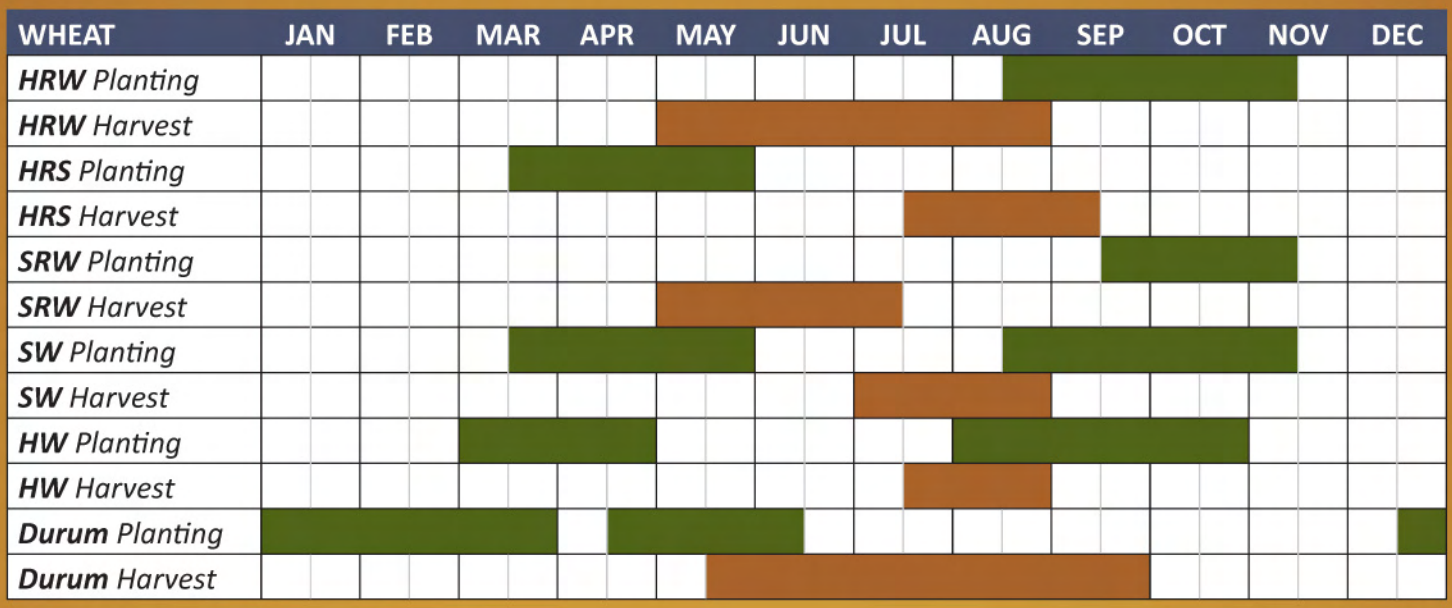
U.S. WHEAT ASSOCIATES



CROP QUALITY REPORT 2008

PLANTING AND HARVEST DATES



U.S. WHEAT ASSOCIATES

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2008 CROP QUALITY REPORT OVERVIEW



Greetings!

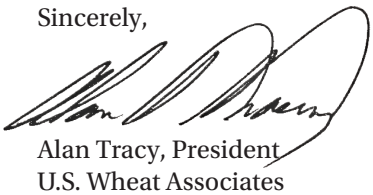
Meeting our customers has been one of the most rewarding parts of my position as President of U.S. Wheat Associates. It is a pleasure to work with so many talented, dedicated wheat buyers, millers, bakers and wheat food processors around the world.

We believe that U.S. wheat is the world's most reliable choice. We offer the wheat you want from producers on whom you can depend. You are holding an important part of the proof for that belief in your hands. This 2008 Crop Quality Report includes data for all classes of U.S. wheat, compiled from crop quality surveys conducted during and after this year's harvest. The report provides information that can be very helpful to you as you import U.S. wheat. I encourage you to use this report and the services of our professional staff to specify your needs and get the best value in your purchase contract.

If you have any questions about this report or the 2008/09 U.S. wheat crop, please contact the U.S Wheat Associates office nearest you. To stay current with the latest news and information about U.S. wheat, our Web site, www.uswheat.org, is an excellent resource. While there, sign up to receive the Wheat Letter, our bimonthly email newsletter.

On behalf of the U.S. wheat producers, 18 state wheat commissions and U.S. Department of Agriculture's Foreign Agricultural Service who fund our work, thank you for choosing U.S. wheat – and please never hesitate to ask for our help.

Sincerely,



Alan Tracy, President
U.S. Wheat Associates

SUMMARY OF CLASSES

	Hard Red Winter		Hard Red Spring		Soft Red Winter		Soft White		Durum*	
	2008	5-Year Avg	2008	5-Year Avg	2008	5-Year Avg	2008	5-Year Avg	2008	5-Year Avg
Test Weight (lb/bu)	60.2	59.9	60.8	60.7	59.2	59.4	58.9	59.8	60.2	60.7
(kg/hl)	79.2	78.8	80.0	79.9	77.9	78.2	77.5	78.7	78.4	79.0
Grade	1 HRW	2 HRW	1 NS	1 DNS	2 SRW	2 SRW	2 SW	2 SW	1 HAD	1 HAD
Dockage (%)	0.6	0.7	0.6	0.9	0.9	0.8	0.7	0.6	1.1	1.5
Wheat Moisture (%)	11.0	11.4	11.9	11.9	13.0	13.1	9.6	9.3	11.7	11.7
Wheat Protein (%) **	12.3	12.4	14.3	14.4	9.8	10.0	11.2	10.4	14.8	14.3
Wheat Ash (%) **	1.58	1.54	1.54	1.62	1.55	1.55	1.38	1.37	1.50	1.58
1000 Kernel Weight (g)	30.4	28.9	33.6	30.0	35.3	33.0	33.0	34.7	35.0	35.3
Wheat Falling Number (sec)	437	400	379	405	325	343	321	339	322	375
Flour/Semolina Extraction (%)	74.4	69.0	69.2	68.8	68.6	69.3	71.1	68.8	61.1	64.5
Flour/Semolina Ash (%) **	0.57	0.49	0.51	0.47	0.43	0.43	0.39	0.40	0.64	0.70
Wet Gluten (%)	29.1	30.5	35.5	35.7	21.7	21.7	24.0	22.0	39.5	37.2
Farinograph:										
Peak Time (min)	4.9	6.1	6.9	10.8	1.3	1.5	1.9	1.7	n/a	n/a
Stability (min)	9.2	10.7	11.1	20.2	2.5	2.9	4.6	4.1	n/a	n/a
Absorption (%)	60.0	58.6	66.8	65.7	51.7	52.6	52.0	52.5	n/a	n/a
Alveograph W (10^{-4} joules)	240	284	421	427	80	89	34	39	109	78
Loaf Volume (cc)	802	844	982	1036	705	710	n/a	n/a	n/a	n/a
Production (mmt)	28.2	24.3	13.9	13.0	16.7	11.2	6.1	6.6	2.3	2.2

