U.S. HARD RED SPRING WHEAT

MINNESOTA | MONTANA | NORTH DAKOTA | SOUTH DAKOTA

2010 REGIONAL QUALITY REPORT

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2010 REGIONAL QUALITY REPORT

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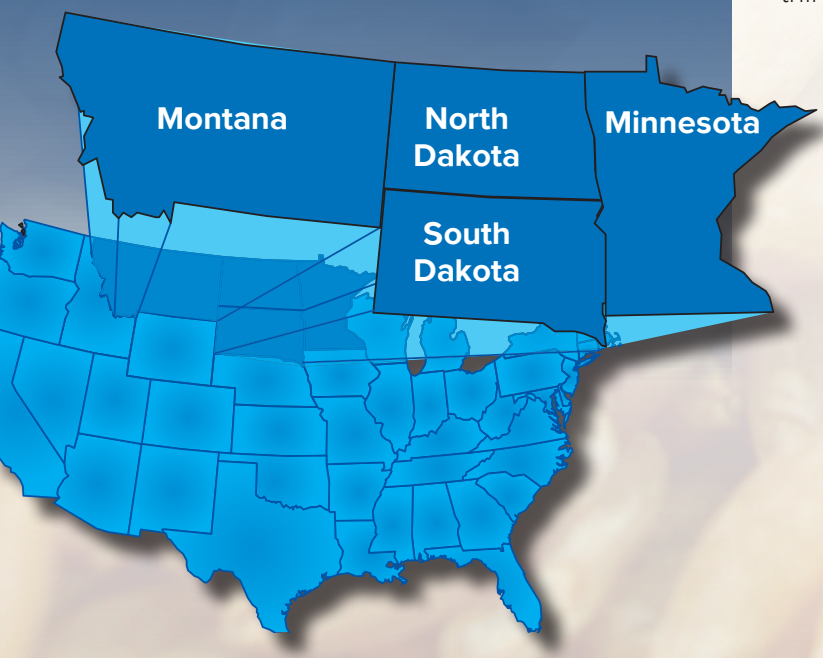


THE ARISTOCRAT OF WHEAT

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 and specialty products such as hearth breads, whole grain breads, bagels and pizza crusts look and taste their best when baked 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.

2010 OVERVIEW

In 2010 the U.S. hard red spring wheat region enjoyed a second straight season of excellent growing conditions, resulting in a crop that is 6 percent larger than 2009 and the third largest on record. Planted area was up marginally, but the biggest boost to production was a record regional yield, up 3 percent from the previous record just set in 2009 and about 20 percent higher than typical averages for the region. The crop averages a #1 grade with above average test weights and very low kernel damage. An improvement over 2009, average protein levels are about one-half percent higher across the crop.

Approximately eighty-five percent of the crop grades a #1 Northern Spring or better with an average test weight of 61.6 pounds per bushel (81 kg/hl). Both factors are similar to last year and above the five-year average due to adequate moisture and limited disease pressures during the growing season which allowed for good kernel development. Average damage levels are a mere 0.1 percent, compared to 0.2 percent in 2009 and 0.4 percent for a five-year average. Fusarium pressures were

minimal to non-existent, and DON tests performed on each of the sixteen area composites all reported non-detectable or less than 0.5 ppm values.

The 2010 crop boasts a better distribution and balance of protein, compared to the record low level produced in 2009. The crop average this year is 13.7 percent, up from 13.1 percent last year, but still about one-half point below the five-year average. Cooler than normal temperatures and above normal yields, especially in western areas, are the two main factors for the below average protein. Distribution of protein this year shows one-half of the crop is above 14 percent protein, compared to roughly one-third last year. On the other end of the protein spectrum, slightly more than twenty percent of the 2010 crop falls below 13 percent protein, whereas more than one-third was below 13 in 2009. Somewhat atypical for the region is a near equal protein level between the eastern and western areas in 2010, usually protein averages nearly a point higher.

Vitreous kernel counts for the region average 70 percent, similar to last year but below the five-year average as periods of rain during harvest and the lower average protein levels impacted kernel color. This may create challenges for buyers demanding Dark Northern Spring (DNS) specifications with a 75 percent DHV minimum, still sixty percent of the crop is above the DNS minimum, slightly higher than 2009. The harvest time rains also reduced average falling number values in the later portion of the harvest, but given the significant portion of the crop harvested prior to the September rains, the crop average maintained a 387 second level, up slightly from last year.

Milling parameters on the crop, based on a Buhler laboratory mill, indicate improved flour extraction levels over 2009, 70 percent compared to 69.1 percent. Flour ash remained unchanged at 0.51 percent, even with the higher flour yields and slightly higher kernel ash. Flour protein recovery is slightly less than 2009, but equal to the five-year average.

Dough quality tests indicate a crop with similar to slightly stronger stability than the 2009 crop, although still weaker than traditional U.S. HRS strength. Average dough stability, as measured on the Farinograph, is at 10.2 minutes, with a low of 6.5 minutes to a high of 14 minutes across the region. A positive factor for most customers is an average peak time of 6.2 minutes, similar to last year, but about 2 minutes less than the five-year average. Absorption values are down about 1.5 percent from last year and the five-year average.

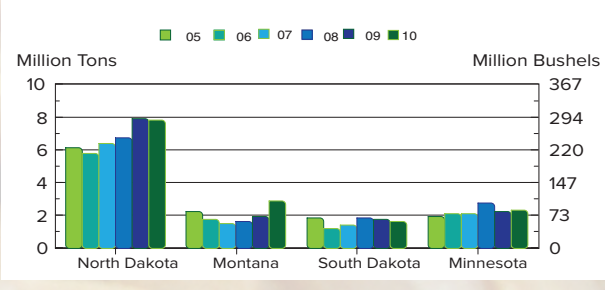
PRODUCTION DATA	2009	2010	2005-09 AVERAGE
MILLION BUSHELS			
Minnesota	82	85	81.8
Montana	71	105	66.2
North Dakota	290	287	241.4
South Dakota	65	59	59.2
Regional Total	508	536	448.5
U.S. Total	**548**	**581**	**481.8**
MILLION METRIC TON			
Minnesota	2.23	2.31	2.23
Montana	1.92	2.86	1.80
North Dakota	7.89	7.81	6.57
South Dakota	1.76	1.61	1.61
Regional Total	13.80	14.6	12.21
U.S. Total	**14.9**	**15.8**	**13.1**

Source: USDA • September 2010 Small Grains Summary

Other dough strength measurements are also showing slightly stronger characteristics in the 2010 crop relative to last year. The average Alveograph W-value is 402, up from 382 last year with a P/L ratio of .95 compared to .79 last year. On the Extensograph, resistance values are up sharply to 489 on the 45 minute test compared to only 386 in 2009, and the 135 minute test parallels these values. There does appear to be a modest decline in dough extensibility in the 2010 crop but dough handling properties appear excellent across the region and improved over last year and the five-year average.

Loaf volumes remained equal to last year, at 927 cubic centimeters, but still slightly below the five-year

U.S. HARD RED SPRING REGIONAL PRODUCTION



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average impacted by the below average protein levels. Loaf volumes declined from 2009 across Montana, were stable across Minnesota and South Dakota, and showed an increase across North Dakota. Overall bread scores on the 2010 crop show some decline in grain and texture scores but similar values for crumb and crust color and symmetry.

The 2010 crop can be rated as having excellent kernel qualities with similar to slightly improved functional quality compared to 2009. Buyers will appreciate the high grade profile on a larger than average crop that shows improved protein content and more balanced distribution, especially across the eastern half of the region, this year. Kernel size and weights are excellent with little to no damage and flour yields are higher than average. Protein levels are still below the long-term average due to a record yield, but still nearly one-half of the crop has greater than 14 percent protein. As a result, dough strength and bake performance are also below traditional levels found in U.S. HRS wheat but similar to 2009. Quality differences do exist across the region, for some factors this can be extreme, so good communication with sellers, and diligent contract specifications are encouraged to ensure buyers receive the quality of wheat they need.

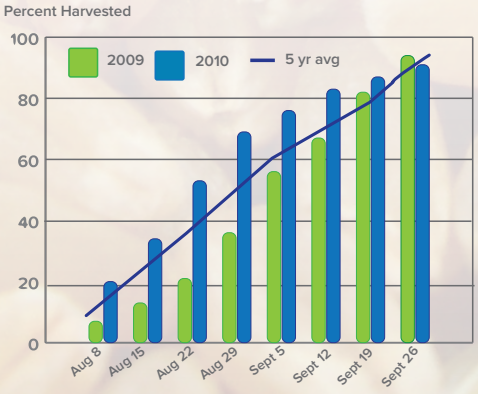
SEASONAL CONDITIONS

HARD RED SPRING PLANTING PROGRESS

PLANTING began earlier than normal due to good weather conditions in April; however, persistent wet weather in mid-May caused delays in planting the final third of the spring wheat crop, pushing the final pace behind average. The delays were most pronounced in the western areas. Subsoil and topsoil moisture levels were sufficient for the second year in a row. Most of the planting was done by the end of May, with a small amount of the acreage planted in June.

GROWING conditions were similar to last year with adequate moisture and very little heat stress. The growing season was cooler than average which allowed for excellent yield potential throughout the region, but delayed the overall development of the crop. Disease and insect pressures were fairly minimal.

HARD RED SPRING HARVEST PROGRESS



HARVEST began in early August, slightly behind average but accelerated ahead of average by early September. Harvest was very slow throughout much of September due to persistent cool, wet conditions. The weather combined with the later planted spring wheat crop pushed harvest progress behind average, especially across the west. Conditions improved the last week of September allowing for the majority of harvest to be complete by the first week in October, although a portion of the crop in northwest North Dakota and Montana was not fully harvested until mid October.

WHEAT CHARACTERISTICS

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.

Subclasses

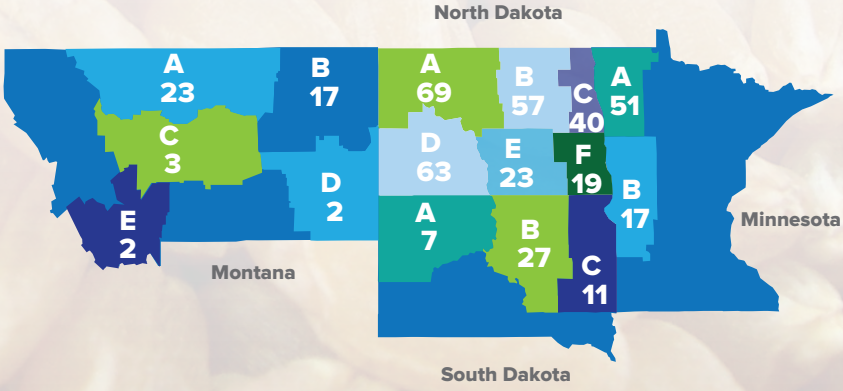
Subclass is a separate marketing factor based on the number of kernels with a complete, hard and vitreous endosperm, the portion that makes flour. For hard red spring wheat the subclasses are:

- 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.

OFFICIAL U.S. GRADES AND GRADE REQUIREMENTS (Revised June 1993)

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 [1]	3.0	5.0	8.0	12.0	20.0
Wheat of other classes [2]					
Contrasting classes	1.0	2.0	3.0	10.0	10.0
Total [3]	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 [4]	4	4	4	4	4
Insect-damaged kernels	31	31	31	31	31

CROP REPORTING AREAS & 2009 Hard Red Spring Wheat Production (million bushels: 1 metric ton = 36.74 bushels)



Wheat samples were obtained in Montana, North Dakota, South Dakota and Minnesota in the crop reporting areas identified in color. Samples were gathered during harvest from growers, farm bins and country elevators.

U.S. Sample grade is wheat that:

a. Does not meet the requirements for U.S. Nos. 1, 2, 3, 4, or 5; or

b. Has a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor); or

c. is heating or of distinctly low quality.

1. Includes damaged kernels (total), foreign material, and shrunken and broken kernels.
2. Unclassed wheat of any grade may contain not more than 10.0 percent of wheat of other classes.
3. Includes contrasting classes.
4. Includes any combination of animal filth, castor beans, crotalaria seeds, glass, stones, or unknown foreign substance.

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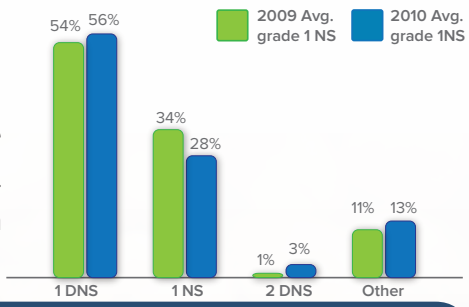
WHEAT GRADING DATA

overall grade

The average grade for the region is 1NS. This grade reflects the average vitreous kernel content of 70 percent. Of the 16 composite samples, six graded 1DNS, and ten graded 1 NS.

