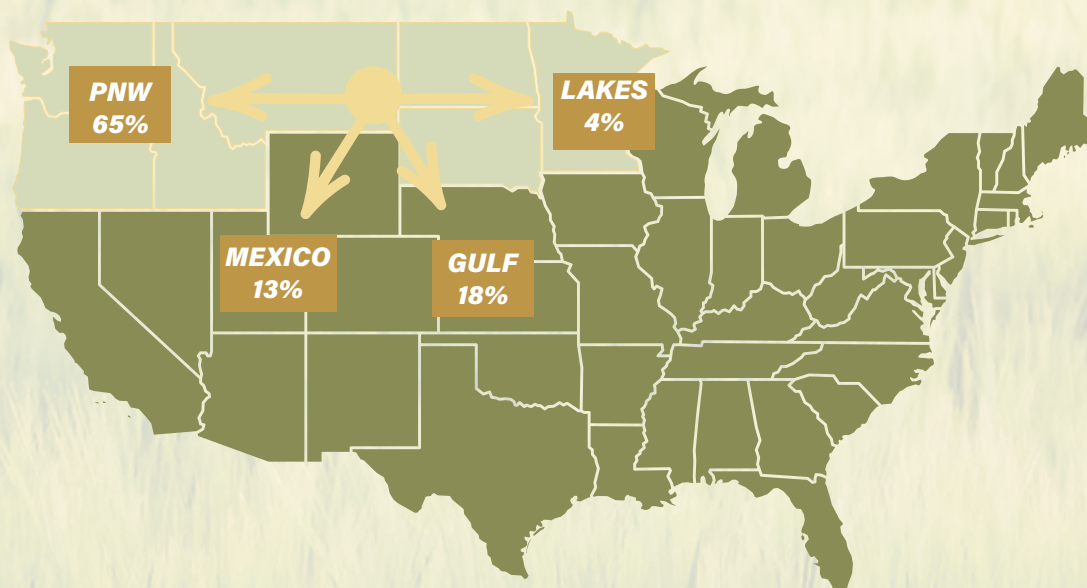
## 2026 SURVEY BACKGROUND

All quality data contained in this report are the result of testing and analysis conducted under the supervision of Dr. Shahidul Islam, Wheat Quality Specialist, and by his team members, Kelly McMonagle, Amber Walter, Heymant Kaur, Yun Zhao and Sultan Mahmud with the Hard Red Spring Wheat Quality Laboratory at North Dakota State University, Fargo, North Dakota, USA.

**COLLECTION** - The North Dakota, South Dakota, Montana and Minnesota state offices of the National Agricultural Statistics Service, and the NDSU Extension Service obtained samples during harvest directly from growers either in the fields or farm bins and local elevators. PNW samples were obtained from the Wheat Marketing Center. These samples reflect the condition of the grain at the point of origin. Sample collection is based on county production histories. A total of 769 samples were collected. Minnesota (119), Montana (149), North Dakota (374), South Dakota (84), and PNW (43).

**ANALYSIS** - Approximately 60 percent of the total wheat samples collected were analyzed for grade and other physical kernel characteristics, to generate distribution data. Distribution averages may differ from data averages in the various tables, because the latter are derived from all samples. All collected samples are included in the composite for their respective crop reporting area (CRA) within each state. State and overall regional quality averages are calculated by weighting each CRA's quality data by production, rather than taking a simple average of CRA values.

## AVERAGE SHARE OF U.S. HRS EXPORTS BY PORT (2022-2025)



# U.S. Hard Red Spring Wheat

MINNESOTA

MONTANA

NORTH DAKOTA

SOUTH DAKOTA

IDAHO

OREGON

WASHINGTON

## METHODS, TERMS, SYMBOLS

### Wheat

**SAMPLE COLLECTION** – Each sample contained approximately 2 to 3 pounds of wheat, stored in sealed, moisture-proof plastic bags.

**MOISTURE** – Official USDA procedure using Dickey-John Moisture Meter.

**GRADE** – Official United States Standards for Grain, as determined by a licensed grain inspector. North Dakota Grain Inspection Service, Fargo, ND, provided grades for composite wheat samples representing each crop reporting area.