* Great Plains durum only, extraction and ash values are for semolina

** Protein - 12% moisture basis; ash - 14% moisture basis

WHAT THE TESTS MEAN

Wheat Grades reflect the physical quality and condition of a sample and thus may indicate the general suitability of a sample for milling. The U.S. grade of a sample is determined by measurement of such factors as test weight, damaged kernels, foreign material, shrunken and broken kernels, and wheat of contrasting classes. All numeric factors other than test weight are reported as a percentage by weight of the sample. Grade determining factors include:

- **Test Weight** is a measure of the density of the sample and may be an indicator of milling yield and the general condition of the sample, as problems that occur during the growing season or at harvest often reduce test weight.
- **Damaged Kernels** are kernels which may be undesirable for milling because of disease, insect activity, frost or sprout damage, etc.
- **Foreign Material** is any material other than wheat that remains after dockage is removed. Because foreign material may not be removed by normal cleaning equipment, it may have an adverse effect on milling quality.
- **Shrunken and Broken Kernels** are kernels which either were insufficiently filled during growing and have a shrunken or shriveled appearance or have been broken in handling. Such kernels may reduce milling yield.
- **Total Defects** is the sum of damaged kernels, foreign material and shrunken and broken kernels.
- **Vitreous Kernels** in hard red spring wheat are kernels which are uniformly dark and have no spots which appear chalky or soft. In durum, vitreous kernels have a glassy and translucent appearance without any spots that appear chalky.

Dockage is the percentage by weight of any material easily removed from a wheat sample using the Carter Dockage Tester. Dockage, because it can be easily removed, should not have any effect on milling quality but may have other economic effects for buyers. Grade factors are determined only after dockage is removed.

Moisture content is the percentage moisture by weight of a sample and is an important indicator of profitability in milling. Flour millers add water to adjust wheat moisture to a standard level before milling. Lower wheat moisture allows more water to be added, increasing the weight of grain to be milled at virtually no cost. Moisture content is also an indicator of grain storability as wheat and flour with low moisture are more stable during storage. Because moisture can be readily added to or physically removed from a sample, other analysis results are often mathematically converted to a standard moisture basis, such as 14%, 12% or dry matter, so results can be meaningfully compared.

Protein content is the percentage protein by weight in a sample. Protein can be quickly and easily measured and therefore is an important factor in determining the value of wheat since it relates to many processing properties, such as water absorption and gluten strength. Low protein is desired for products such as snacks or cakes. High protein is desired for products such as pan breads, buns and frozen yeast-raised products.

Ash content is the percentage of minerals by weight in wheat or flour. In wheat, ash is primarily concentrated in the bran and is an indication of the flour yield that can be expected during milling. In flour, ash content indicates milling performance by indirectly revealing the amount of bran contamination in flour. Ash in flour can impart a darker color to finished products. Products requiring particularly white flour call for low ash content while whole wheat flour has higher ash content.

1000 Kernel Weight is the weight in grams of one thousand kernels of wheat and may indicate grain size and expected milling yield.

Kernel Size is a measure of the percentage by weight of large, medium and small kernels in a sample. Large kernels or more uniform kernel size may help improve milling yield.

Single Kernel Characterization System (SKCS) measures 300 individual kernels from a sample for size (diameter), weight, hardness (based on the force needed to crush) and moisture. Detailed SKCS results (not reported in this booklet) include the distribution of these factors, which may be an indicator of the uniformity of the sample and may help millers experienced with the system optimize flour milling yields. Kernel characteristics are related to milling properties such as tempering, roll gap settings, and flour starch damage content.

Sedimentation value is a measure of the sediment that results when lactic acid is added to a sifted ground wheat sample and can be used as an indicator of gluten quality and thus the baking quality of wheat flour.

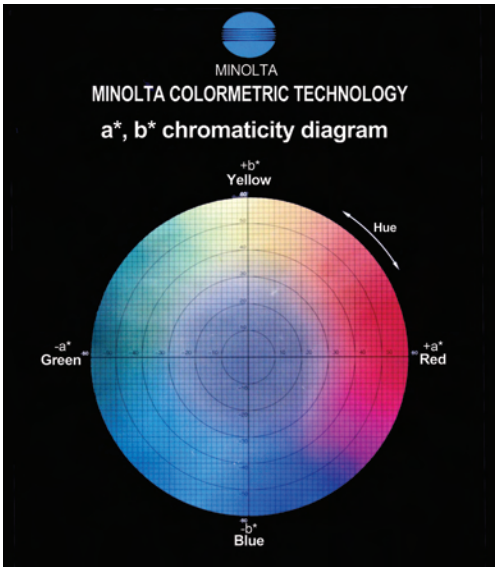
Falling Number indirectly indicates alpha-amylase activity, which results from sprout damage. High Falling Number values indicate low alpha-amylase activity. Sufficient alpha-amylase activity is required in flour for some products such as yeast-raised bread. However, excessive alpha-amylase in wheat cannot be removed and is difficult to blend to lower alpha-amylase content, and the resulting flour produces a sticky dough that can cause problems during processing and products with poor color and weak texture. Falling Number usually correlates closely with amylograph.