REGIONAL GRADE DISTRIBUTION



STATE AND CROP REPORTING AREA	TEST WEIGHT LBS/BU	TEST WEIGHT KG/HL	DAMAGE %	FOREIGN MATERIAL %	SHRUNKEN/ BROKEN KERNELS %	TOTAL DEFECTS %	CONTRASTING CLASSES %	U.S. GRADE	VITREOUS KERNELS %
MINNESOTA									
Area A	61.9	81.4	0.2	0.0	0.6	0.8	0.0	1 NS	58
Area B	60.9	80.1	0.1	0.0	0.5	0.6	0.0	1 NS	56
State Avg. 2010	61.7	81.1	0.2	0.0	0.6	0.8	0.0	1 NS	58
State Avg. 2009	61.1	80.4	0.4	0.0	0.6	1.0	0.0	1 NS	60
MONTANA									
Area A	61.9	81.4	0.0	0.0	0.5	0.5	0.0	1 NS	71
Area B	61.2	80.5	0.0	0.0	1.4	1.4	0.0	1 DNS	76
Area C	61.4	80.7	0.0	0.0	1.1	1.1	0.0	1 DNS	83
Area D	60.6	79.7	0.1	0.0	1.4	1.5	0.0	1 NS	48
Area E	59.0	77.6	0.0	0.0	1.0	1.0	0.0	1 DNS	79
State Avg. 2010	61.3	80.6	0.0	0.0	1.0	1.0	0.0	1 NS	74
State Avg. 2009	61.2	80.5	0.0	0.0	1.2	1.2	0.0	1 DNS	82
NORTH DAKOTA									
Area A	61.9	81.4	0.0	0.0	1.2	1.2	0.0	1 NS	70
Area B	62.0	81.5	0.0	0.0	0.6	0.6	0.0	1 NS	60
Area C	62.8	82.6	0.0	0.0	0.6	0.6	0.0	1 NS	71
Area D	61.1	80.4	0.2	0.0	1.8	2.0	0.0	1 DNS	82
Area E	61.5	80.9	0.1	0.0	1.7	1.8	0.0	1 NS	73
Area F	61.4	80.7	0.0	0.0	0.6	0.6	0.0	1 NS	71
State Avg. 2010	61.8	81.3	0.0	0.0	1.1	1.1	0.0	1 NS	70
State Avg. 2009	62.5	82.2	0.2	0.0	0.7	0.9	0.0	1 NS	74
SOUTH DAKOTA									
Area A	61.2	80.5	0.0	0.0	1.2	1.2	0.0	1 NS	66
Area B	60.7	79.8	0.2	0.0	1.1	1.3	0.0	1 DNS	76
Area C	60.5	79.6	0.0	0.0	1.1	1.1	0.0	1 DNS	84
State Avg. 2010	60.7	79.9	0.1	0.0	1.1	1.2	0.0	1 DNS	77
State Avg. 2009	60.5	79.5	0.6	0.0	0.6	1.2	0.0	1 NS	54
FOUR-STATE REGION									
Avg. 2010	61.6	81.0	0.1	0.0	1.0	1.1	0.0	1 NS	70
Avg. 2009	61.8	81.3	0.2	0.0	0.7	1.0	0.0	1 NS	71
Five-Year Avg	60.9	80.1	0.4	0.0	1.2	1.6	0.0	1 NS	74

Other basic criteria beyond grading factors used to determine wheat's initial value in the marketing system include protein, moisture, dockage, falling number and ash content.

Protein is probably the most important factor in determining the value of hard red spring wheat since it relates to many processing properties. Prices for hard red spring wheat in the U.S. market 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, depending upon the crops protein levels and distribution available to the market.

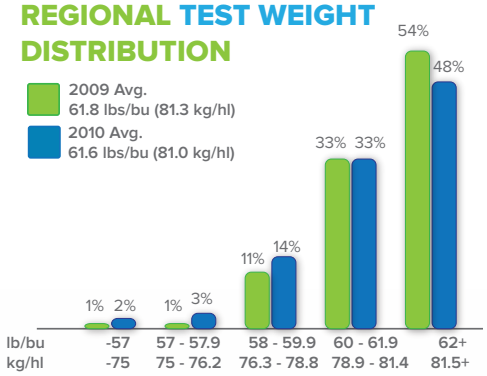
Moisture content is an indicator of grain storability. Wheat with low moisture content is more stable during storage. Moisture content also can be an indicator of profitability in milling.

Dockage is any material easily removed from a wheat sample using standard mechanical means. Dockage removal is the first step in analyzing a sample. All other factors are determined only after dockage is removed.

Falling number indicates the soundness of wheat or its alpha-amylase activity. Low falling numbers show high activity associated with sprout damage.

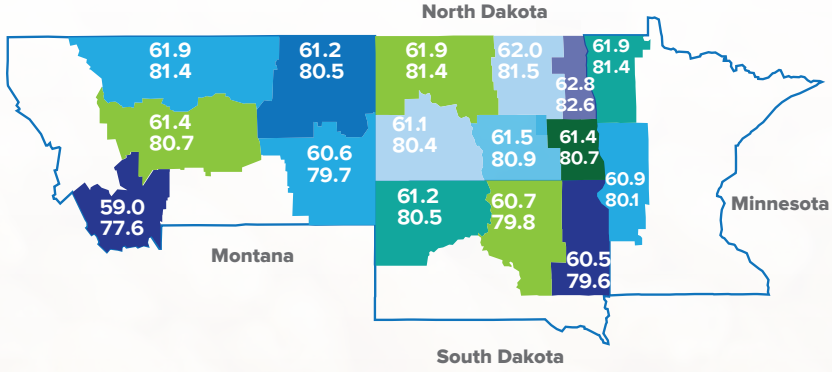
Ash content primarily concentrated in the bran, is an indication of the yield that can be expected in milling white flour.

REGIONAL TEST WEIGHT DISTRIBUTION



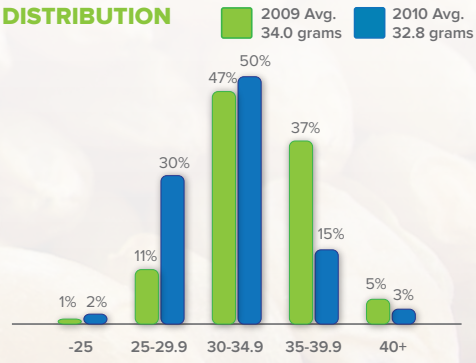
Ninety-five percent of the 2010 samples have a test weight of 58 lb/bu (76.3 kg/hl) or greater. The regional average test weight is 61.6 lb/bu (81.3 kg/hl) higher than the five-year average.

REGIONAL TEST WEIGHT BY AREA



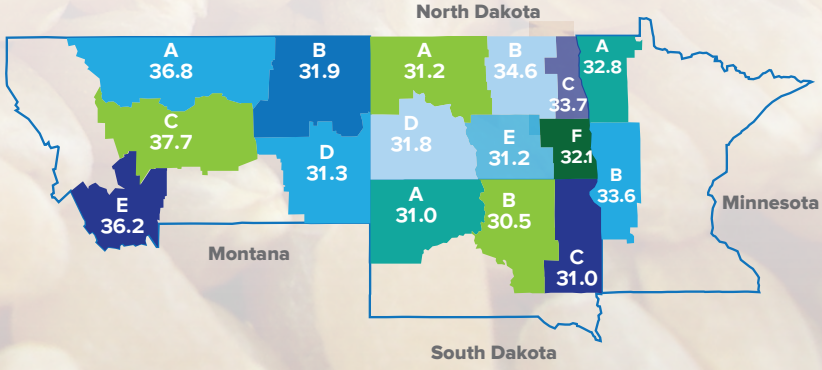
Pounds per bushel - top
Kilograms per hectoliter - bottom

REGIONAL 1000 KERNEL WEIGHT DISTRIBUTION



Sixty-eight percent of the 2010 samples have a thousand kernel weight of 30 grams or more.

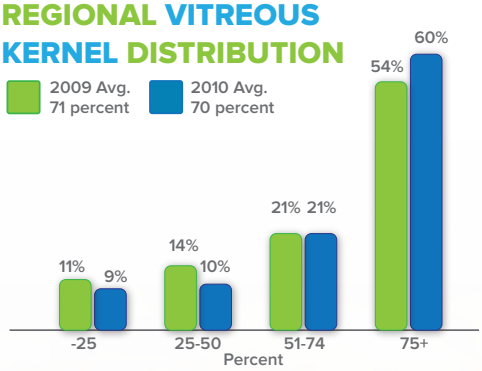
REGIONAL 1000 KERNEL WEIGHT BY AREA (grams)



OTHER KERNEL QUALITY DATA

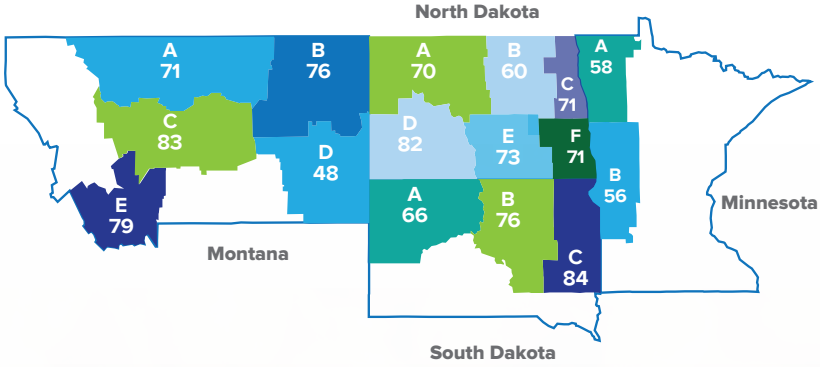
STATE AND CROP REPORTING AREA	DOCKAGE %	MOISTURE %	1000 KERNEL WEIGHT G	KERNEL DIST. Medium %	KERNEL DIST. Large %	PROTEIN (Dry Matter) %	PROTEIN (12% Moisture) %	WHEAT ASH %	FALLING NUMBER (Sec)	ZELENY SEDIMENTATION (cc)
MINNESOTA										
Area A	0.5	13.2	32.8	36	62	14.9	13.1	1.45	406	48
Area B	0.5	13.0	33.6	36	62	15.7	13.8	1.61	414	47
State Avg. 2010	0.5	13.2	33.0	36	62	15.1	13.3	1.49	408	48
State Avg. 2009	0.7	13.3	33.9	42	56	14.1	12.4	1.53	327	45
MONTANA										
Area A	0.6	12.2	36.8	40	59	14.5	12.8	1.45	388	60
Area B	0.8	12.2	31.9	56	41	15.2	13.4	1.43	395	60
Area C	0.6	12.0	37.7	40	59	15.3	13.5	1.42	396	61
Area D	0.3	12.2	31.3	56	39	15.3	13.5	1.51	420	60
Area E	0.3	12.9	36.2	34	63	15.5	13.6	1.51	338	65
State Avg. 2010	0.6	12.2	34.2	48	50	15.0	13.2	1.45	390	60
State Avg. 2009	0.5	11.2	33.3	51	47	15.6	13.7	1.50	393	65
NORTH DAKOTA										
Area A	1.1	12.7	31.2	43	55	16.1	14.1	1.48	355	64
Area B	0.7	13.0	34.6	41	57	15.4	13.6	1.62	379	61
Area C	0.4	12.6	33.7	42	57	15.1	13.3	1.61	360	60
Area D	0.6	11.8	31.8	64	31	16.5	14.5	1.68	387	60
Area E	0.7	12.2	31.2	51	46	16.4	14.4	1.66	396	62
Area F	1.3	13.1	32.1	44	54	15.7	13.8	1.66	418	56
State Avg. 2010	0.8	12.6	32.6	47	51	15.8	13.9	1.61	377	61
State Avg. 2009	0.7	13.2	34.1	36	62	14.8	13.0	1.49	378	60
SOUTH DAKOTA										
Area A	0.9	12.2	31.0	49	48	15.3	13.5	1.60	406	55
Area B	0.6	12.2	30.5	54	42	16.2	14.2	1.72	414	54
Area C	0.4	12.5	31.0	46	51	16.7	14.7	1.71	365	60
State Avg. 2010	0.6	12.3	30.7	52	45	16.2	14.2	1.70	402	56
State Avg. 2009	1.0	12.4	34.5	36	63	15.7	13.8	1.61	405	55
FOUR-STATE REGION										
Avg. 2010	0.7	12.6	32.8	46	52	15.6	13.7	1.57	387	58
Avg. 2009	0.7	12.8	34.0	39	59	14.9	13.1	1.51	375	58
Five-Year Avg	0.8	12.3	31.3	46	48	16.1	14.2	1.58	403	57

REGIONAL VITREOUS KERNEL DISTRIBUTION

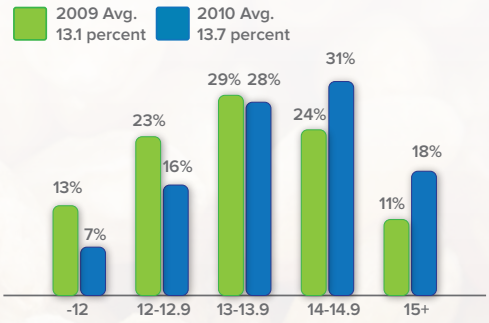


Sixty percent of the 2010 samples have a dark, hard vitreous kernel count of 75 or better.

REGIONAL VITREOUS KERNEL BY AREA (percent)

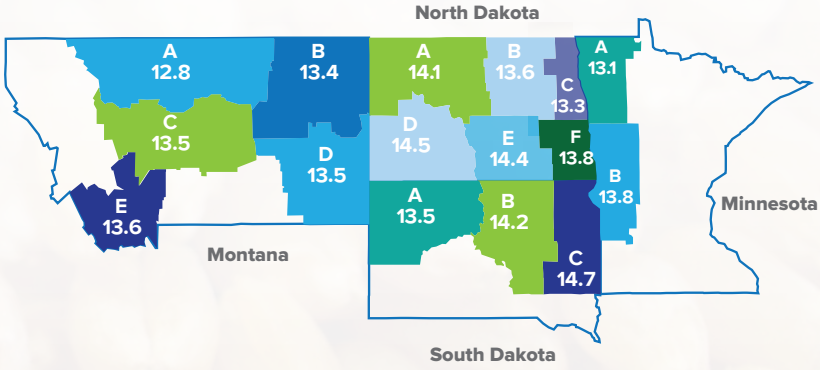


REGIONAL PROTEIN DISTRIBUTION (12% moisture basis)



Forty-nine percent of the 2010 samples have a protein content of 14.0 percent or greater, up from thirty-five percent in 2009.