**VITREOUS KERNELS** – Approximate percentage of kernels having vitreous endosperm.

**DOCKAGE** – Official USDA procedure. All matter other than wheat which can be removed readily from a test portion of the original sample by use of an approved device (Carter Dockage Tester). Dockage may also include underdeveloped, shriveled and small pieces of wheat kernels removed in properly separating the material other than wheat and which cannot be recovered by properly rescreening or recleaning.

**TEST WEIGHT** – American Association of Cereal Chemists International (AACCI) Method 55-10.01. Measured as pounds per bushel (lb/bu), kilograms per hectoliter (kg/hl) = (lbs/bu X 1.292) + 1.419. \*Approved Methods of the AACCI Approved Methods (11th Edition), St. Paul, MN.

**THOUSAND KERNEL WEIGHT** – Based on 10 gram sample of cleaned wheat (free of foreign material and broken kernels) counted by electronic seed counter.

**KERNEL SIZE DISTRIBUTION** – Percentages of the size of kernels (large, medium, small) were determined using a wheat sizer equipped with the following sieve openings:

- Top sieve—Tyler #7 with 2.92 mm opening;
- Middle sieve—Tyler #9 with 2.24 mm opening; and
- Bottom sieve—Tyler #12 with 1.65 mm opening.

**PROTEIN** – AACCI (NIR) Method: 39.10.01 expressed on dry basis and 12 percent moisture basis.

**ASH** – AACCI Method 08-01.01, expressed on a 14 percent moisture basis.

**DON** – Analysis was done on ground wheat using a gas chromatograph with an electron capture detector as described in J. Assoc. Official Anal. Chem 79,472 (1996)

**FALLING NUMBER** – AACCI Method 56.81.04; units of seconds (14 percent moisture basis).

**SEDIMENTATION** – AACCI Method 56.60.01, expressed in CC.

### Flour

**EXTRACTION** – Samples are cleaned and tempered according to AACCI 26-01.02. The milling laboratory is controlled at 68 percent relative humidity and 72°F to 74°F. Milling is performed on a Buhler laboratory mill (Type MLU-202). Straight grade flour (of all six flour streams) is blended and reported as “flour extraction.” The blended flour is rebolted through an 84 SS sieve. All mill settings are optimized to achieve maximum laboratory mill flour extraction with standardized ash content.

**ASH** – AACCI Method 08-01.01, expressed on a 14 percent moisture basis.

**PROTEIN** – AACCI Method 39.10.01 (NIR Method), expressed on a 14 percent moisture basis.

**WET GLUTEN** – AACCI Method 38.12.02, expressed on a 14 percent moisture basis determined with the glutomatic instrument.

**GLUTEN INDEX** – AACCI Method 38.12.02, determined with the glutomatic instrument as an indication of gluten strength.

**FLOUR FALLING NUMBER** – AACCI Method 56-81.04, units of seconds. Determination is performed on 70 g of Buhler milled flour (14 percent moisture basis).

**AMYLOGRAM** – (65 g) AACCI Method 22-10.01, modified as follows: 65 g of flour (14 percent moisture basis) are slurried in 450 ml distilled water, paddle stirrers are used with the Brabender Amylograph. Peak viscosity reported in Brabender units (B.U.), on a 14 percent moisture basis.

**STARCH DAMAGE** – AACCI Method 76-31.01. Spectrophotometric/enzymatic method.

**SOLVENT RETENTION CAPACITY (SRC)** – AACCI 56-11.02, expressed on a 14 percent moisture basis. SRC is used to predict commercial baking performance. Flour is shaken with excess of four types of solvent, to determine the amount of solvent held by the flour. The four solvents used relate to the functionality to flour components as follows:

- **WATER** – Water absorption
- **SUCROSE** – Non-starch polysaccharides
- **LACTIC ACID** – Glutenins
- **SODIUM CARBONATE** – Damaged Starch

**GLUTEN PERFORMANCE INDEX (GPI)** – is a ratio of the solvents

and used as an overall performance of flour glutenins especially in relation to bread wheat flour.

## PHYSICAL DOUGH PROPERTIES

**FARINOGRAM** – AACCI Method 54-21.02; constant flour weight method, small (50 g) mixing bowl. (Flour weight 14 percent moisture basis).

**ABSORPTION** – Amount of water required to center curve peak on the 500 Brabender unit line, expressed on 14 percent moisture basis.

**PEAK TIME** – The interval, to the nearest 0.5 min, from the first addition of water to the maximum consistency immediately prior to the first indication of weakening. Also known as dough development time.