Extraction is the percentage by weight of flour obtained from a wheat sample. In a commercial flour mill the extraction rate is critically important to mill profitability. In a laboratory,

WHAT THE TESTS MEAN

milling with the Buhler Laboratory Mill is mainly done to obtain flour for other tests. **The Buhler Laboratory Mill extraction rate is always significantly lower than the rate that can be obtained on a commercial mill, but may be useful for comparison between crop years.**

Color is a numerical system to measure a sample's lightness (L*) on a scale of 0 to 100 and "chromaticity" or hue on two scales each running from -60 to +60 for green-red (a*) and blue-yellow (b). High L* values indicate a bright color, and higher b* values indicate more yellow. Flour color is influenced by the wheat's endosperm color and the ash content of the flour and often affects the color of the finished product.



Wet Gluten is a measure of the quantity of gluten in wheat or flour samples as determined using the Glutomatic system. Gluten forms when water is added to the protein in wheat and is responsible for the elasticity and extensibility characteristics of flour dough.

Gluten Index is also determined by the Glutomatic system and is a measure of gluten strength regardless of the quantity of gluten present. Gluten index is used commercially to select durum samples with strong gluten characteristics while its usefulness for bread wheat samples is less clear because of the variety of factors other than gluten that can affect the results.

Amylograph measures flour starch pasting properties that are important to some end products such as sheeted Asian noodles. Amylograph also measures enzyme (alpha-amylase) activity which results from sprout damage. Amylograph results usually correlate very closely with Falling Number results.

Starch Damage, the percentage by weight of damaged starch in a flour sample, is a measure of the physical damage done to starch granules during milling. Bread (hard) wheat flour typically has higher starch damage than soft wheat flour. Highly damaged starch readily absorbs more water which affects dough mixing and other processing properties. Because starch damage depends on how the sample was milled, starch damage is important for interpreting other results reported.

Farinograph generates a curve that indicates the power being used over time as flour and water are mixed into dough. The results describe the mixing properties of the dough and include:

- **Peak Time** is the time interval from the first addition of water to the maximum consistency immediately prior to the first indication of weakening. Long peak times indicate strong gluten and dough properties while short peak times may indicate weak gluten.
- **Stability** is the interval between the point where the top of the curve first intersects the 500-BU line (called the "arrival time") and the point where the top of the curve departs the 500-BU line ("departure time"). Long stability times also indicate strong gluten and dough properties, useful in such products as yeast-raised breads while short stability times indicate weaker gluten useful in many confectionary products.
- **Absorption** is the amount of water (as a percent by weight of 14 percent moisture wheat flour) required to center the curve peak on the 500-BU line. High water absorption provides economic advantages for producing more dough pieces than flour with lower water absorption.
- **Classification** rates the curves produced by the farinograph ("farinograms") on a scale of 1 to 8, with higher values indicating stronger gluten and dough mixing properties for hard red spring wheat flour.

Alveograph generates a curve indicating the air pressure necessary to inflate a piece of dough like a bubble to the point



FARINOGRAPH

of rupture and indicates the gluten strength and extensibility of dough. Values reported include:

- **P** ("overpressure"), measured in millimeters to the maximum height of the curve, reflects the maximum pressure while blowing the bubble of dough and indicates dough resistance to extension.
- **L** (length), the length of the curve measured in millimeters, reflects the size of the bubble and indicates dough extensibility.
- **W** (the area under the curve) reflects the amount of energy needed to inflate the dough to the point of rupture and indicates dough strength.

The alveograph is well suited for measuring the dough characteristics of weaker gluten wheat. Flour with low P value (indicating weak gluten) and long L value (high extensibility) is preferred for cakes and confectionery products. Flour with high P values (strong gluten) is preferred for breads.

Extensograph generates a force-time curve for a piece of dough stretched until it breaks. Results include:

- **Resistance**, measured at the maximum curve height in Brabender units (B.U.), reflects the maximum force applied and indicates the resistance of the dough to extension.
- **Extensibility**, measured as the total length of the curve at the base line in centimeters, reflects how far the dough was stretched.
- **Area** is the area under the curve reported in square centimeters.



ALVEOGRAPH

These factors help describe the gluten strength and dough extensibility characteristics of flour for a wide range of end products. The extensograph can also evaluate the effects of fermentation time and additives on dough performance.

Mixograph, similar to the farinograph but quicker and using a smaller amount of flour sample, generates a graph that records the force needed to mix flour or semolina and water into dough. The graph is classified on a scale of 1 to 8, with higher values indicating stronger gluten characteristics for durum milled fractions.

Solvent Retention Capacity (or SRC) is the weight of solvent held by flour after centrifugation, and expressed as a percent of the flour weight on a 14 percent moisture basis. The different solvents used relate flour functionality to specific flour components and thus can be useful for predicting commercial baking performance, especially for soft wheat flours.

Baking Absorption is the water required for optimum dough mixing performance, expressed as a percent of flour weight on a 14 percent moisture basis.

Crumb Grain and Texture is determined on a scale of 1 to 10 by visual comparison to a standard using a constant illumination source. Higher scores are preferred.

Loaf Volume is the volume of the test loaf after baking. Higher loaf volumes indicate better baking performance for pan breads.

Specks are visually counted in a semolina sample and reported as the number in 10 square inches. Specks, which can detract from pasta appearance and desirability, are small particles of bran or other material that escaped the wheat cleaning and semolina purifying process and thus depend on the milling process as well as the characteristics of the durum.

Sugar Snap Cookie, Sponge Cake, Chinese Southern-Type Steamed Bread, Spaghetti, and the Hard White noodle and steamed bread tests all use standardized methods to prepare specific end products to evaluate the suitability of the sample for that product or similar products. Details on many of these tests can be found in the Analysis Methods.