REGIONAL PROTEIN BY AREA (12% moisture basis-percent)



REGIONAL PROTEIN RANGE BY AREA (12% moisture basis-percent)

Montana A	11.1-14.9	North Dakota A	10.8-15.8	Minnesota A	11.2-16.0
Montana B	10.7-15.0	North Dakota B	11.8-15.5	Minnesota B	12.3-16.2
Montana C	13.1-14.1	North Dakota C	11.7-15.8		
Montana D	13.8-14.1	North Dakota D	12.7-17.3		
Montana E	12.3-14.7	North Dakota E	12.5-17.1		
		North Dakota F	11.6-15.3		
		South Dakota A	12.2-15.3		
		South Dakota B	13.2-16.5		
		South Dakota C	12.3-16.0		

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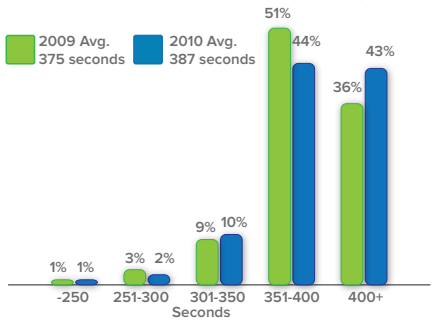
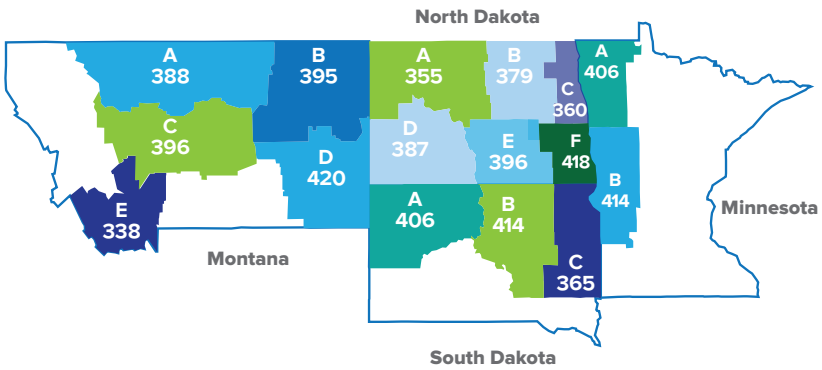
REGIONAL FALLING NUMBER DISTRIBUTION (seconds)

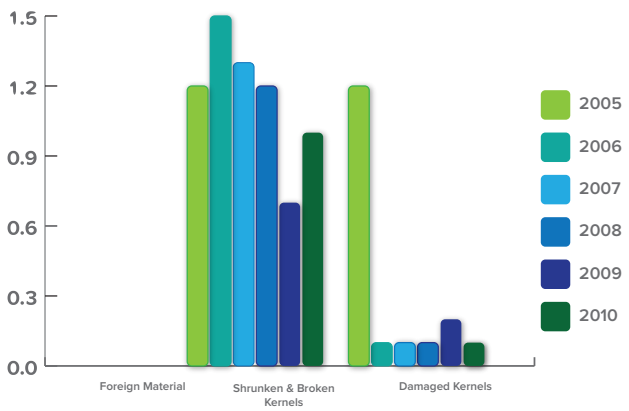


Eighty-seven percent of the 2010 samples have a falling number of 350 seconds or greater.

REGIONAL FALLING NUMBER BY AREA (seconds)

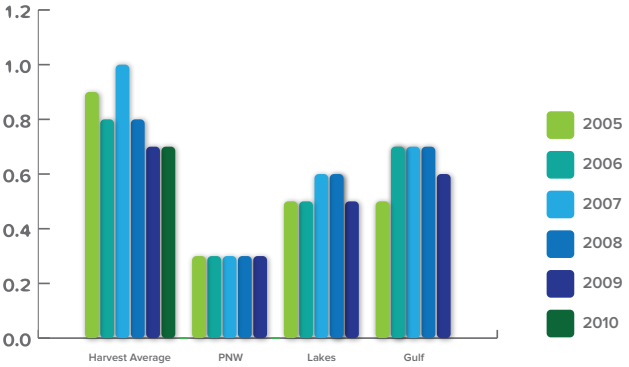


REGIONAL AVERAGE TOTAL DEFECTS (percent)



Average total defects are 1.1 percent, a slight increase from 2009.

REGIONAL AVERAGE DOCKAGE (percent)



Export Cargo Averages

MILLING CHARACTERISTICS

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. The lower the ash, the whiter and more refined the flour.

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 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. Amylograph peak viscosity is another measure of enzyme activity.

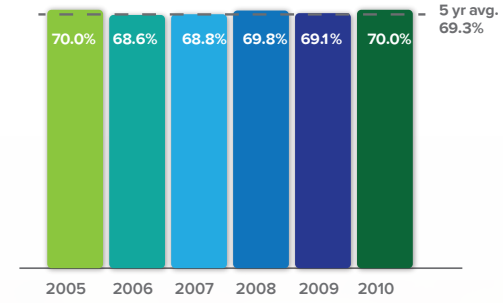
U.S. HARD RED SPRING WHEAT

MINNESOTA | MONTANA | NORTH DAKOTA | SOUTH DAKOTA

FLOUR QUALITY DATA

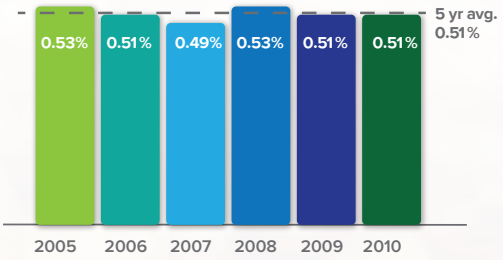
STATE AND CROP REPORTING AREA	FLOUR EXTRACTION %	FLOUR ASH %	FLOUR PROTEIN (14% moisture) %	STARCH DAMAGE %	WET GLUTEN %	GLUTEN INDEX %	FALLING NUMBER sec	AMYLOGRAPH PEAK VISCOSITY 65G FL B.U.	AMYLOGRAPH PEAK VISCOSITY 100 G FL B.U.
MINNESOTA									
Area A	71.6	0.54	12.1	8.4	31.4	95	396	566	2780
Area B	71.2	0.57	12.6	8.1	33.1	89	391	568	2570
State Avg. 2010	71.5	0.55	12.2	8.3	31.8	93	395	567	2728
State Avg. 2009	69.8	0.51	11.6	8.2	30.2	98	365	439	1582
MONTANA									
Area A	70.3	0.50	11.8	7.6	31.6	97	413	554	2880
Area B	69.2	0.45	12.1	7.4	34.0	95	392	698	2920
Area C	70.5	0.53	12.6	8.5	34.1	97	439	641	3040
Area D	68.4	0.49	12.6	7.7	34.0	96	425	725	3280
Area E	71.1	0.60	12.8	8.5	32.6	99	385	382	1880
State Avg. 2010	69.7	0.48	12.1	7.6	33.0	96	403	625	2864
State Avg. 2009	67.4	0.48	13.0	7.7	37.9	92	424	720	2589
NORTH DAKOTA									
Area A	70.0	0.48	13.0	7.7	36.1	96	354	490	1680
Area B	69.5	0.51	12.5	8.2	34.7	96	387	619	2760
Area C	70.6	0.48	12.4	8.3	32.9	98	378	528	2410
Area D	68.8	0.50	13.2	7.7	35.2	98	398	639	3080
Area E	70.0	0.54	13.0	7.8	35.6	93	396	642	2995
Area F	70.7	0.56	12.8	8.6	33.6	89	416	640	2960
State Avg. 2010	69.8	0.50	12.8	8.0	34.8	96	383	582	2552
State Avg. 2009	69.0	0.51	12.3	8.6	33.2	98	394	607	2064
SOUTH DAKOTA									
Area A	70.3	0.52	12.3	7.8	33.8	95	407	556	2590
Area B	69.6	0.55	13.0	7.8	36.4	88	406	535	2520
Area C	69.1	0.59	13.4	7.8	37.7	90	380	333	1540
State Avg. 2010	69.6	0.56	13.0	7.8	36.4	89	400	491	2303
State Avg. 2009	70.6	0.54	12.9	7.3	37.1	84	420	488	1826
FOUR-STATE REGION									
Avg. 2010	70.0	0.51	12.6	7.9	34.2	95	391	578	2613
Avg. 2009	69.1	0.51	12.3	8.2	33.9	95	397	580	2027
Five-Year Avg	69.3	0.51	13.3	7.9	35.5	NA	419	699	2562

REGIONAL AVERAGE FLOUR EXTRACTION



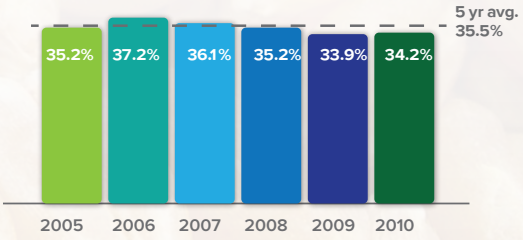
The regional average extraction is 70 percent, higher than 2009 and the five-year average.

REGIONAL AVERAGE ASH CONTENT



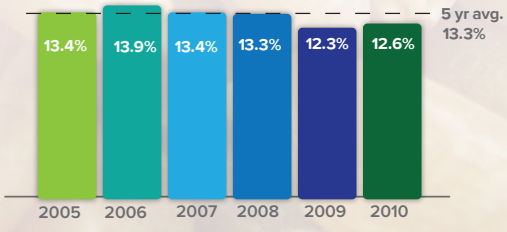
The regional average flour ash is 0.51 percent, the same as 2009 and the five-year average.

REGIONAL AVERAGE WET GLUTEN



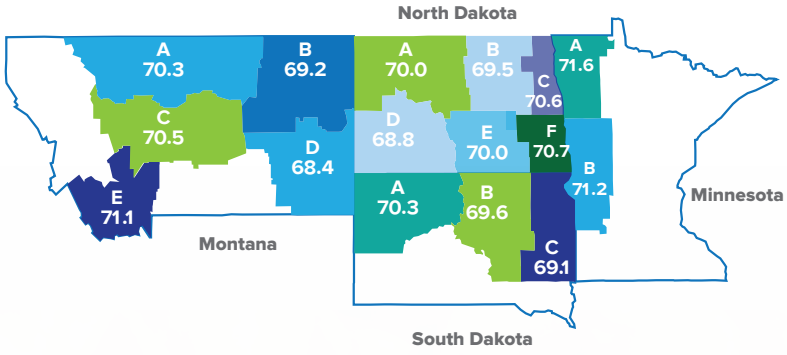
Average wet gluten content for the 2010 crop is 34.2 percent, a slight increase from 2009.

REGIONAL AVERAGE FLOUR PROTEIN CONTENT

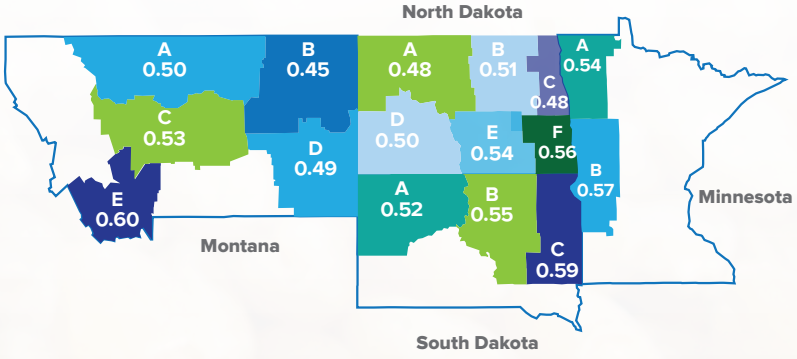


The 2010 crop produced an average flour protein content of 12.6 percent, a slight increase from 2009.

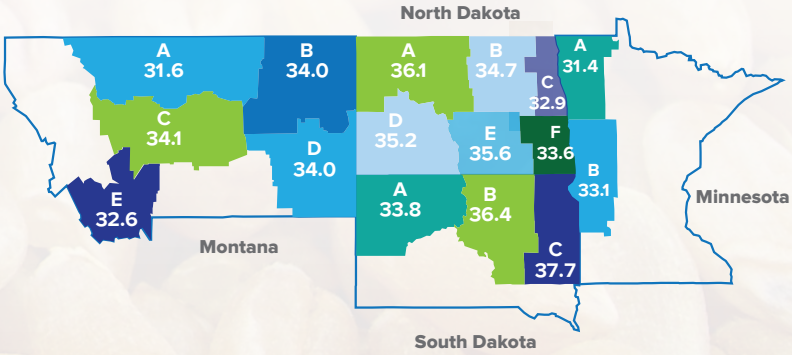
AVERAGE FLOUR EXTRACTON BY AREA (percent)



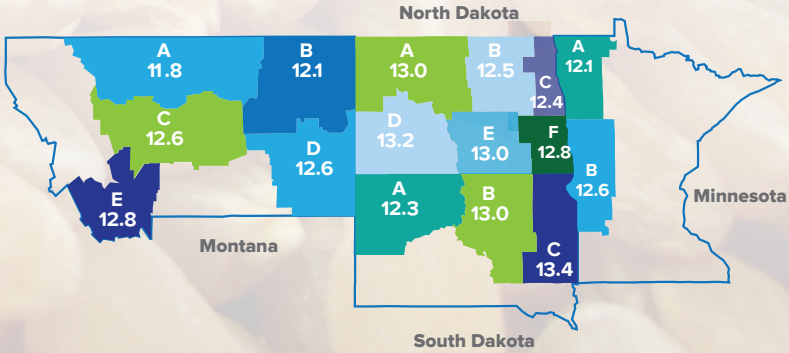
AVERAGE FLOUR ASH BY AREA (percent)



AVERAGE WET GLUTEN BY AREA (percent)



AVERAGE FLOUR PROTEIN BY AREA (percent)



U.S. HARD RED SPRING WHEAT

MINNESOTA | MONTANA | NORTH DAKOTA | SOUTH DAKOTA

DOUGH CHARACTERISTICS

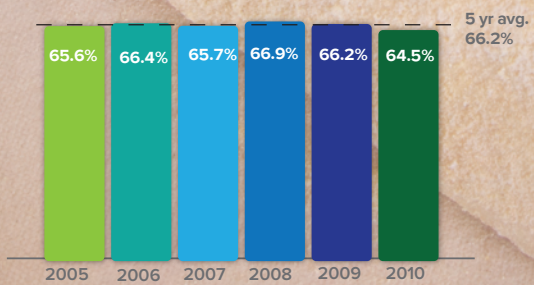
Physical characteristics of dough are evaluated to reveal useful information about variations in flour types, processing requirements and expected end-product quality.