**STABILITY** – The time interval, to the nearest 0.5 min, between the point where the top of the curve that first intersects the 500-BU line and the point where the top of the curve departs the 500-BU line.

**MIXING TOLERANCE INDEX** – The difference, in Brabender units, from the top of the curve at the peak to the top of the curve measured five minutes after the peak.

**QUALITY NUMBER** – The length, expressed in mm, along the time axis, between the point of water addition and the point where the height in the center of the curve decreased by 30 BU compared to the height of the center of the curve at development time. Stronger flours have a higher quality number.

**EXTENSOGRAM** – AACCI Method 54-10.01; modified as follows: (a) 100 grams of flour (14 percent moisture basis), 2.0 percent sodium chloride (U.S.P.) and water (equal to farinograph absorption minus 2 percent) are mixed to optimum development in a National pin dough mixer; (b) doughs are scaled to 150 grams, rounded, moulded, placed in extensogram holders, and rested for 45 minutes and 135 minutes, respectively, at 30°C and 78 percent relative humidity. The dough is then stretched as described in the procedure referenced above. For conversion purposes, 500 grams equals 400 B.U.

**EXTENSIBILITY** – Total length of the curve at the base line in centimeters.

**RESISTANCE** – Maximum curve height, reported in Brabender units (B.U.).

**AREA** – The area under the curve is measured and reported in square centimeters.

**ALVEOGRAPH** – AACCI Method 54.30.02. Alveolab is used to

measure dough extensibility and resistance to extension.

**"P"** – Maximal overpressure; related to dough's resistance to deformation.

**"L"** – Dough extensibility.

**"W"** – The "work" associated with dough deformation.

## BAKING

**PROCEDURE** – AACCI Method 10-09.01, modified as follows: (a) fungal amylase (SKB 15) replacing malt dry powder, (b) Instant dry yeast (1 percent) in lieu of compressed yeast, (c) 5 to 10 ppm ammonium phosphate, where added oxidants are required, (d) 2 percent shortening added. Doughs are mechanically punched using 6-inch rolls, and mechanically moulded using a National Laboratory Test moulder. Baking is accomplished in "Shogren-type" pans.

**BAKING ABSORPTION** – Water required for optimum dough baking performance, expressed as a percent of flour weight on a 14 percent moisture basis.

**DOUGH CHARACTER** – Handling conversion assessed at panning on a scale of 1 to 10 with higher scores preferred.

**LOAF VOLUME** – Rapeseed displacement measurement made 30 minutes after bread is removed from the oven.

**CRUMB GRAIN AND TEXTURE** – Visual comparison to standard using a constant illumination source. Scale of 1 to 10, the higher scores preferred.

**CRUMB COLOR** – Visual comparison with a standard using a constant illumination source on a scale of 1 to 10, the higher scores preferred.

**CRUST COLOR** – Visual comparison with a standard using a constant illumination source on a scale of 1 to 10, the higher scores preferred.

**SYMMETRY** – Visual comparison with a standard using a constant illumination source on a scale of 1 to 10, the higher scores preferred.

## U.S. Hard Red Spring Wheat

MINNESOTA

MONTANA

NORTH DAKOTA

SOUTH DAKOTA

IDAHO

OREGON

WASHINGTON

# U.S. Hard Red Spring

## Wheat

MINNESOTA

MONTANA

NORTH DAKOTA

SOUTH DAKOTA

IDAHO

OREGON

WASHINGTON

## VARIETAL INFORMATION

The U.S. hard red spring wheat growing region is fairly diverse due to differences in growing season length, annual precipitation, soil type, temperatures and cropping practices. Pest and disease challenges also vary across the region. This means one variety, or even just a few varieties, cannot meet the needs of all producers across the region.

Both public and private breeding programs develop varieties for the HRS growing region to meet the diverse agronomic needs of producers, and optimize the performance of a variety for particular climatic conditions, and prevalent pest and disease threats. Some of the more prominent priorities in variety development are yield, protein content, straw strength, and resistance to leaf and head diseases. In some parts, resistance to the wheat stem fly is a critical trait, while other areas need tolerance to low PH soils, or resistance to Fusarium Head blight or Bacterial Leaf Streak.