Photos courtesy of Wheat Marketing Center

MIDWESTERN HARVEST SURVEY

Weather and Harvest: A majority of the United States hard red winter wheat (HRW) is grown in the Great Plains states of Texas, Oklahoma, Kansas, Colorado, Nebraska, South Dakota, and Montana. Growing conditions, varieties, and management practices vary throughout the region, and can influence the quality of the crop.

Growing conditions were much improved from the previous year. Although there were some areas in the northern part of the US that were stressed by dry conditions, much of the area had adequate precipitation in the form of heavy snowfall and rain. The spring and early summer months brought more moisture, especially in the central and eastern parts of Oklahoma and Kansas. These areas received excessive rain and many acres had to be abandoned because of flooding.

Survey Methods: The states surveyed were divided into 36 geographic areas for summarizing and reporting data. A total of 386 individual samples were collected from the 36 areas. Quality information is based on testing by the USDA Hard Winter Wheat Quality Lab, Kansas State University Wheat Quality Lab, and Kansas Grain Inspection Services. Wheat grade and non-grade parameters were tested for each individual sample. Then samples for each area were composited into three protein ranges (below 11.5, 11.5-12.5, and above 12.5). Wheat grade data for the composite samples were determined by averaging individual samples. Composite samples were tested for wheat non-grade, flour, dough, and baking data.

Wheat and Grade Data: Test weight is higher than last year by 0.5 lb/bu (0.7 kg/hl) and the five-year average by 0.3 lb/bu (0.4 kg/hl). Average kernel size and weight are both higher than last year and the five-year average.

Overall wheat and flour protein were higher than last year and similar to the five-year average, with flour protein averaging 11.0% (14% moisture basis). The farinograph absorption was slightly higher than last year and close to the five-year average, while loaf volume was lower than average but close to the five-year average. Falling numbers were higher this year and above the five-year average.

Milling and Flour Use: Millers have indicated a smooth transition to grinding this year's crop. Higher protein levels throughout much of the production region are resulting in a return to average flour quality.

Summary: The 2008 harvest can be characterized in three ways. The northern part of the production region had an average to above average year. The southwestern area had normal to above average yields and quality, and the central to southeast area saw quality and quantity losses due to excessive rain just prior to and during harvest.

CALIFORNIA HARVEST SURVEY

California's wheat growing regions are defined by climate, value of alternative crops, and distinct differences in variety selection. This system has led to an implied "identity preserved" program, and most California wheat is traded on a variety-known basis.

Hard Red Wheat accounted for over 70% of the non-Durum acreage planted in California this year, and HRW acreage increased more than 30% over the previous year. Although there was higher than normal rainfall in the state through February, there was virtually no rain after that. As a result, some non-irrigated wheat in the drier areas of the state was cut for forage. Yields per acre were higher in 2008 which may have played a part in slightly lower protein. Kernel size, flour yields and loaf volume were higher than last year.

California hard wheat is predominately exported through the Port of Stockton, located on an inland waterway in Northern California. This grain handling facility is owned and operated by a California company. Wheat that goes into this facility is locally grown and trucked in, often directly from the field that it was harvested from. There continues to be interest in containerized shipments to Asia. Several ports throughout California handle containers.

California red wheats are harvested in the months of June and July. With the strong demand for new crop wheat in the domestic market place, export buyers are encouraged to express their interest in purchasing California wheat in early spring.

EXPORT CARGO SURVEY

The export cargo data show the results of analysis of 526 individual sublot samples for marketing years 2008 and 2007. Of the 122 2008-crop samples collected in August and September, 114 are from Gulf ports and 8 from PNW ports. Of the 404 2007-crop samples, 312 were drawn at Gulf ports and 92 at PNW ports. Representative samples were selected from official Federal Grain Inspection Service samples. Grade data are the actual official grades on the individual sublots. Milling and baking analyses were conducted by CII Laboratory Services, Kansas City, MO.

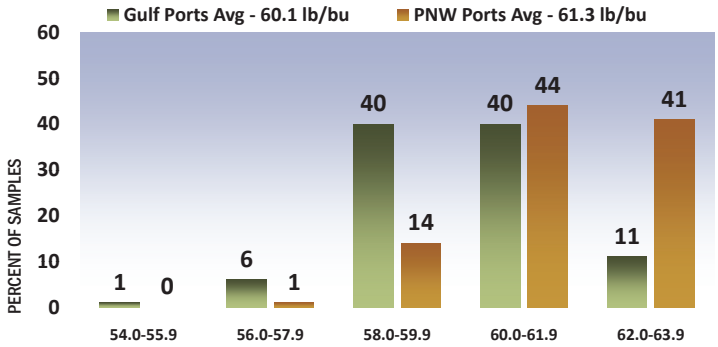


NINE STATES SURVEYED

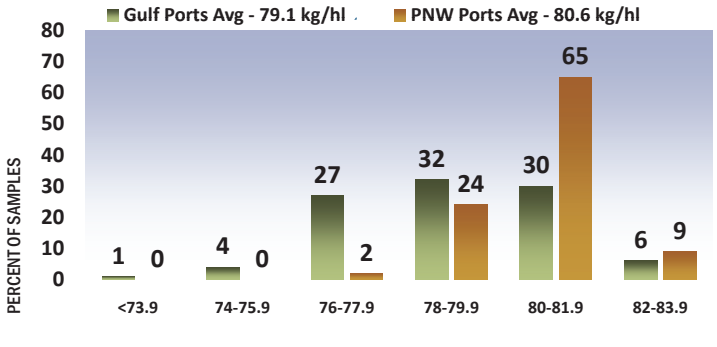
California • Colorado • Kansas
Montana • Nebraska • Oklahoma
South Dakota • Texas • Wyoming