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 development time and mixing tolerance are related to dough strength. Farinograms are rated on a scale of 1 to 8, with higher values indicating strong mixing properties.

The extensigraph 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.

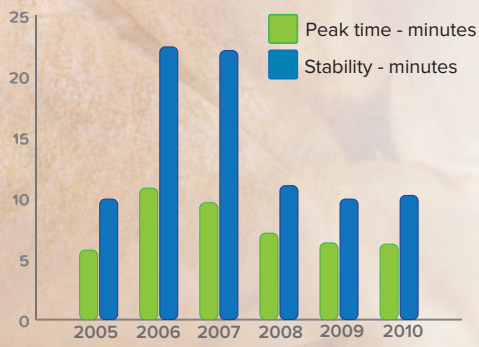
An alveograph traces a curve that measures the air pressure necessary to inflate a piece of dough to the point of rupture. The overpressure (P) value reflects the maximum pressure needed to deform the piece of dough during the inflation process and is an indication of resistance, or dough stability. The length (L) measurement reflects dough extensibility. The deformation energy (W) measurement is the amount of energy needed to inflate the dough to the point of rupture and is indicative of dough strength.

REGIONAL AVERAGE FARINOGRAM ABSORPTION



The average farinogram absorption is 64.5 percent, lower than last year and the five-year average.

REGIONAL AVERAGE FARINOGRAPH RESULTS

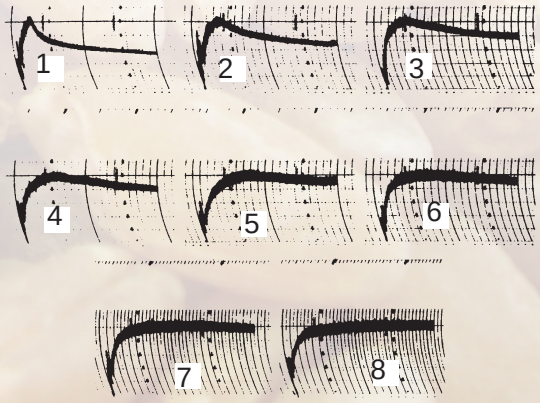


The 2010 average peak time is 6.2 minutes and stability is 10.2 minutes, similar to 2009.

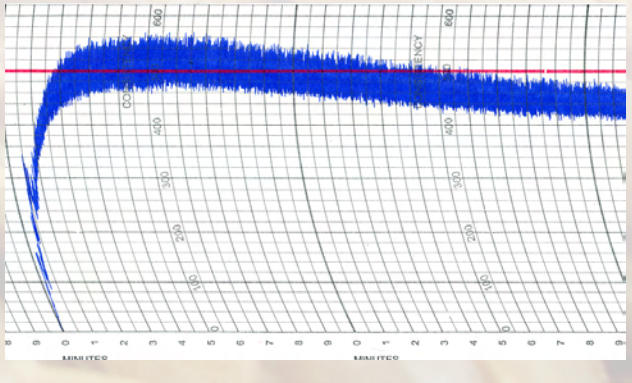
PHYSICAL DOUGH PROPERTIES

STATE AND CROP REPORTING AREA	FARINOGRAPH ABSORPTION %	PEAK TIME min	STABILITY min	MTI B.U.	CLASSIFICATION	VALORIMETER
MINNESOTA						
Area A	63.9	6.0	9.0	40	4.0	52
Area B	64.7	6.0	9.5	40	5.0	61
State Avg. 2010	64.1	6.0	9.1	40	4.3	54
State Avg. 2009	64.2	5.4	10.1	35	4.7	58
MONTANA						
Area A	63.6	7.0	10.5	35	5.0	65
Area B	64.2	7.5	10.0	40	5.0	68
Area C	65.0	6.0	11.0	30	5.0	64
Area D	64.8	7.5	11.5	35	5.0	69
Area E	66.6	7.5	8.5	50	4.0	67
State Avg. 2010	64.2	7.2	10.2	38	4.9	67
State Avg. 2009	66.3	7.4	10.2	37	4.9	69
NORTH DAKOTA						
Area A	65.0	7.5	11.5	40	5.0	68
Area B	65.2	5.0	9.5	20	5.0	57
Area C	64.4	6.0	12.0	25	6.0	62
Area D	64.7	6.5	11.0	30	5.0	64
Area E	63.8	6.5	14.0	30	6.0	65
Area F	65.0	5.5	10.0	35	4.0	59
State Avg. 2010	64.8	6.2	11.1	29	5.2	63
State Avg. 2009	66.6	6.5	10.3	38	5.1	63
SOUTH DAKOTA						
Area A	64.1	6.0	9.0	40	4.0	62
Area B	64.8	4.5	6.5	50	4.0	55
Area C	65.0	5.0	7.5	40	4.0	56
State Avg. 2010	64.7	4.8	7.0	47	4.0	56
State Avg. 2009	66.5	5.2	7.3	41	3.1	56
FOUR-STATE REGION						
Avg. 2010	64.5	6.2	10.2	35	4.8	61
Avg. 2009	66.2	6.3	9.9	38	4.8	62
Five-Year Avg	66.2	7.9	15.1	28	5.9	70

REFERENCE FARINOGRAMS FOR HARD RED SPRING WHEAT



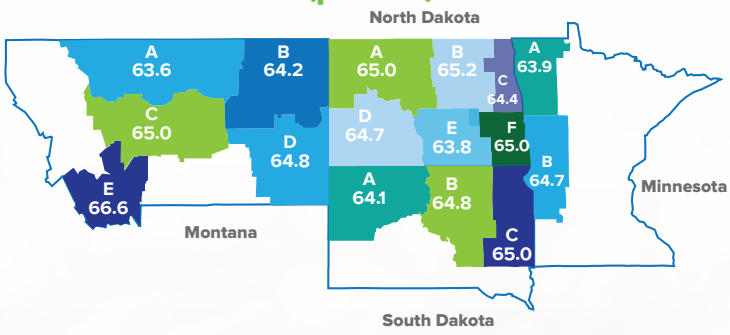
2010 AVERAGE FARINOGRAM



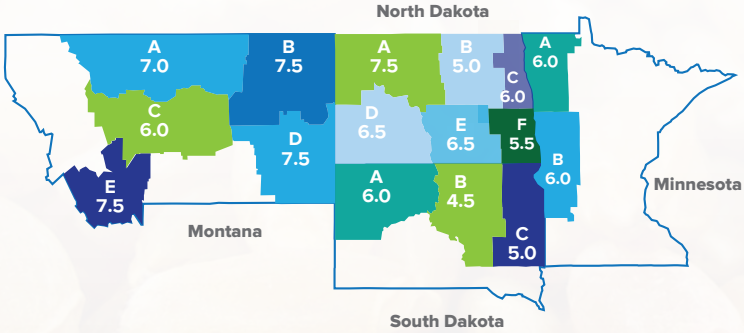
U.S. HARD RED SPRING WHEAT

MINNESOTA | MONTANA | NORTH DAKOTA | SOUTH DAKOTA

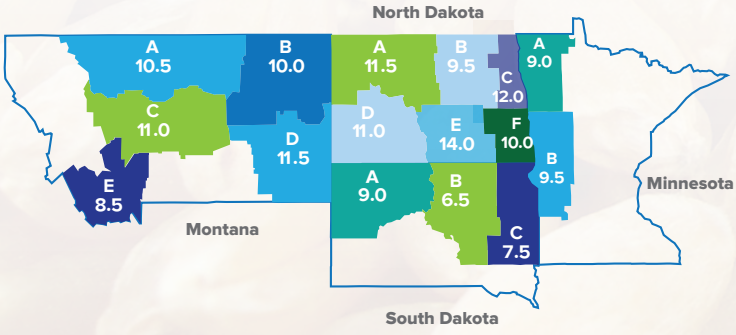
AVERAGE FARINOGRAM ABSORPTION BY AREA (percent)



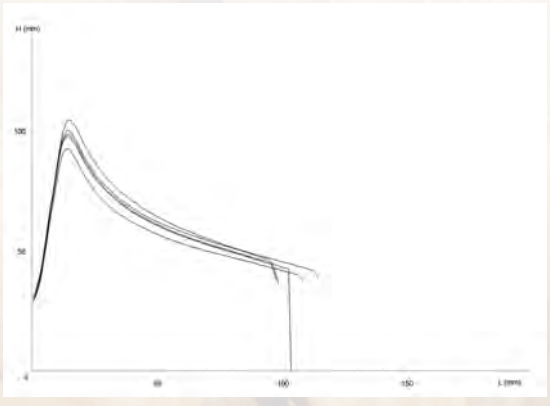
AVERAGE PEAK TIME BY AREA (minutes)



AVERAGE STABILITY BY AREA (minutes)

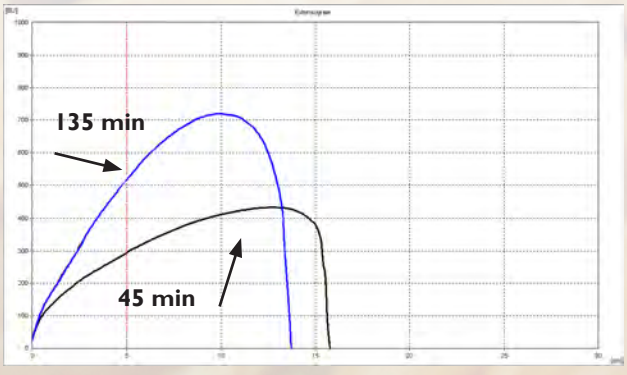


2010 AVERAGE ALVEOGRAM



P-curve height shows maximum pressure needed to deform dough, indicating stability.
L-length of curve reflects extensibility.
W- measurement of total energy or work needed to inflate dough.

2010 AVERAGE EXTENSIGRAM

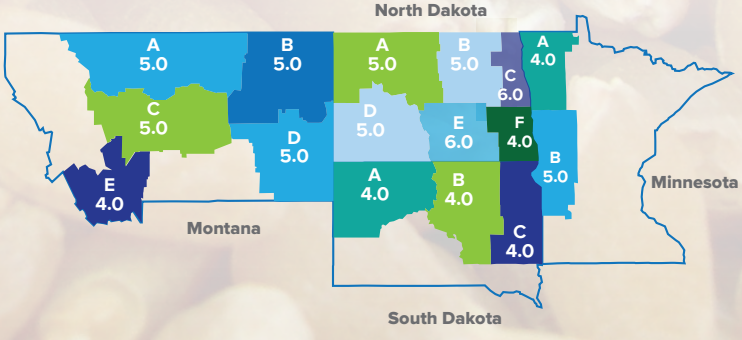


Indicates extensibility and resistance to extesension. Area beneath curve indicates the energy or work required.

PHYSICAL DOUGH PROPERTIES

	EXTENSIGRAPH						ALVEOGRAPH			
STATE AND CROP REPORTING AREA	EXTENSIBILITY 45 MIN cm	RESISTANCE 45 MIN B.U.	AREA sq cm	EXTENSIBILITY 135 MIN cm	RESISTANCE 135 MIN B.U.	AREA sq cm	p mm	L mm	P/L ratio	W joules X 10^4
MINNESOTA										
Area A	17.3	524	122	15.2	669	127	105	103	1.01	394
Area B	16.7	451	97	14.9	637	121	100	109	0.92	381
State Avg. 2010	17.2	506	116	15.1	661	126	104	105	0.99	391
State Avg. 2009	19.0	387	98	19.1	447	112	95	120	0.79	383
MONTANA										
Area A	14.8	410	79	12.2	774	117	107	103	1.04	375
Area B	15.8	434	91	13.7	719	124	102	107	0.95	373
Area C	16.4	529	115	15.2	774	150	113	106	1.07	432
Area D	16.2	493	105	15.3	693	134	117	105	1.11	429
Area E	18.7	430	107	17.0	661	147	106	123	0.86	421
State Avg. 2010	15.7	432	89	13.5	737	125	105	106	0.99	382
State Avg. 2009	18.6	371	93	18.8	454	113	97	134	0.72	411
NORTH DAKOTA										
Area A	17.0	562	119	14.3	950	173	105	118	0.88	452
Area B	16.1	557	118	15.7	747	150	113	111	1.02	447
Area C	16.6	548	113	13.4	788	126	109	101	1.08	410
Area D	17.2	547	121	13.4	825	137	103	119	0.87	428
Area E	18.1	504	120	14.2	704	132	105	121	0.87	454
Area F	15.9	464	94	15.6	587	115	109	108	1.01	416
State Avg. 2010	16.8	541	116	14.5	795	144	108	113	0.96	437
State Avg. 2009	19.5	422	110	18.8	502	124	99	123	0.80	404
SOUTH DAKOTA										
Area A	16.1	403	85	14.7	558	107	100	102	0.98	347
Area B	16.0	290	64	15.7	421	90	88	99	0.89	270
Area C	15.7	328	70	15.9	537	112	86	114	0.75	297
State Avg. 2010	15.9	312	68	15.6	464	97	89	103	0.86	285
State Avg. 2009	18.1	238	61	18.7	265	69	82	110	0.75	251
FOUR-STATE REGION										
Avg. 2010	16.5	489	105	14.5	726	132	104	109	0.95	402
Avg. 2009	19.2	386	100	18.8	456	114	96	122	0.79	382
Five-Year Avg	19.4	463	117	19.4	555	137	110	109	1.01	411

AVERAGE DOUGH CLASSIFICATION BY AREA
(scale of 1-8)



BAKING CHARACTERISTICS

The gluten strength in flour milled from U.S. hard red spring wheat is essential to supporting the heavy ingredients in many whole grain and artisan breads.