Wheat breeders develop varieties to meet the needs of long-standing agronomic challenges for growers in the HRS region, but also need to readily adapt programs to unforeseen and emerging challenges, adding to the complexity of wheat breeding. Promising lines are tested in field trials across multiple years, and growing locations, to ensure stability of traits, prior to commercial release. Once approved for commercial release, the Foundation seed material will be increased in production by select seed growers. This seed is then sold commercially to growers in the following year, or years. It may take up to 8-10 years from the initial cross of two parent lines before a variety from that breeding cross is available to producers.

End-use quality performance has long been a priority for the breeding programs in the region. The HRS class is known for high protein content, strong dough properties, high water absorption and excellent bread baking properties. Maintaining this quality reputation amongst customers is important to producers in the region, and extensive efforts are undertaken to educate wheat breeding programs to focus on both agronomic and end-use quality traits in varieties. Producer education is also important, encouraging growers to produce varieties that meet or exceed the quality demands of HRS customers, and not just focus on yield.

Given the diverse agronomic needs of growers, and the diverse environmental conditions across the region, it is important that all breeding programs in the HRS region are targeting the same quality parameters in their varieties. This promotes consistent quality within the HRS class. Wheat class quality targets were developed by the greater hard red spring wheat industry to assist wheat breeders in this effort. Listed below are the current quality targets for the U.S. hard red spring wheat class.

### QUALITY TARGETS U.S. HRS (KERNEL & MILLING QUALITY)

#### GRADE/KERNEL

- TW 60 lb/bu
- Protein (12% basis) 14.5%
- Ash (14% basis) <1.65%
- Vitreous kernels >80%
- Falling # >400 seconds

#### MILLING

- Extraction 70% (Buhler Lab Mill @.48 ash)
- Protein loss <1%
- Flour color L\*value of 90

### QUALITY TARGETS U.S. HRS (DOUGH/BREAD QUALITY)

#### FARINOGRAPH

- Absorption >64%
- Stability (minutes) 15

#### BREAD

- Loaf volume >1050 cc

# NORTH DAKOTA

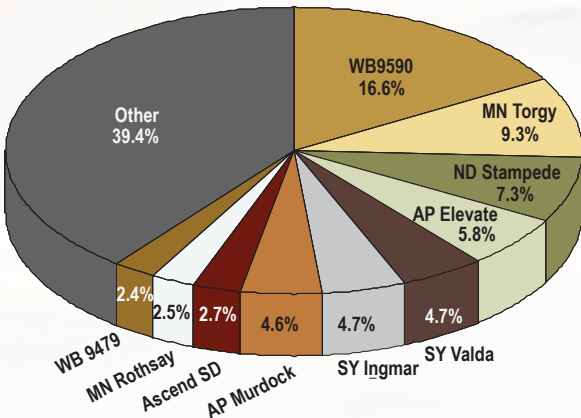
**WB 9590** remains the top planted variety in North Dakota with nearly 17% of the acreage share, up slightly from last year. A 2017 release from WestBred, WB 9590 is popular with producers for its strong straw, high yield potential and moderately high protein. It is also the second most popular variety in Minnesota with 16% of the acreage. WB 9590 is rated as good for milling and baking quality.

**ND Stampede** made significant acreage gains this year and is the third most popular variety in the state with 7.3% of planted acres. Released by North Dakota State University in 2024, ND Stampede has good straw strength and was popular with producers due to its very good agronomic and yield traits. The variety also features excellent milling and baking qualities.

**MN Torgy** is the second most popular variety with 9.3% share of the acreage. MN Torgy is also the second most popular variety in Minnesota. It is a 2020 release from the University of Minnesota that features strong straw strength, excellent disease tolerance and high yield potential. It is rated as average for milling and baking quality.

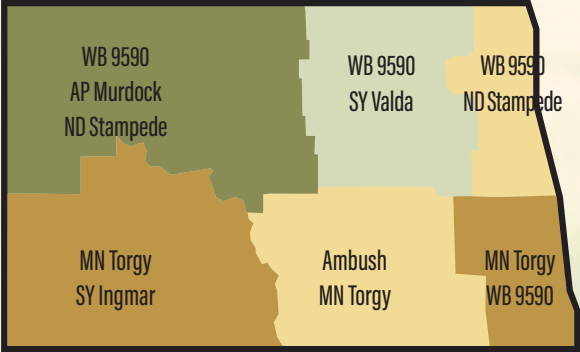
**AP Elevate** ranks fourth with 5.8% of the acreage, up from just 1.5% last year. AP Elevate was released by Syngenta/AgriPro in 2024. The variety has very good straw strength, above average disease tolerance and excellent milling and baking quality.