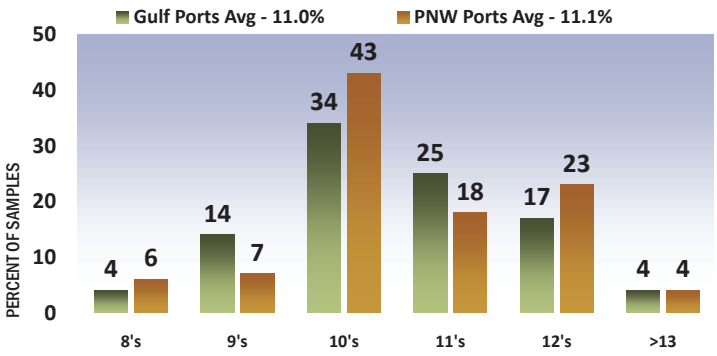
TEST WEIGHT | Pounds/Bushel



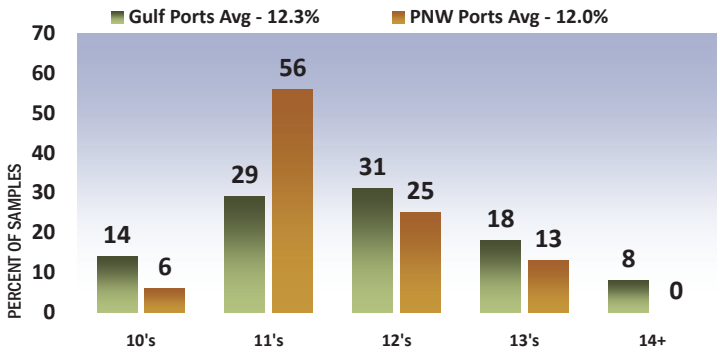
HECTOLITER WEIGHT | Kilograms/Hectoliter