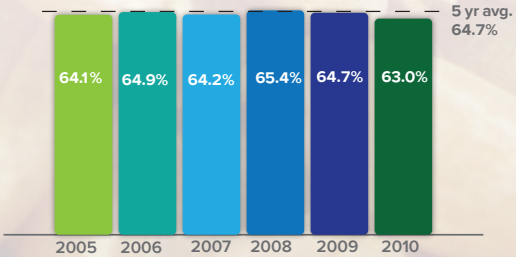
Although consumers make the ultimate judgement, baking tests are the final laboratory method for evaluating wheat quality. In general, a good correlation exists between loaf volume and protein quantity and quality.

Laboratory technicians also visually evaluate test loaves for crumb grain, texture and color, as well as crust color and loaf symmetry.

BAKING DATA

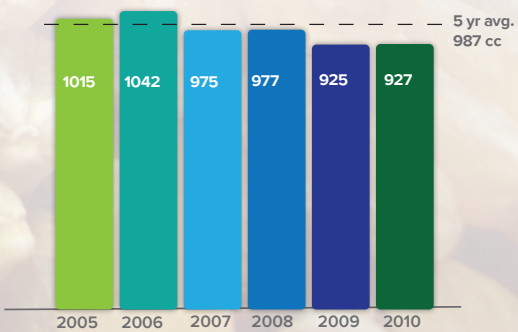
STATE AND CROP REPORTING AREA	BAKING ABSORPTION %	DOUGH HANDLING PROPERTIES	LOAF VOLUME CC	GRAIN AND TEXTURE	CRUMB COLOR	CRUST COLOR	SYMMETRY
MINNESOTA							
Area A	62.4	10.0	915	7.3	8.8	9.5	7.0
Area B	63.2	10.0	945	8.3	9.0	10.0	9.5
State Avg. 2010	62.6	10.0	923	7.5	8.8	9.6	7.6
State Avg. 2009	62.7	10.0	924	8.5	8.6	10.0	8.6
MONTANA							
Area A	62.1	10.0	853	8.3	9.3	10.0	8.5
Area B	62.7	10.0	915	7.8	8.5	10.0	8.0
Area C	63.5	10.0	920	8.3	9.5	9.5	8.0
Area D	63.3	10.0	878	7.8	8.5	9.5	7.5
Area E	65.1	10.0	955	8.3	9.5	9.0	9.5
State Avg. 2010	62.7	10.0	894	8.0	8.9	9.9	8.3
State Avg. 2009	64.8	10.0	964	8.3	9.0	10.0	8.7
NORTH DAKOTA							
Area A	63.5	10.0	978	8.0	8.5	10.0	8.5
Area B	63.7	10.0	915	8.3	9.3	10.0	8.0
Area C	62.9	10.0	933	8.0	9.0	10.0	8.5
Area D	63.2	10.0	960	8.8	8.5	10.0	8.0
Area E	62.3	10.0	928	8.8	9.3	10.0	8.5
Area F	63.5	10.0	935	9.3	9.5	10.0	8.0
State Avg. 2010	63.3	10.0	943	8.4	8.9	10.0	8.2
State Avg. 2009	65.1	9.9	918	8.7	8.8	10.0	8.0
SOUTH DAKOTA							
Area A	62.6	10.0	858	9.0	8.8	10.0	8.0
Area B	63.3	10.0	915	9.3	8.8	10.0	9.0
Area C	63.5	10.0	955	9.0	9.0	10.0	9.0
State Avg. 2010	63.2	10.0	917	9.2	8.8	10.0	8.9
State Avg. 2009	65.0	9.0	918	9.0	9.3	10.0	8.5
FOUR-STATE REGION							
Avg. 2010	63.0	10.0	927	8.2	8.9	9.9	8.2
Avg. 2009	64.7	9.8	925	8.6	8.9	10.0	8.3
Five-Year Avg	64.7	9.7	987	8.2	8.3	10.0	9.5

REGIONAL AVERAGE BAKING ABSORPTION



Baking absorption for the 2010 crop is 63.0 percent, lower than last year and the five-year average.

REGIONAL AVERAGE LOAF VOLUME (cubic centimeters)

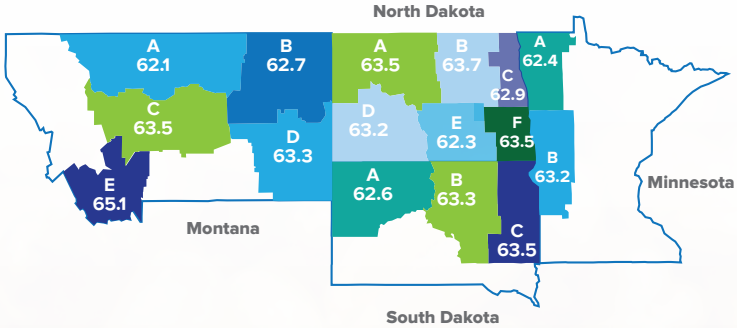


Loaf volume for the 2010 crop is 927 cubic centimeters, slightly higher than 2009.

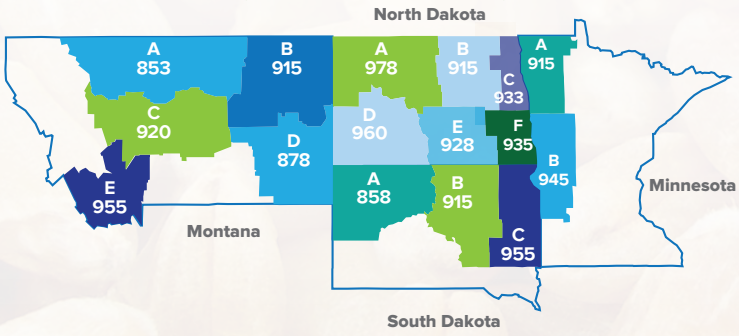
U.S. HARD RED SPRING WHEAT

MINNESOTA | MONTANA | NORTH DAKOTA | SOUTH DAKOTA

AVERAGE BAKING ABSORPTION BY AREA
(percent)

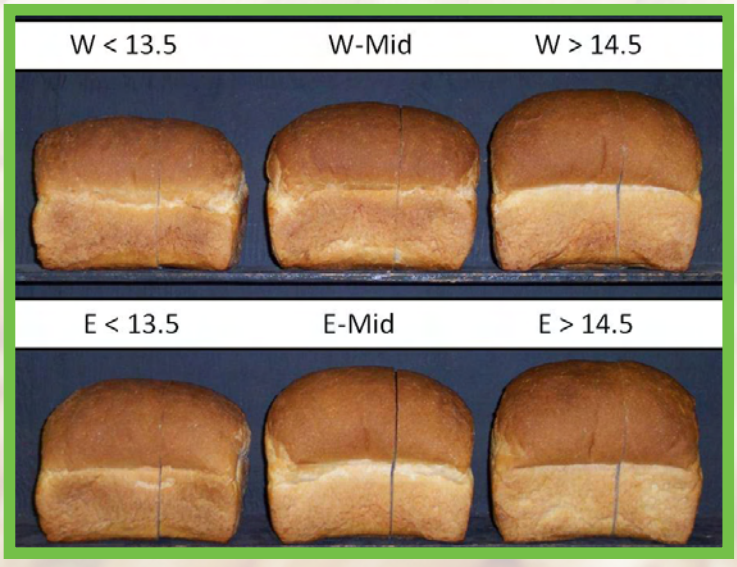


AVERAGE LOAF VOLUME BY AREA
(cubic centimeters)



Final loaves representing the regional protein composites for the 2010 crop. W - represents PNW tributary region and E - represents the Gulf/ Great Lakes tributary.

Photo: NDSU Quality Lab



SUMMARY INFORMATION

AVERAGE QUALITY FACTORS FOR THE REGIONAL HARD RED SPRING WHEAT CROP

	2005	2006	2007	2008	2009	Five-year Average	2010
WHEAT GRADING DATA							
Test Weight (lb/bu)	60.2	60.6	61.1	61.0	61.8	60.9	61.6
Test Weight (kg/hl)	79.1	79.7	80.4	80.2	81.3	80.1	81.0
Vitreous Kernels (%)	68	82	79	71	71	74	70
1000 Kernel Weight (gm)	29.8	28.9	31.2	32.6	34.0	31.3	32.8
Protein 12% moisture (%)	14.6	15.0	14.2	14.3	13.1	14.2	13.7
Protein dry (%)	16.5	17.1	16.1	16.2	14.9	16.2	15.6
Ash: 14% moisture (%)	1.72	1.53	1.60	1.55	1.51	1.58	1.57
Falling Number (sec)	414	416	428	379	375	403	387
FLOUR DATA							
Extraction (%)	70.0	68.6	68.8	69.8	69.1	69.3	70.0
Ash: 14% moisture (%)	0.53	0.51	0.49	0.53	0.51	0.51	0.51
Protein: 14% moisture (%)	13.4	13.9	13.4	13.3	12.3	13.3	12.6
Wet Gluten (%)	35.2	37.2	36.1	35.2	33.9	35.5	34.2
Falling Number (sec)	418	436	449	397	397	419	391
Amylograph Peak Viscosity							
65g FL (B.U.)	731	783	711	689	580	699	578
100g FL (B.U.)	2547	3086	2647	2501	2027	2562	2613
PHYSICAL DOUGH PROPERTIES							
Farinograph:							
Absorption (%)	65.6	66.4	65.7	66.9	66.2	66.2	64.5
Peak Time (min)	5.7	10.8	9.6	7.1	6.3	7.9	6.2
Stability (min)	9.9	22.4	22.1	11.0	9.9	15.1	10.2
Classification	5.1	7.5	6.9	5.0	4.8	5.9	4.8
	(med)	(med)	(strong)	(med)	(med)	(med)	(med)
Extensigraph:							
Extensibility-45 min (cm)	21.0	20.7	17.0	19.1	19.2	19.4	16.5
Resistance-45 min (B.U.)	458	544	508	418	386	463	489
Area-45 min (sq cm))	125	143	110	107	100	117	105
Alveograph:							
P (mm)	112	116	116	108	96	110	104
L (mm)	102	106	104	110	122	109	109
W (joules X 10^4	382	453	433	406	382	411	402
BAKING DATA							
Absorption (%)	64.1	64.9	64.2	65.4	64.7	64.7	63.0
Dough Handling Properties	8.5	10.0	10.0	10.0	9.8	9.7	10.0
Loaf Volume (CC)	1015	1042	975	977	925	987	927
Grain and Texture	7.7	8.0	7.9	8.9	8.6	8.2	8.2
Crumb Color	8.0	7.7	8.2	8.8	8.9	8.3	8.9
Crust Color	10.0	10.0	10.0	10.0	10.0	10.0	9.9
Symmetry	10.0	9.9	9.9	9.3	8.3	9.5	8.2

2010 QUALITY FACTORS BY PROTEIN RANGE

PNW	Protein Ranges		
Production %	39%	29%	32%
WHEAT GRADING DATA	**Low**	**Medium**	**High**
Test Weight (lb/bu)	61.6	61.4	60.7
Test Weight (kg/hl)	81.0	80.7	79.8
Damage (%)	0.0	0.1	0.0
Shrunken/Broken (%)	1.3	1.7	1.4
Total Defects (%)	1.3	1.8	1.4
Vitreous Kernels (%)	65.0	74.0	84.0
Grade	1 NS	1 NS	1 DNS
WHEAT DATA			
Dockage (%)	0.4	0.5	0.6
Moisture (%)	13.0	12.8	12.5
Protein: 12%/0% moisture (%)	12.4/14.1	14.0/15.9	15.2/17.3
Ash: 14%/0% moisture (%)	1.53/1.78	1.45/1.69	1.50/1.74
1000 Kernel Weight	33.4	32.3	31.2
Falling Number (sec)	363	360	375
Sedimentation (cc)	53	59	61
FLOUR DATA			
Extraction (%)	69.5	69.3	68.1
Color: L	90.9	90.7	90.5
a	-1.2	-1.1	-1.1
b	9.7	9.7	9.8
Protein: 14%/0% moisture (%)	11.3/13.1	12.9/15.0	14.0/16.3
Ash: 14%/0% moisture (%)	0.48/0.56	0.48/.056	0.52/0.60
Wet Gluten (%)	29.2	35.6	38.2
Gluten Index (%)	98.4	97.3	92.4
Falling Number (sec)	390	406	375
Amylograph Viscosity: 65g FL (BU)	604	672	480
DOUGH PROPERTIES			
Farinograph: Absorption (%)	63.3	65.2	65.7
Peak Time (min)	5.0	7.0	8.0
Stability (min)	9.5	11.5	11.0
Classification	5.0	5.0	5.0
Alveograph: P (mm)	108	107	101
L (mm)	100	118	118
P/L Ratio	1.08	0.91	0.86
W (10^{-4} joules)	378	441	418
Extensograph (45/135 min): Resistance	495/802	545/734	462/741
Extensibility (cm)	14.4/13.3	16.4/16.0	17.2/16.4
Area (sq cm)	93/134	115/146	100/158
BAKING DATA			
Absorption (%)	61.8	63.7	64.2
Crumb Grain and Texture	8.3	8.8	8.0
Loaf Volume (cc)	840	968	1035

Samples in this region were collected from Montana, North Dakota areas A and D, and South Dakota area A.