## NORTH DAKOTA VARIETY SHARE OF PLANTED ACRES



1. Percentage may not add to 100 due to rounding.
2. Includes varieties with less than 1% of acreage and unknown varieties.
3. (1 acre = 0.405 hectares)  
2026 – 4,550,000 planted acres  
2025 – 5,100,000 planted acres

## TOP NORTH DAKOTA VARIETIES BY CROP DISTRICT



Glendon Slaubaugh harvesting - Rugby, ND

## U.S. Hard Red Spring Wheat

- MINNESOTA
- MONTANA
- NORTH DAKOTA
- SOUTH DAKOTA
- IDAHO
- OREGON
- WASHINGTON

# U.S. Hard Red Spring Wheat

MINNESOTA  
MONTANA  
NORTH DAKOTA  
SOUTH DAKOTA  
IDAHO  
OREGON  
WASHINGTON

## MINNESOTA

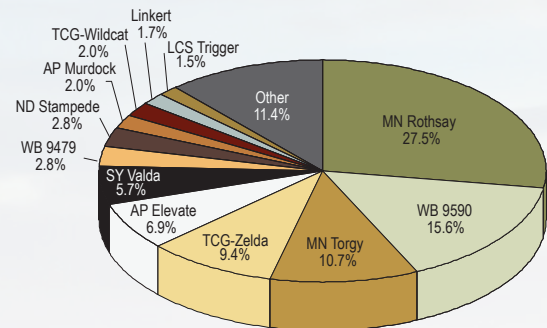
**MN ROTHSAY** remained the top position in planted varieties in Minnesota with 28% of the acreage. It is a 2022 release from the University of Minnesota that features a good combination of yield, protein, and disease resistance and exceptional straw strength. The straw strength feature of the variety is one reason for its increased popularity amongst producers.

**MN TORGY** is the third most popular variety in Minnesota with a 11% share of the acreage. MN Torgy is also the second most popular variety in North Dakota. It is a 2020 release from the University of Minnesota that features strong straw strength, excellent disease tolerance and high yield potential. It is rated as average for milling and baking quality.

### TOP MINNESOTA VARIETIES BY CROP DISTRICT



## MINNESOTA VARIETY SHARE OF PLANTED ACRES



1. Percentage may not add to 100 due to rounding.
2. Includes varieties with less than 1% of acreage and unknown varieties.
3. (1 acre = 0.405 hectares)  
2026 – 1,030,000 planted acres  
2025 – 1,150,000 planted acres

## SOUTH DAKOTA

There is no official wheat variety survey in South Dakota, however, the top planted varieties in the state are:

- Ascend - SD
- Enhance - SD
- AP Dagr
- MN Torgy
- SY Valda

**ASCEND-SD** was released in 2021 by South Dakota State University. The variety has become quite popular in SD and is known for its high yield potential and disease resistance, combined with good test weight and protein content. Milling and baking qualities are above average.

**ENHANCE-SD** was released in 2024 by South Dakota State University. It is known for its high yield potential and protein content as well as disease resistance and early-maturity. Milling and baking qualities are above-average.

A 2025 release by Agri Pro, **AP DAGR** offers excellent yield potential and good straw strength. The variety has good BLS resistance.

# U.S. Hard Red Spring Wheat

MINNESOTA  
MONTANA  
NORTH DAKOTA  
SOUTH DAKOTA  
IDAHO  
OREGON  
WASHINGTON

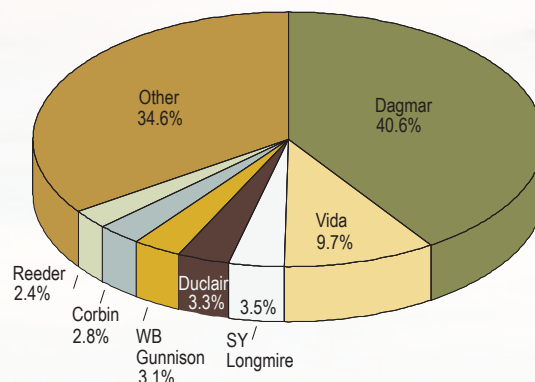
## MONTANA

**DAGMAR** remains the top variety planted in Montana with nearly 40% of the acreage, up from last year. One reason for its popularity is that it is a solid stem variety that shows a high level of resistance to wheat stem sawfly. It is a 2019 release from Montana State University (MSU) with excellent yield potential, high protein content and good milling and baking quality.