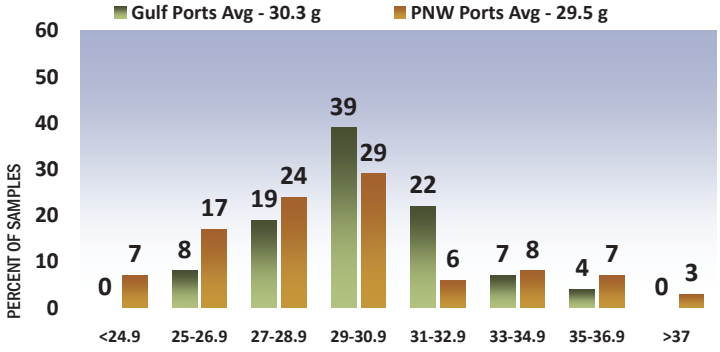
WHEAT MOISTURE | Percent



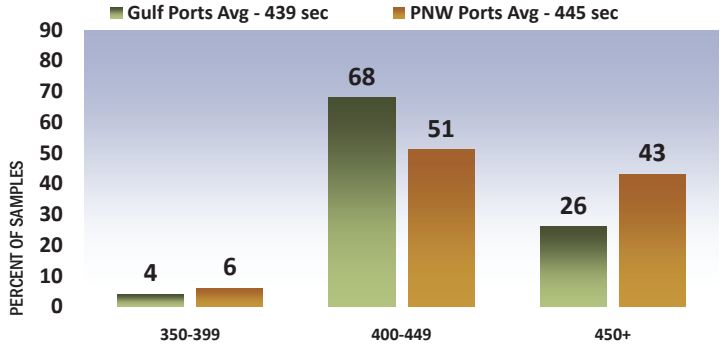
PROTEIN (12% MB) | Percent



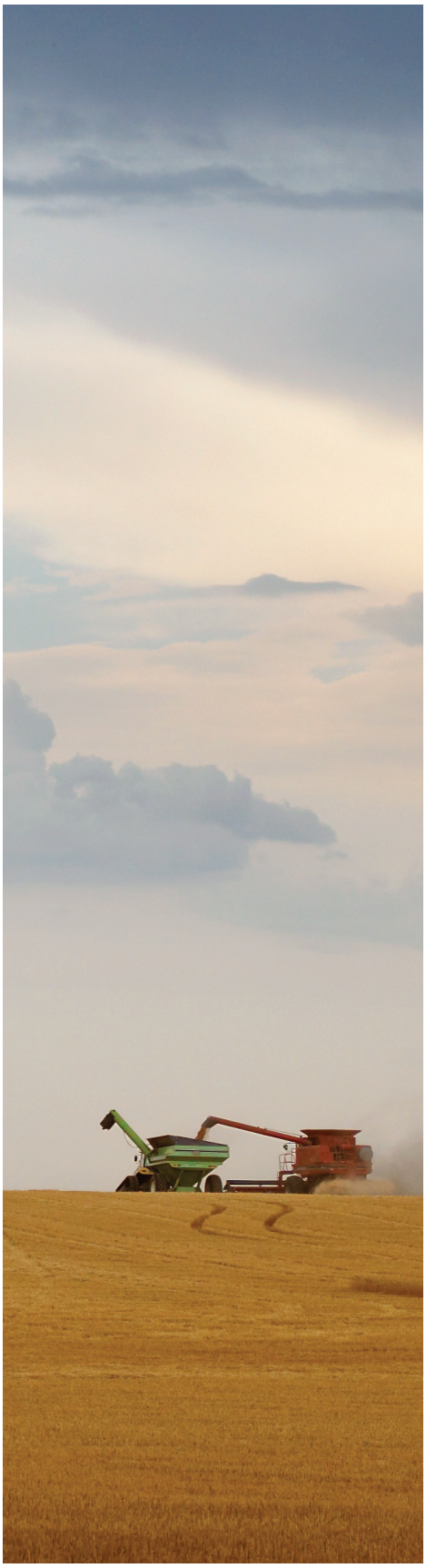
1000 KERNEL WEIGHT | Grams



FALLING NUMBER | Seconds



HARD RED WINTER | MIDWESTERN HARVEST DATA



Hard Red Winter	Composite Average					
	2008 By Protein*				2007	5-Year
	Low	Med	High	Overall	Overall	Average
Wheat Grade Data:						
Test Weight (lb/bu)	60.7	60.6	59.8	60.3	59.7	59.9
(kg/hl)	79.8	79.7	78.7	79.3	78.5	78.8
Damaged Kernels (%)	0.2	0.5	0.2	0.3	0.5	0.4
Foreign Material (%)	0.2	0.1	0.1	0.1	0.1	0.1
Shrunken & Broken (%)	1.0	1.1	1.1	1.1	1.6	1.2
Total Defects (%)	1.5	1.7	1.3	1.5	2.2	1.8
Grade	1 HRW	1 HRW	2 HRW	1 HRW	2 HRW	2 HRW
Wheat Non-Grade Data:						
Dockage (%)	0.6	0.5	0.7	0.6	0.7	0.7
Moisture (%)	11.5	11.0	10.7	11.0	11.4	11.4
Protein (%) 12%/0% moisture basis	11.1/12.5	12.0/13.6	13.3/15.2	12.2/13.9	11.6/13.3	12.4/14.1
Ash (%) 14%/0% moisture basis	1.54/1.79	1.54/1.79	1.60/1.86	1.56/1.81	1.54/1.80	1.54/1.79
1000 Kernel Weight (g)	30.9	30.7	29.1	30.1	29.5	28.9
Kernel Size (%) lg/md/sm	62/35/1	58/38/1	51/45/2	57/40/1	51/47/2	56/43/1
Single Kernel: Hardness	67.3	67.3	66.8	67.3	67.6	68.8
Weight (mg)	30.9	30.7	29.1	30.1	27.6	29.3
Diameter (mm)	2.34	2.31	2.23	2.29	2.12	2.24
Sedimentation (cc)	47.3	53.1	60.8	54.4	37.7	41.6
Falling Number (sec)	431	439	446	440	417	400
Flour Data:						
Lab Mill Extraction (%)	73.7	74.1	73.4	74.0	68.3	69.0
Color: L*	90.8	90.6	90.3	90.5	91.9	92.3
a*	-1.6	-1.5	-1.4	-1.4	-1.9	-2.9
b*	9.8	9.7	9.8	9.7	11.0	9.4
Protein (%) 14%/0% moisture basis	9.8/11.1	10.6/12.1	11.9/13.6	11.0/12.5	10.7/12.4	11.2/13.0
Ash (%) 14%/0% moisture basis	0.54/0.61	0.56/64	0.58/.66	0.57/.65	0.54/0.63	0.49/0.57
Wet Gluten (%)	24.8	27.8	32.8	29.1	29.1	30.5
Gluten Index	95.1	93.0	86.7	91.7	94.3	93.9
Falling Number (sec)	425	432	450	438	421	415
Amylograph Viscosity 65 g (BU)	1051	1054	1046	1049		653
Starch Damage (%)	6.5	6.4	6.2	6.4		
Dough Properties:						
Farinograph:						
Peak Time (min)	3.6	4.6	5.9	4.9	5.1	6.1
Stability (min)	8.4	9.3	11.0	9.4	7.9	10.7
Absorption (%)	58.7	59.5	60.8	60.0	57.2	58.6
Alveograph: P (mm)	92	89	87	90	60	83
L (mm)	73	84	98	85	104	105
P/L Ratio	1.41	1.19	0.96	1.23	0.60	0.80
W (10^{-4} joules)	227	242	269	245	195	284
Extensograph: Resistance (BU)	324/416	321/410	308/385	316/399		
(45/135 min) Extensibility (cm)	14.0/13.4	14.8/14.2	15.3/15.1	14.7/14.4		
Area (sq cm)	78/93	83/99	85/103	81/99		
Baking Evaluation:						
Crumb Grain (scale 1-6)	3.2	3.4	4.5	3.6	3.0	5.9
Crumb Texture (scale 1-6)	4.4	4.4	5.1	4.8	3.4	6.4
Loaf Volume (cc)	745	786	855	802	855	844
% of Area Production:	26	35	39	100	100	