GULF/GREAT LAKES	Protein Ranges		
Production %	40%	34%	25%
WHEAT GRADING DATA	**Low**	**Medium**	**High**
Test Weight (lb/bu)	61.8	62.2	61.6
Test Weight (kg/hl)	81.3	81.8	81.0
Damage (%)	0.1	0.1	0.1
Shrunken/Broken (%)	0.8	0.8	1.0
Total Defects (%)	0.9	0.9	1.1
Vitreous Kernels (%)	49	69	70
Grade	1 NS	1 NS	1 NS
WHEAT DATA			
Dockage (%)	0.8	1.1	0.9
Moisture (%)	12.2	12.4	12.0
Protein: 12%/0% moisture (%)	12.6/14.3	13.8/15.7	15.2/17.3
Ash: 14%/0% moisture (%)	1.56/1.81	1.64/1.91	1.69/1.97
1000 Kernel Weight	32.6	31.6	33.2
Falling Number (sec)	403	410	387
Sedimentation (cc)	51	65	65
FLOUR DATA			
Extraction (%)	71.9	70.1	69.7
Color: L	90.7	90.6	90.2
a	-.09	-.09	-1.0
b	8.9	9.3	9.8
Protein: 14%/0% moisture (%)	11.6/13.5	12.8/14.9	14.0/16.3
Ash: 14%/0% moisture (%)	0.55/0.64	0.56/0.65	0.59/0.69
Wet Gluten (%)	30.2	34.8	37.6
Gluten Index (%)	98.7	98.1	96.3
Falling Number (sec)	387	398	403
Amylograph Viscosity: 65g FL (BU)	598	612	487
DOUGH PROPERTIES			
Farinograph: Absorption (%)	63.8	65.8	66.7
Peak Time (min)	3.5	6.5	6.0
Stability (min)	9.0	10.5	9.0
Classification	4.0	5.0	5.0
Alveograph: P (mm)	103	108	99
L (mm)	98	114	108
P/L Ratio	1.05	0.95	0.92
W (10^{-4} joules)	365	430	358
Extensograph (45/135 min): Resistance	458/650	450/644	358/519
Extensibility (cm)	15.3/15.4	16.8/15.2	17.6/16.9
Area (sq cm)	91/133	100/126	84/112
BAKING DATA			
Absorption (%)	62.3	64.3	65.2
Crumb Grain and Texture	8.5	8.5	8.3
Loaf Volume (cc)	893	950	1050

Samples in this region were collected from North Dakota areas B, C, E and F, South Dakota areas B and C, and Minnesota.

2010 REGIONAL QUALITY FACTORS BY PROTEIN RANGE

ENTIRE CROP	Protein Ranges		
Production %	40%	32%	28%
WHEAT GRADING DATA	Low	Medium	High
Test Weight (lb/bu)	61.7	61.9	61.2
Test Weight (kg/hl)	81.2	81.4	80.5
Damage (%)	0.1	0.1	0.1
Shrunken/Broken (%)	1.0	1.1	1.2
Total Defects (%)	1.1	1.2	1.2
Vitreous Kernels (%)	55	71	77
Grade	1 NS	1 NS	1 DNS
WHEAT DATA			
Dockage (%)	0.6	0.9	0.8
Moisture (%)	12.5	12.5	12.2
Protein: 12%/0% moisture (%)	12.5/14.2	13.9/15.8	15.2/17.3
Ash: 14%/0% moisture (%)	1.55/1.80	1.57/1.83	1.60/1.86
1000 Kernel Weight	32.9	31.9	32.3
Falling Number (sec)	387	391	381
Sedimentation (cc)	52	63	63
FLOUR DATA			
Extraction (%)	71.0	69.8	69.0
Color: L	90.8	90.6	90.3
a	-1.0	-1.0	-1.0
b	9.2	9.5	9.8
Protein: 14%/0% moisture (%)	11.4/13.3	12.9/15.0	14.0/16.3
Ash: 14%/0% moisture (%)	0.52/0.60	0.53/0.62	0.56/0.65
Wet Gluten (%)	29.8	35.1	37.9
Gluten Index (%)	98.5	97.8	94.5
Falling Number (sec)	388	401	390
Amylograph Viscosity: 65g FL (BU)	600	634	484
DOUGH PROPERTIES			
Farinograph: Absorption (%)	63.6	65.6	66.2
Peak Time (min)	4.1	6.7	6.9
Stability (min)	9.2	10.9	9.9
Classification	4.4	5.0	5.0
Alveograph: P (mm)	105	108	100
L (mm)	99	115	113
P/L Ratio	1.06	0.94	0.89
W (10^{-4} joules)	370	434	386
Extensograph (45/135 min): Resistance	473/711	486/678	407/623
Extensibility (cm)	14.9/14.6	16.7/15.5	17.4/16.7
Area (sq cm)	92/133	106/133	92/134
BAKING DATA			
Absorption (%)	62.1	64.1	64.7
Crumb Grain and Texture	8.4	8.6	8.1
Loaf Volume (cc)	872	957	1043

As protein content increased in the 2010 crop, wet gluten, absorption, extensibility and loaf volume all improved.

Performance characteristics often improve as buyers increase their protein specifications. To illustrate the correlation between higher protein and other quality parameters, samples of the regional crop were segregated by protein levels (all based on 12 percent moisture content):

- low (less than 13.5 percent),
- medium (13.5 percent to 14.5 percent), and
- high (more than 14.5 percent).

REGIONAL AVERAGE: PRODUCTION DISTRIBUTION BY PROTEIN RANGE

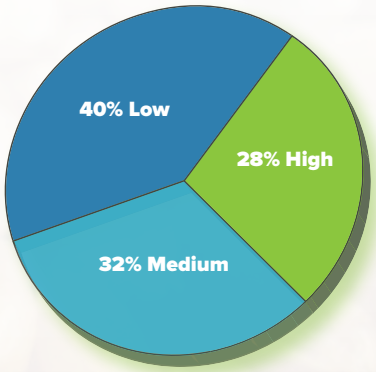


Photo courtesy of Leonard Schock, MT.

EXPORT CARGO SAMPLING

Data contained in previous sections of this report are derived from the testing of samples gathered during harvest from origination points throughout the U.S. hard red spring wheat region. The results provide an assessment of the overall quality of the crop produced in a given year.

U.S. Wheat Associates, the export market development arm for American wheat growers, furthers this information by commissioning an export cargo sampling program. The program provides an accurate representation of the supplies moving through the grain marketing and transportation system and actually reaching export points. Results show the quality levels at which U.S. wheat is realistically traded and are useful to customers in developing reasonable purchase specifications.

The Federal Grain Inspection Service oversees the program whereby all export inspection agencies at all ports collect every tenth sublot sample from every vessel of U.S. wheat shipped during three two-month time periods annually.

The hard red spring wheat samples are sent to the North Dakota State University Plant Science Department's Hard Red Spring Wheat Quality Laboratory for analysis. Average results for the past two years are at right. through the grain marketing and transportation system and actually reaching export points. Results show the quality levels at which U.S. wheat is realistically traded and are useful to customers in developing reasonable purchase specifications.

	PNW AVERAGE		GREAT LAKES AVERAGE		GULF AVERAGE	
SAMPLE COUNT	2008	2009	2008	2009	2008	2009
GRADING DATA						
Test Weight (lb/bu)	61.7	62.5	62.6	62.8	61.9	62.0
Test Weight (kg/hl)	81.2	82.1	82.3	82.5	81.4	81.6
Damaged Kernels (%)	0.5	0.3	1.2	1.2	1.1	1.1
Shrunken & Broken (%)	1.2	0.9	1.1	0.7	0.9	0.7
Total Defects (%)	1.8	1.3	2.4	1.9	2.1	2.0
Vitreous Kernels (%)	75	74	47	51	55	54
Grade	1 DNS	1 NS	1 NS	1 NS	1 NS	1 NS
OTHER WHEAT DATA						
Dockage (%)	0.3	0.3	0.6	0.5	0.7	0.6
Moisture (%)	11.5	11.8	12.3	13.0	12.8	13.1
Protein: 12%/0% moisture basis	13.9/15.8	13.5/15.3	13.7/15.6	12.7/14.4	13.7/15.5	13.1/14.9
Ash: (%) 14%/0% moisture basis	1.52/1.77	1.48/1.73	1.56/1.82	1.48/1.72	1.56/1.82	1.53/1.78
Kernel Size (%) lg/md/sm	52/47/3	58/40/2	59/40/2	58/40/2	57/42/2	63/35/2
Single Kernel: Hardness	76.8	NA	79.6	NA	79.1	NA
Weight (mg)	31.5	NA	31.1	NA	31.5	NA
Diameter (mm)	2.5	NA	2.5	NA	2.5	NA
Falling Number (sec)	401	399	390	391	408	394

	PNW AVERAGE		GREAT LAKES AVERAGE		GULF AVERAGE	
	2008	2009	2008	2009	2008	2009
FLOUR DATA						
Lab Mill Extraction (%)	70.6	71.2	70.2	72.9	71.2	72.1
Color: L (white-black)	90.3	90.1	90.0	89.8	90.0	89.9
a (red-green)	-.09	-.09	-1.0	-.08	-1.0	-.09
b (yellow-blue)	9.3	8.8	9.7	8.9	9.7	8.9
Protein 14%/0% moisture basis	13.0/15.1	12.7/14.7	12.5/14.6	11.9/13.8	12.7/14.7	12.3/14.3
Ash: (%) 14%/0% moisture basis	0.54/0.63	0.54/0.63	0.55/0.63	0.57/0.67	0.57/0.66	0.57/0.67
Wet Gluten (%)	35.1	35.0	33.5	31.0	34.1	33.4
Gluten Index (%)	91	92	91	96	92	92
Falling Number (sec)	454	435	417	411	442	419
Amylograph Peak Viscosity 65 g FL (BU)	605	581	591	461	614	503
PHYSICAL DOUGH DATA						
Farinograph: Absorption (%)	66.9	67.7	66.0	68.0	66.6	67.5
Peak Time (min)	7.1	7.1	6.8	6.3	6.8	6.6
Stability (min)	10.9	10.8	12.4	10.6	11.6	10.6
Classification	5.0	4.9	5.5	4.9	5.2	4.9
Alveograph: P (mm)	108	120	110	138	112	123
L (mm)	108	101	98	75	100	90
P/L Ratio	1.00	1.19	1.12	1.84	1.11	1.37
W (joules X 10^4	387	397	373	377	384	371
BAKING DATA						
Absorption	65.4	66.6	63.8	66.5	65.0	66.4
Loaf Volume (cc)	965	905	927	851	948	889
Crumb Grain & Texture	8.8	8.4	8.9	8.3	8.8	8.3

LABORATORY ANALYSIS

All quality data contained in this report are the result of testing and analysis conducted by or under the supervision of Dr. Senay Simsek, Wheat Quality Specialist, and Brent Hinsz, Rachel Olson, DeLane Olson, Kelly McMonagle and Kristen Whitney, food technologists with the Hard Red Spring Wheat Quality Laboratory in the Department of Plant Science at North Dakota State University, Fargo, USA.

Collection

The North Dakota, South Dakota, Montana and Minnesota state offices of the National Agricultural Statistics Service obtained wheat samples during harvest directly from growers, farm bins and local elevators. These samples reflect the condition of the grain at the point of origin. Collection began in mid August when approximately 10 to 15 percent of the hard red spring wheat had been harvested and continued until the end of September when about 95 percent of the region's crop was harvested.

Sample collection was weighted by county production histories with a total of 713 samples being collected during harvest from Minnesota (122), Montana (125), North Dakota (381), and South Dakota (85).

Analysis

Approximately 40 percent of the total wheat samples collected were analyzed for grade and other physical kernel characteristics. Distributions as a percentage of the harvested crop were calculated for key factors including test weight, thousand kernel weight, protein, falling number, and overall grade. Distribution results may differ from data presented in the various tables, because the latter are derived from production adjusted averages, rather than simple averages.

Quality tests, including milling, flour evaluation, physical dough and bread properties, were conducted on composite samples representing each crop reporting area. Again, all state and regional averages have been adjusted to reflect production as opposed to simple averaging.

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 Motomco 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 Method 55-10 approved April 1961, revised October 1999. Measured as pounds per bushel (lb/bu), kilograms per hectoliter (kg/hl) = (lbs/bu X 1.292) + 1.419. *Approved Methods of the American Association of Cereal Chemists, Cereal Laboratory Methods (10th Edition), St. Paul, MN (2000).

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 • American Association of Cereal Chemists (AAC) Method: 46-30 (Combustion Method), expressed on dry basis and 12 percent moisture basis.

ASH • American Association of Cereal Chemists Method 08-01, approved April 1961, revised October 1999; expressed on a 14 percent moisture basis.

FALLING NUMBER • American Association of Cereal Chemists Method 56-81B, approved November 1972, revised September 1999; units of seconds (14 percent moisture basis).

SEDIMENTATION • American Association of Cereal Chemists Method 56-61A, expressed in centimeters. Approved Methods of the American Association of Cereal Chemists, (8th Edition), St. Paul, MN (1983).

FLOUR

EXTRACTION • Thoroughly cleaned wheat is tempered to 15.5 percent moisture for 16 hours and an additional 0.5 percent water is added five minutes prior to milling. 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 to remove any foreign material. This product is used for the other flour quality determinations.

ASH • American Association of Cereal Chemists Method 08-01, approved April 1961, revised October 1999; expressed on a 14 percent moisture basis.

PROTEIN • American Association of Cereal Chemists (AACC) Method 46-30 (Combustion Method), expressed on a 14 percent moisture basis.

WET GLUTEN • American Association of Cereal Chemists Method 38-12, approved October 1999; expressed on a 14 percent moisture basis determined with the glutomatic instrument.

GLUTEN INDEX • American Association of Cereal Chemists Method 38-12, approved October 1999; determined with the glutomatic instrument as an indication of gluten strength.

FLOUR FALLING NUMBER • American Association of Cereal Chemists Method 56-81B, approved November 1972, revised September 1992; units of seconds. Determination is performed on 7.0 g of Buhler milled flour (14 percent moisture basis).

AMYLOGRAM • (100 g) American Association of Cereal Chemists Method 22-10. Peak viscosity reported in Brabender units (B.U.), on a 14 percent moisture basis.

(65 g) American Association of Cereal Chemists Method 22-10, 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 • American Association of Cereal Chemists Method 76-31. Proportion of starch granules that have incurred physical damage from milling.

U.S. HARD RED SPRING WHEAT

MINNESOTA | MONTANA | NORTH DAKOTA | SOUTH DAKOTA

PHYSICAL DOUGH PROPERTIES

FARINOGRAM • American Association of Cereal Chemists Method 54-21; 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.

VALORIMETER VALUE • An empirical, single-figure quality score based on the development time and tolerance to mixing. Derived from the farinogram by means of a special template supplied by the equipment manufacturer. Generally, stronger flours have higher valorimeter values.