**VIDA** is the second most popular variety grown in Montana with 10% of the acreage. It is a 2005 release from MSU with strong yield potential and moderate resistance to leaf and stripe rust. Vida is rated as good for milling and baking quality.

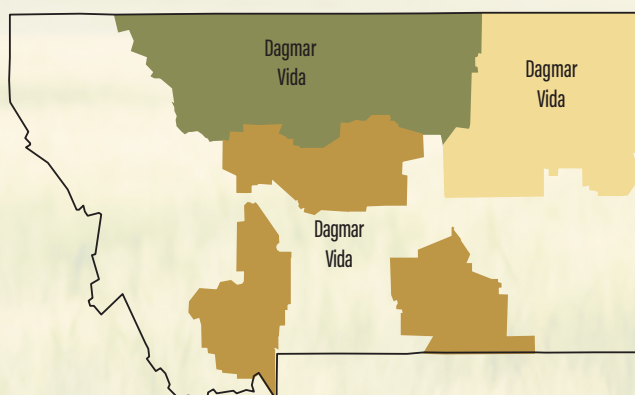
**SY LONGMIRE** rounds out the top three varieties planted in Montana with just under 3.5% of the planted acreage, down slightly from last year. It is a 2019 release from Syngenta/Agri-Pro with very good yield potential and good protein levels. SY Longmire is a solid stem variety that is highly tolerant to wheat stem sawfly and is medium to short in plant height. It is rated as good for milling and baking quality.

## MONTANA VARIETY SHARE OF PLANTED ACRES



1. Percentage may not add to 100 due to rounding.
2. Includes varieties with less than 1% of acreage and unknown varieties.
3. (1 acre = 0.405 hectares)  
2026 - 2,550,000 planted acres  
2025 - 2,200,000 planted acres

## TOP MONTANA VARIETIES BY CROP DISTRICT



## IDAHO

There is no official wheat variety survey in Idaho, however, the top planted varieties in the state are:

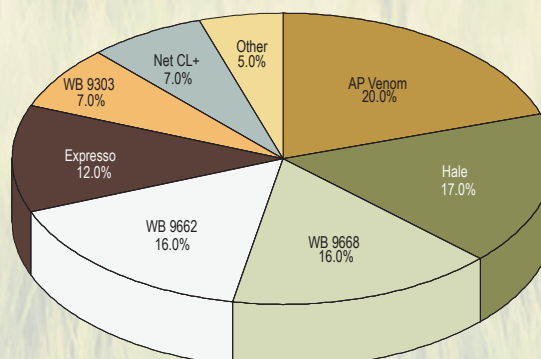
- Jefferon
- WB 9668
- Net CL+

## WASHINGTON

**AP VENOM** is the top variety in Washington with 20% of the acreage. A 2020 release from AgriPro/Syngenta, it has very good straw strength and high yield potential with good protein. AP Venom has shown above average baking and milling characteristics

**HALE** is the second largest variety planted in Washington with 17% of the acreage. It was released by Washington State University in 2022. Hale has excellent yield potential and good stripe rust and Hessian fly tolerance. It has good end use quality.

## WASHINGTON VARIETY SHARE OF PLANTED ACRES



2026 REGIONAL  
QUALITY Report



# 2026

## U.S. HARD RED SPRING WHEAT

### *REGIONAL QUALITY REPORT*

#### FUNDING & SUPPORT PROVIDED BY:

U.S. WHEAT ASSOCIATES

NORTH DAKOTA WHEAT COMMISSION

MONTANA WHEAT AND BARLEY COMMITTEES

MINNESOTA WHEAT RESEARCH AND  
PROMOTION COUNCIL

SOUTH DAKOTA WHEAT COMMISSION

WASHINGTON GRAIN COMMISSION

IDAHO WHEAT COMMISSION

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NORTH DAKOTA STATE UNIVERSITY  
PLANT SCIENCES DEPARTMENT