* Low: Less than 11.5%; Med: 11.5 - 12.5%; High: 12.5% or greater

Gulf Exportable Average						PNW Exportable Average					
2008 By Protein*				2007	5-Year	2008 By Protein*				2007	5-Year
Low	Med	High	Overall	Overall	Average	Low	Med	High	Overall	Overall	Average
60.5	60.2	59.8	60.1	59.4	59.7	62.0	61.5	60.3	61.3	60.8	60.6
79.6	79.2	78.7	79.1	78.3	78.6	81.5	80.9	79.3	80.6	80.0	79.8
0.2	0.7	0.2	0.4	0.5	0.5	0.2	0.1	0.0	0.1	0.1	0.3
0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1
1.0	1.0	1.1	1.0	1.6	1.2	1.1	1.4	1.0	1.2	1.7	1.4
1.5	1.8	1.3	1.5	2.3	1.8	1.4	1.5	1.1	1.4	1.8	1.7
1 HRW	1 HRW	2 HRW	1 HRW	2 HRW	2 HRW	1 HRW	1 HRW	1 HRW	1 HRW	1 HRW	1 HRW
0.6	0.5	0.7	0.6	0.8	0.7	0.6	0.4	0.5	0.5	0.8	0.8
11.6	11.1	10.6	11.0	11.5	11.5	10.9	10.8	12.0	11.1	10.4	10.5
11.0/12.4	12.0/13.6	13.4/15.2	12.3/14.0	11.7/13.3	12.4/14.1	11.2/12.7	11.8/13.4	13.0/14.8	12.0/13.6	11.9/13.5	12.5/14.2
1.55/1.80	1.59/1.85	1.61/1.87	1.59/1.85	1.55/1.80	1.55/1.80	1.48/1.72	1.40/1.63	1.45/167	1.43/1.66	1.52/1.77	1.53/1.78
30.8	31.4	29.1	30.3	29.4	28.9	31.4	28.9	29.2	29.5	30.6	28.8
63/34/1	60/36/1	51/45/2	57/39/1	53/44/3	57/41/2	60/36/1	53/45/2	51/46/2	54/43/2	49/50/1	51/47/1
67.5	65.5	67.3	66.9	66.9	68.6	67.4	70.4	67.2	69.0	69.6	70.9
30.8	31.4	29.1	30.3	27.6	29.3	31.4	28.9	29.2	29.5	28.1	29.2
2.34	2.36	2.24	2.30	2.12	2.25	2.34	2.18	2.20	2.20	2.12	2.21
45.8	51.7	60.3	53.9	37.9	41.7	50.7	55.8	60.7	55.1	37.2	41.8
431	434	447	439	474	411	431	453	436	445	448	407
74.3	74.7	73.7	74.5	68.6	69.0	72.8	73.2	72.9	73.6	67.9	69.0
90.8	90.5	90.2	90.5	91.9	92.3	90.7	90.4	90.5	90.6	92.3	92.6
-1.6	-1.5	-1.4	-1.5	-1.8	-2.8	-1.5	-1.4	-1.5	-1.4	-1.8	-2.9
9.9	9.7	9.8	9.7	11.0	9.3	9.6	9.5	9.7	9.5	10.7	9.5
9.7/11.3	10.6/12.3	12.0/14.0	11.0/12.8	10.5/12.2	11.1/12.9	9.8/11.4	10.6/12.3	11.5/13.4	10.8/12.6	11.3/13.0	11.3/13.2
0.55/0.64	0.57/0.66	0.58/0.67	0.57/0.66	0.55/0.64	0.49/0.57	0.49/0.57	0.55/0.64	0.55/0.64	0.55/0.64	0.53/0.61	0.47/0.55
24.8	27.8	32.8	29.1	28.9	30.5	24.5	27.8	31.6	28.6	30.4	31.0
95.1	92.8	86.6	91.6	94.7	94.0	97.0	94.8	92.0	94.0	92.9	93.2
427	428	446	436	417	412	415	431	456	437	441	428
1041	1044	1036	1044		653	1084	1061	1055	1062		648
3.4	4.7	6.0	4.8	5.0	6.0	4.0	4.8	5.3	4.7	5.7	6.4
8.1	8.9	10.8	9.1	7.8	10.6	8.8	9.8	11.1	9.5	8.8	11.3
58.5	59.3	60.8	59.9	56.7	58.6	59.2	59.8	60.8	60.2	58.5	59.0
84	81	83	83	59	84	103	100	96	107	66	83
75	91	101	89	105	105	71	77	89	72	102	105
1.18	0.96	0.86	1.01	0.58	0.80	1.67	1.44	1.20	1.69	0.66	0.79
213	234	264	238	190	285	248	263	279	261	214	283
312/399	303/385	303/376	301/379			342/430	341/450	323/409	332/425		
13.9/13.4	14.9/14.4	15.4/15.2	14.8/14.6			14.3/13.7	14.7/14.1	15.0/14.6	14.7/14.3		
74/86	80/96	83/102	79/96			85/98	89/108	87/105	86/104		
3.2	3.5	4.6	3.8	3.2	5.9	2.9	3.4	4.0	2.8	3.3	6.2
4.3	4.4	5.2	4.8	3.5	6.4	4.5	4.4	5.0	4.5	3.5	6.5
740	786	858	802	859	844	748	787	832	784	847	842
27	30	42	100	100		20	56	24	100	100	

Hard Red Winter	California Harvest Data				Export Cargo Data			
	Medium Protein Average		High Protein Average		Gulf		PNW	
	2008	2007	2008	2007	2008	2007	2008	2007
Wheat Grade Data:								
Test Weight (lb/bu)	63.9	64.0	63.6	64.0	60.7	60.3	61.9	62.4
(kg/hl)	83.9	84.1	83.6	84.1	79.9	79.3	81.4	82.1
Damaged Kernels (%)	0.0	0.0	0.0	0.0	1.3	1.4	0.1	0.1
Foreign Material (%)	0.1	0.2	0.0	0.3	0.2	0.2	0.2	0.1
Shrunken & Broken (%)	0.5	0.7	0.4	0.6	1.3	1.7	1.6	1.5
Total Defects (%)	0.5	0.9	0.5	0.9	2.9	3.3	1.8	1.7
Grade	1 HRW	1 HRW	1 HRW	1 HRW	1 HRW	2 HRW	1 HRW	1 HRW
Wheat Non-Grade Data:								
Dockage (%)	0.7	0.6	0.8	0.8	0.6	0.7	0.3	0.3
Moisture (%)	8.0	8.5	7.9	8.4	11.5	11.9	10.9	9.8
Protein (%) 12%/0% moisture basis	12.0/13.6	11.8/13.5	13.3/15.1	13.6/15.4	12.0/13.6	11.8/13.4	12.1/13.7	12.0/13.6
Ash (%) 14%/0% moisture basis	1.45/1.68	1.42/1.66	1.46/1.69	1.49/1.73	1.56/1.82	1.55/1.80	1.50/1.74	1.41/1.64
1000 Kernel Weight (g)	45.1	42.3	44.0	41.9	30.7	27.2	29.9	28.5
Kernel Size (%) lg/md/sm					66/32/2	61/37/2	53/45/2	60/38/2
Single Kernel: Hardness					-	73.3	-	76.0
Weight (mg)					-	28.9	-	30.5
Diameter (mm)					-	2.32	-	2.39
Sedimentation (cc)					28.5	28.8	32.6	32.8
Falling Number (sec)					380	377	414	448
Flour Data:								
Lab Mill Extraction (%)	73.6	72.9	75.2	73.5	72.3	70.8	71.4	72.6
Color: L*					92.8	92.6	92.8	92.6
a*					-3.0	-3.2	-3.0	-3.1
b*					8.7	9.1	8.8	9.1
Protein (%) 14%/0% moisture basis	10.6/12.4	10.6/12.3	12.0/14.0	12.3/14.3	10.7/12.4	10.4/12.1	10.8/12.5	10.8/12.6
Ash (%) 14%/0% moisture basis	0.44/0.52	0.45/0.53	0.42/0.49	0.45/0.52	0.50/0.58	0.49/0.57	0.49/0.57	0.48/0.56
Wet Gluten (%)	27.3	26.4	32.2	31.8	27.8	27.3	29.0	28.8
Gluten Index					95.1	96.1	91.5	92.5
Falling Number (sec)	400	410	434	407	400	404	432	473
Amylograph Viscosity 65 g (BU)					583	494	636	647
Starch Damage (%)								
Dough Properties:								
Farinograph:								
Peak Time (min)	6.6	4.9	8.0	7.0	5.8	6.1	5.8	6.0
Stability (min)	16.5	13.7	17.2	15.2	10.1	11.8	9.8	9.7
Absorption (%)	60.5	60.3	62.5	62.4	57.8	57.0	58.1	59.9
Alveograph: P (mm)					99	104	109	119
L (mm)					79	80	74	75
P/L Ratio					1.25	1.30	1.48	1.58
W (10^{-4} joules)					276	292	294	316
Extensograph: Resistance (BU)								
(45/135 min) Extensibility (cm)								
Area (sq cm)								
Baking Evaluation:								
Crumb Grain (scale 1-6)					6.6	6.4	7.0	6.5
Crumb Texture (scale 1-6)					6.9	6.6	6.9	6.8
Loaf Volume (cc)	796	816	929	911	808	872	814	849
Number of Samples					114	312	8	92