CLASSIFICATION • An empirical classification incorporating peak time, stability, MTI, and general curve characteristics. A scale of 1 to 8 is employed with higher values indicating stronger curve types.

EXTENSIGRAM • American Association of Cereal Chemists Method 54-10, approved April 1961, revised October 1982; 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 extensigram 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 • International Association of Cereal Chemists Standard No. 121. Measurement of 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 • American Association of Cereal Chemists Method 10-09, approved September 1985; 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 "Roll-R-Up" 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 characteristics 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.

VARIETAL INFORMATION AND COMPARISONS

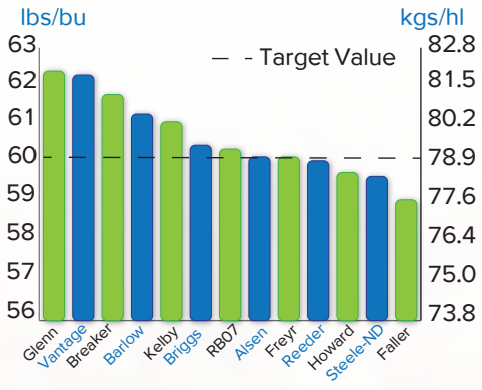
Quality products begin with quality ingredients. In wheat, quality begins with the varieties planted. Within the hard red spring class of wheat, there are different varieties available — all with relatively uniform characteristics.

Spring wheat variety development is carried out through public breeding programs at North Dakota State University in Fargo, the University of Minnesota in St. Paul, South Dakota State University in Brookings, and Montana State University in Bozeman. Public plant breeders test varieties for performance at experiment stations across the region. Private firms also develop spring wheat varieties for the region. The two primary ones are AgriPro and Westbred.

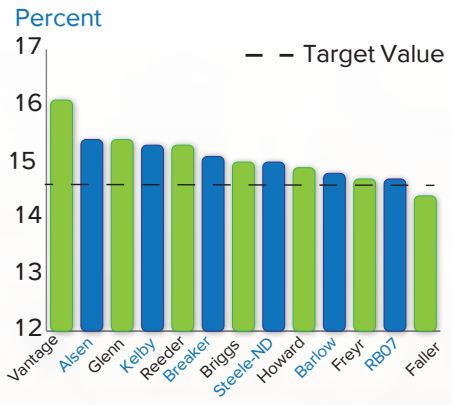
Before any spring wheat variety is released for commercial production, it must meet or exceed current standards for the class. Prospective variety releases are evaluated for milling and baking characteristics as well as for yield, protein content, test weight, resistance to diseases and insects, and straw strength.

Target values represent regionally agreed upon goals of public and private variety development programs. Environment influences the quality of varieties across growing areas and planting years. For this reason, wheat breeders use "check" or reference varieties to evaluate quality in experimental varieties. They usually test and analyze quality data from multiple years and growing locations before a variety is released.

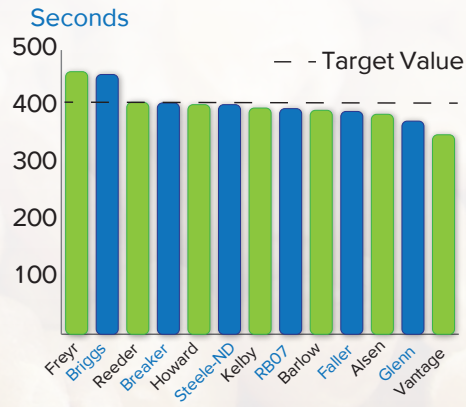
TEST WEIGHT



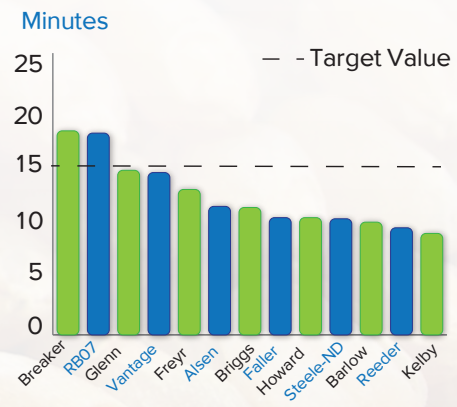
PROTEIN CONTENT
(12% moisture basis)



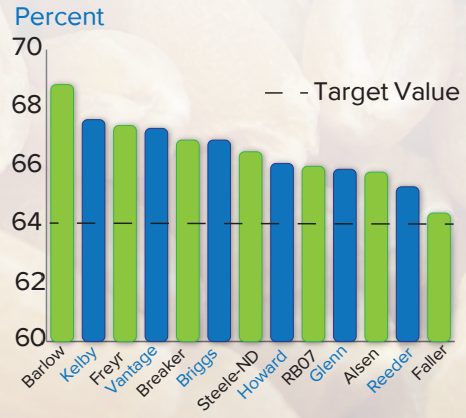
FALLING NUMBER



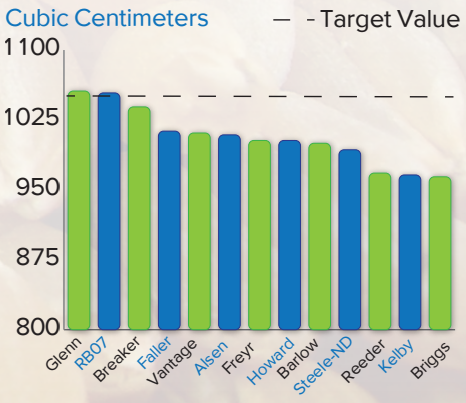
FARINOGRAPH STABILITY



FARINOGRAPH ABSORPTION



LOAF VOLUME



Footnote: Based on NDSU dirll strip trials across six North Dakota locations in 2008-2009.

VARIETAL INFORMATION

GROWN & TESTED ACROSS NORTH DAKOTA • AGRONOMIC FACTORS

			Agronomic Description		Reaction to Disease[2]			Average Yield			
	Agent or Origin[1]	Year Released	Straw Strength	Maturity	Leaf Rust	Foliar Disease	Head (Scab)	Eastern North Dakota[3]		Western North Dakota[4]	
								BU/Acre	MT/HA	BU/Acre	MT/HA
Alsen	ND	2000	strg.	m. early	MR/MS	S	MR/M	66.1	4.44	55.9	3.76
Barlow	ND	2009	strg.	m. early	R	MR	MS/MR	72.8	4.89	58.0	3.9
Breaker	Westbred	2007	strg.	med.	MR	MS	MS	72.8	4.89	59.3	3.99
Briggs	SD	2002	med.	m. early	R	MS	S	71.3	4.79	57.3	3.85
Faller	ND	2007	strg.	med.	R	MR	MR/MS	76.5	5.14	62.3	4.19
Freyr	AgriPro	2004	strg.	med.	MR/MS	MS	MR/M	66.0	4.44	57.5	3.87
Glenn	ND	2005	strg.	m. early	R	M	MR	69.3	4.66	52.6	3.54
Howard	ND	2001	strg.	med.	R	M	M	73.7	4.95	60.3	4.05
Kelby	AgriPro	2006	strg.	m. early	R	M	MR/MS	70.8	4.76	55.4	3.72
RB07	MN	2007	m. strg.	m. early	R	MS	M	68.8	4.63	59.9	4.03
Reeder	ND	1999	strg.	m. early	MS	S	S	72.8	4.89	61.9	4.16
Steele-ND	ND	2004	med.	med.	R	MS	M	74.4	5.00	57.4	3.86
Vantage	Westbred	2007	v. strg.	m. late	MR/MS	MS	MS	72.0	4.84	61.1	4.11

GROWN & TESTED IN WILLISTON, NORTH DAKOTA • AGRONOMIC FACTORS

			Agronomic Description		Reaction to Disease[2]			Average Yield	
	Agent or Origin[1]	Year Released	Straw Strength	Maturity	Leaf Rust	Foliar Disease	Head (Scab)	Williston, North Dakota BU/Acre	MT/HA
Choteau	MT	2004	strg.	med.	R	M	S	44.0	2.96
Faller	ND	2007	strg.	med.	MR/MS	MS	MR	40.9	2.75
Glenn	ND	2005	strg.	m. early	R	M	MR	42.6	2.86
RB07	MN	2007	m. strg.	m. early	R	MS	M	41.6	2.80
Reeder	ND	1999	strg.	m.early	MS	MS	S	45.1	3.03
Vida	MT	2005	m. strg.	m. late	MR	MS	S	45.0	3.03

1. ND=North Dakota State University (Public), SD=South Dakota State University (Public), MN=University of Minnesota (Public), MT=Montana State University (Public), Westbred (Private) and AgriPro (Private).
2. Reaction to Disease: resistant (R), moderately resistant (MR), intermediate (M), moderately susceptible (MS), susceptible (S), very susceptible (VS). *Indicates yield and/or quality have often been higher than would be expected based on visual head blight symptoms alone.
3. 2009 North Dakota average yield data from Carrington, Casselton, Langdon and Prosperlocations in North Dakota.
4. 2009 North Dakota average yield data from Dickinson, Hettinger, Minot and Williston locations in North Dakota.

GROWN & TESTED ACROSS NORTH DAKOTA • QUALITY & END-USE FACTORS

	Quality Factors[5]							End-Use[7]	
Variety	Test Weight LB/BU	Test Wheat KG/HL	Wheat Protein %	Wheat Falling # Seconds	Farinogram Stability (Min)	Absorption %	Loaf Volume CC	Gluten Strength Description [7]	Mill & Bake Quality Rating [8]
Alsen	60.2	79.2	15.4	387	11.4	65.8	1009	traditional strong	★★★★
Barlow	61.3	80.6	14.8	394	10.0	68.8	1000	traditional strong	★★★
Breaker	61.8	81.3	15.1	407	18.1	66.9	1039	traditional strong	★★★
Briggs	60.5	79.6	15.0	457	11.3	66.9	964	mellow	★★
Faller	59.1	77.8	14.4	392	10.4	64.4	1013	mellow	★★★
Freyr	60.2	79.2	14.7	462	12.9	67.4	1003	traditional strong	★★★
Glenn	62.4	82.0	15.4	375	14.6	65.9	1056	traditional strong	★★★★★
Howard	59.8	78.7	14.9	404	10.4	66.1	1003	traditional strong	★★★
Kelby	61.1	80.4	15.3	398	9.0	67.6	966	mellow	★★★
RB07	60.4	79.5	14.7	397	17.9	66.0	1054	traditional strong	★★★★
Reeder	60.1	79.1	15.3	408	9.5	65.3	968	mellow	★★★
Steele-ND	59.7	78.6	15.0	404	10.3	66.5	993	traditional strong	★★★
Vantage	62.3	81.9	16.1	351	14.4	67.3	1011	traditional strong	★★★

GROWN & TESTED IN WILLISTON, NORTH DAKOTA • QUALITY & END-USE FACTORS

	Quality Factors[6]						End Use[7]		
	Test Weight LB/BU	Test Weight KG/HL	Wheat Protein %	Wheat Falling # Seconds	Farinogram Stability (Min)	Absorption %	Loaf Volume CC	Gluten Strength Description[7]	Mill & Bake Quality Rating [8]
Choteau	60.3	79.3	15.2	453	15.0	64.6	985	traditional strong	★★★
Faller	59.6	78.4	14.2	348	11.0	61.9	955	mellow	★★★
Glenn	64.0	84.1	13.9	376	13.0	64.2	975	traditional strong	★★★★★
RB07	61.8	81.3	13.7	386	27.5	64.2	930	traditional strong	★★★★
Reeder	62.6	82.3	13.9	449	7.5	65.1	875	mellow	★★★
Vida	62.2	81.8	14.5	379	9.5	68.0	990	n/a	n/a

5 Source: NDSU Plant Science Department, Hard Red Spring Wheat Quality Laboratory, 2008-2009 drill strip trials at six locations in ND.

6 2009 Drill strip trials at Williston, N.D. only.

7 Traditional Strong—functionality characteristic of hard red spring wheat; relatively quick mixing time, long mixing stability and tolerance to over-mixing.

Extra Strong—stronger than traditional hard red spring wheat varieties; longer mixing time and very long mixing stability.

Mellow—weaker than "traditional strong" varieties; shorter mixing time and stability.

8 Mill and bake quality rating based on protein content, milling performance, flour attributes, dough characteristics and baking performance. Five stars = superior, four stars = excellent, three stars = good, two stars = average, one star = poor.

U.S. HARD RED SPRING WHEAT

MINNESOTA | MONTANA | NORTH DAKOTA | SOUTH DAKOTA

NORTH DAKOTA

GLENN was the top variety planted in North Dakota for the fourth straight year, accounting for 25 percent of total acres. It ranks fourth in Minnesota with just over 5 percent of the acres. Glenn is the most popular variety in 6 of the 9 crop districts and is popular with producers because of its disease resistance to Fusarium headblight and leaf rust, competitive yield, and strong test weight and protein levels. Glenn is the quality "check" variety used by both public and private breeding programs and is rated as superior for milling and baking properties.

KELBY is the third most popular variety grown in North Dakota with 6 percent of the acres. Kelby is a 2006 release and has good resistance to stem and leaf rust, some tolerance to Fusarium headblight, high test weight and good protein levels. Kelby is rated good for milling and baking properties.

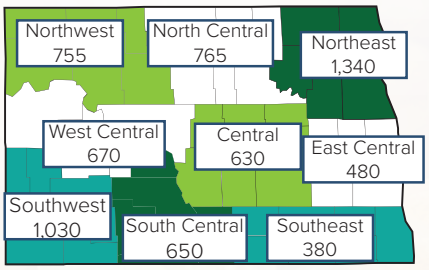
RB07 continues to gain acreage in North Dakota, accounting for nearly 5 percent of planted acres in 2010. It is the second most popular variety in Minnesota, planted on 24 percent of this year's wheat acres. It is a high yielding variety with resistance to leaf rust and intermediate resistance to Fusarium headblight. In addition to its good agronomic characteristics, RB07 has excellent milling and baking properties.

Spring Wheat Varieties planted acres in North Dakota

Variety	2009%[1]	2010%[1]	2010 Acres (1,000)
Glenn	23.6	25.0	1,675.6
Faller	17.2	15.0	1,003.1
Kelby	4.4	6.4	428.4
RB07l	1.3	4.9	330.3
Briggs	7.6	4.9	329.6
Freyr	7.0	4.8	322.0
Howard	5.1	4.7	315.5
Steele_ND	5.8	3.6	239.6
Alsen	4.2	3.0	199.8
Choteau	1.2	2.8	187.2
Other[2]	22.6	24.9	1,668.9

1. Percentages may not add to 100 due to rounding.
2. Includes varieties with less than 1% of acreage in2010 and unknown varieties.

North Dakota Agricultural Statistics Districts 2010 Planted Area (1,000 acres)



Spring Wheat Varieties in North Dakota Share of 2010 Seeded Acres by Crop District

Variety	North West	North Central	North East	West Central	Central	East Central	South West	South Central	South East	Total State
					percentage (%)[1]					
Glenn	38.0	42.8	18.8	29.3	32.4	13.5	17.6	19.5	9.6	25.0
Faller	4.4	16.5	32.7	3.8	18.0	25.7	0.7	4.5	28.1	15.0
Kelby	11.4	5.3	4.3	2.7	4.7	26.2	2.7	5.3	2.3	6.4
RB07	1.0	0.1	6.5	1.7	2.0	8.8	9.8	4.8	9.6	4.9
Briggs	1.4	5.1	1.8	3.0	6.7	4.4	2.9	12.4	16.3	4.9
Freyr	4.9	5.4	1.7	8.9	1.9	0.9	6.9	10.6	1.2	4.8
Howard	0.8	2.7	2.4	8.0	0.7	2.4	13.9	5.7	2.0	4.7
Steele_ND	8.7	3.8	1.5	1.4	1.6	0.8	5.2	6.5	1.6	3.6
Alsen	4.3	2.1	3.0	8.6	1.1	1.2	1.3	2.2	3.6	3.0
Choteau	0.5	0.0	0.0	3.9	0.0	0.0	14.2	1.5	0.2	2.8
Other[2]	26.0	16.2	27.5	28.6	30.8	16.2	24.7	26.9	25.6	25.0
					1,000 acres					
All Varieties	755	765	1,340	670	630	480	1,030	650	380	6,700

1. Percentages may not add to 100 due to rounding.
2. Includes varieties with less than 1% of acreage in2010 and unknown varieties.
3. September 30, 2010 small grain estimate was 6.4 million acres.

MONTANA

CHOTEAU moved up to become the top variety planted in Montana with 23 percent of the acres, similar to the level in 2009. It remains a popular variety because it is a solid stem variety which helps producers manage wheat stem sawfly which is becoming an increasing economic and production threat to wheat in the region. Choteau has resistance to leaf rust, average protein and is rated good for milling and baking qualities.

REEDER dropped from its spot as the most popular variety to second place with 16 percent of the acres. Its share of acreage has declined in recent years as varieties with improved disease resistance take over acreage. It is one of the highest yielding varieties in western parts of the region and is rated good for milling and baking properties.

VIDA continues to gain acreage in Montana, accounting for 13 percent of total acres this year, up from only 5 percent in 2009. It continues to make gains in acreage due to its higher level of disease resistance and increased yield potential. Vida is rated as good for milling and baking qualities.

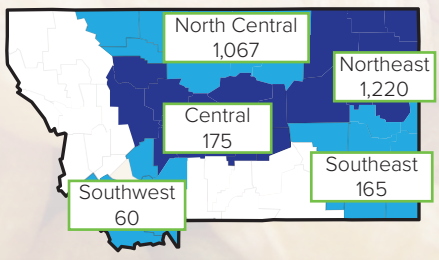
MCNEAL dropped to the fourth largest planted variety, accounting for 9 percent of total planted acres, down slightly from the previous year. It continues to be the most popular variety grown in the south east part of Montana. McNeal has uniquely strong dough characteristics and is rated as good for milling and baking qualities.

Spring Wheat Varieties planted acres in Montana

Variety	2009%[1]	2010%[1]	2010 Acres (1,000)
Choteau	22.7	22.7	634.8
Reeder	24.0	16.3	457.3
Vida	5.0	12.6	353.9
McNeal	10.6	9.0	251.2
Corbin	4.0	6.0	166.7
ONeal	1.4	4.0	111.4
Fortuna	2.5	3.7	103.8
Conan	3.2	2.7	75.6
AC Lillian	1.6	2.5	69.1
Ernest	1.5	1.5	42.2
Other[2]	23.5	19.0	700.7

1. Percentages may not add to 100 due to rounding.
2. Includes varieties with less than 1% of acreage in2010 and unknown varieties.

Montana Agricultural Statistics Districts 2010 Planted Area (1,000 acres)



Spring Wheat Varieties in Montana Share of 2010 Seeded Acres by Crop District

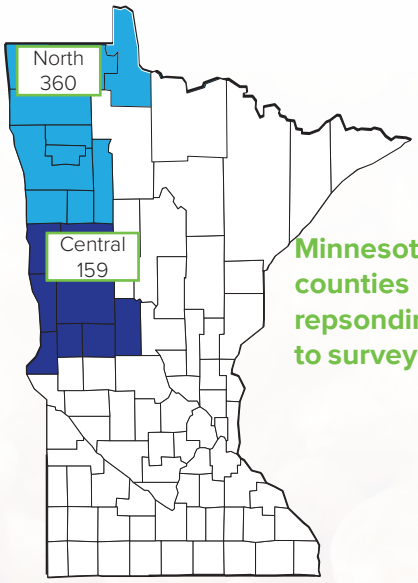
Variety	North Central[1]	North East[1]	Central[1]	South West[1]	South East[1]	Total State[1]
			percentage (%)[1]			
Choteau	34.2	17.1	17.7	9.7	5.5	22.7
Reeder	0.2	33.9	8.1	0.0	15.7	16.3
Vida	10.7	16.9	5.6	0.0	12.1	12.6
McNeal	4.8	10.4	12.6	5.5	22.4	9.0
Corbin	15.6	0.0	0.0	0.0	0.0	6.0
ONeal	7.4	1.3	7.8	0.2	0.0	4.0
Fortuna	8.2	0.0	5.1	0.0	0.0	3.7
Conan	6.4	0.6	0.0	0.0	0.0	2.7
AC Lillian	0.6	5.1	0.3	0.0	0.0	2.5
Ernest	3.3	0.4	0.4	0.0	0.7	1.5
Other[2]	8.6	14.3	42.4	84.6	43.6	23.0
			1,000 acres (1 acre = 2.47 hectares)			
All Varieties	1,067	1,220	175	60	165	2,800[3]

1. Percentages may not add to 100 due to rounding.
2. Includes varieties with less than 1% of acreage in2010 and unknown varieties.
3. September 30, 2010 small grain estimate was 2.85 million acres.

U.S. HARD RED SPRING WHEAT

MINNESOTA | MONTANA | NORTH DAKOTA | SOUTH DAKOTA

2010 Minnesota Spring Wheat Variety Survey



Minnesota counties repsonding to survey

MINNESOTA

FALLER remains the top planted variety in Minnesota with 30 percent of the acres, up from 21 percent in 2009. Faller is the second most popular variety in 2010 in North Dakota, despite a decline in acreage, accounting for 15 percent of the acres. Faller is popular because of its high yield potential and resistance to Fusarium headblight and leaf diseases. Faller does tend to have lower than average protein but its milling and baking qualities are rated as good.

SAMSON made acreage gains to become the third most popular variety in Minnesota with 6 percent of the acres. Samson is slightly lower than average in protein and has intermediate resistance to stem and leaf rust. Samson tends to yield high and has good milling and baking properties.

BRIGGS remains a popular variety in the southeastern part of the production region, although acreage declined in 2010. Based on a 2008 variety survey, it accounted for one-half of the acres in South Dakota. In 2010 it was the fifth largest variety in North Dakota and Minnesota, accounting for 5 and 3 percent of acres respectively. Briggs has strong yield potential and resistance to leaf rust. It is rated as good for milling and baking qualities.

The Minnesota Wheat Survey is conducted by Minnesota Wheat Research and Promotion Council. The South Dakota Agricultural Statistics Service only conducts a variety survey every three years, with the next scheduled for 2011.

Spring Wheat Varieties Share of 2010 Minnesota Acres

Variety	North %[1]	Central %[1]	Total State[3] 2010%[1]	Total State 2009%
Faller	29.1	33.5	30.0	21.3
RB07	25.3	20.1	23.5	19.0
Samson	7.6	2.2	5.8	4.8
Glenn	6.8	2.3	5.4	6.8
Briggs	3.8	2.2	3.3	4.1
Oklee	1.4	6.3	2.9	5.8
Knudson	1.7	3.5	2.6	5.9
Ada	1.4	3.0	1.9	2.2
Jenna	2.2	1.2	1.8	0.0
Vantage	1.9	1.5	1.8	0.2
Other[2]	18.8	24.2	21.0	29.9

1. Percentages may not add to 100 due to rounding.
2. Includes varieties with less than 1% of acreage in 2010 and unknown varieties.

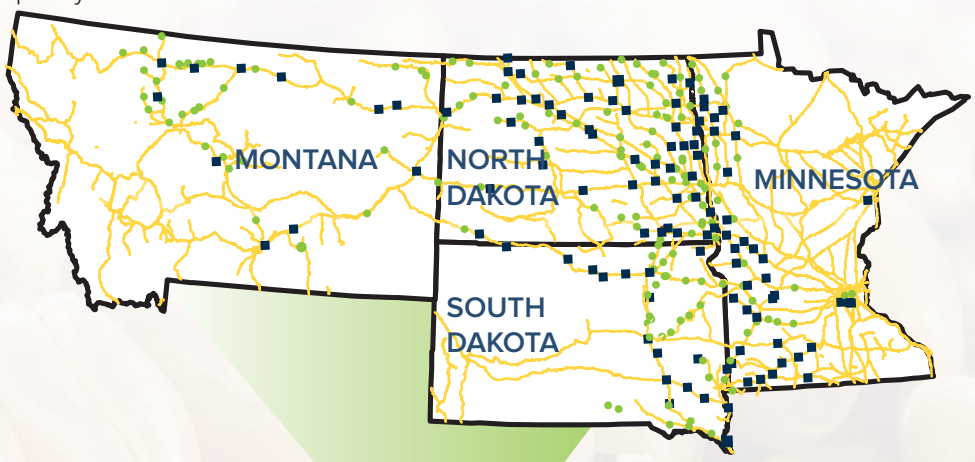
HANDLING & TRANSPORTATION

The hard red spring wheat growing region in the Northern Plains has a vast network of country elevators to facilitate efficient and precise movement to domestic and export markets. On average, nearly 80 percent of the region's wheat moves to markets by rail. Duluth is the only export market serviced by a greater share of trucks. Shipments to the Pacific Northwest and Gulf export markets are almost entirely by rail, with some barge movement to the Gulf. The dominant railroad is the Burlington Northern Santa Fe, followed by the Canadian Pacific.

An increasing number of the elevators in the region are investing in facilities and rail capacity to ship 100 car units. Each rail car holds approximately 3,500 bushels (95 metric tons) of wheat. Some of the 100-car shippers have invested in "shuttle" capabilities. Shuttle-equipped facilities receive the lowest rates, sharing volume and transaction efficiencies with the railroad.

The diverse rail shipping capacities and a widespread network of elevators are strengths that buyers can capitalize on, especially as their demand heightens for more precise quality specifications and consistency between shipments. Buyers are increasingly exploring origin-specific shipments. Many international buyers now find it possible to request wheat from certain locations to optimize the quality and value of wheat they purchase.

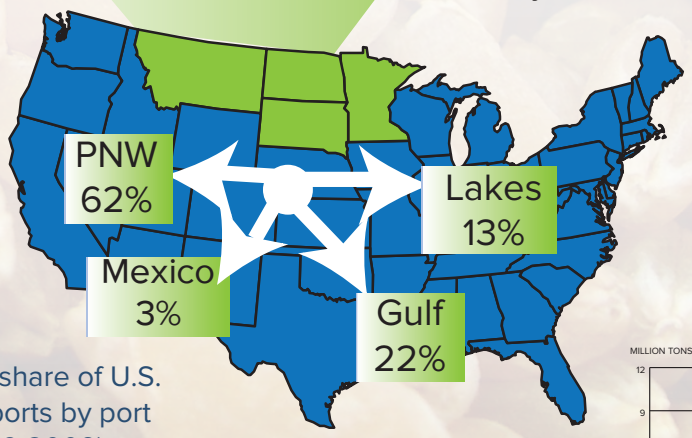
The rail and elevator network in the U.S. hard red spring wheat region is well suited for meeting the increasing quality demands of both domestic and international customers.



Grain Handling and Transportaion Facilities in the Four-State Region

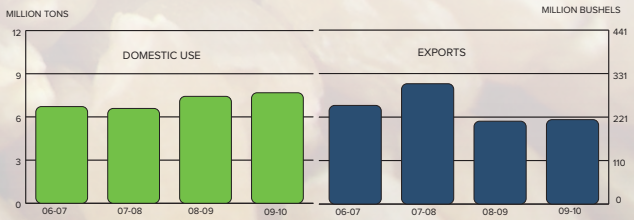
- Track for 50 to 99 rail cars
- Track for 100 or more cars

Source: Upper Great Plains Transportation Institute



Average share of U.S. HRS exports by port (2006-2009)

2006-2009 U.S. HRS Domestic Use and Exports



Marketing Years (June-May)

FUNDING & SUPPORT PROVIDED BY

U.S. Wheat Associates

North Dakota Wheat Commission

South Dakota Wheat Commission

Montana Wheat and Barley Committee

Minnesota Wheat Research and Promotion Council

North Dakota State University Plant Sciences Department