Hard Red Winter Production

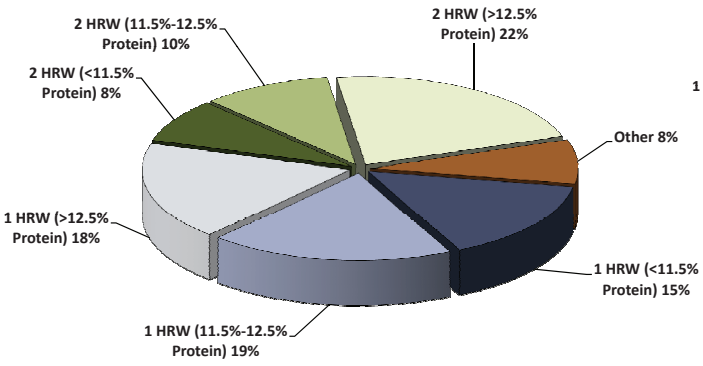
for the major growing region
(million metric tons)

	2008	2007	2006	2005	2004
California	0.77	0.43	0.33	0.52	0.67
Colorado	1.44	2.38	1.01	1.32	1.16
Kansas	9.40	7.49	7.77	9.93	8.13
Montana	2.54	2.22	2.20	2.52	1.76
Nebraska	1.98	2.27	1.65	1.83	1.63
Oklahoma	4.40	2.59	2.18	3.41	4.39
South Dakota	2.83	2.59	1.13	1.78	1.53
Texas	2.59	3.67	0.85	2.43	2.72
Wyoming	0.10	0.09	0.10	0.12	0.10
Nine-State Total	**26.05**	**23.73**	**17.21**	**23.87**	**22.08**
Total HRW Production	**28.18**	**26.17**	**18.56**	**25.31**	**23.30**

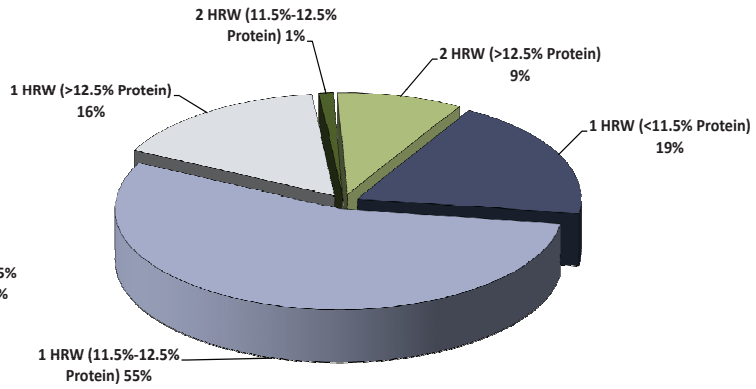
Based on USDA crop estimates of September 30, 2008.

PROTEIN DISTRIBUTION

GULF EXPORTABLE



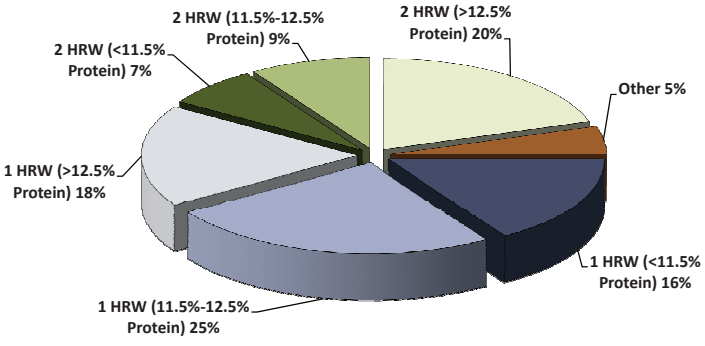
PNW EXPORTABLE



ABOUT HARD RED WINTER WHEAT

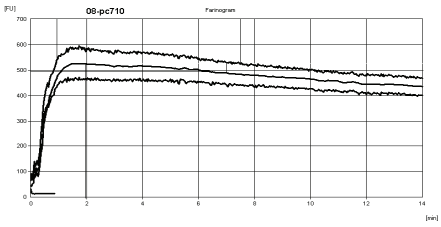
U.S. hard red winter wheat has medium to high protein, medium hard endosperm, red bran, medium gluten content and mellow gluten. Used in pan breads, Asian noodles, hard rolls, flatbreads and general-purpose flour.

OVERALL

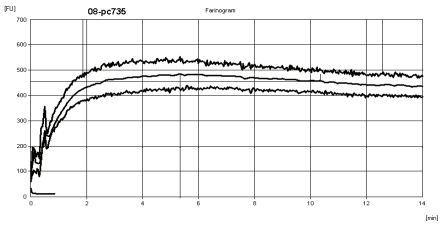


COMPOSITE AVERAGE
FARINOGRAMS, ALVEOGRAMS, EXTENSOGRAMS

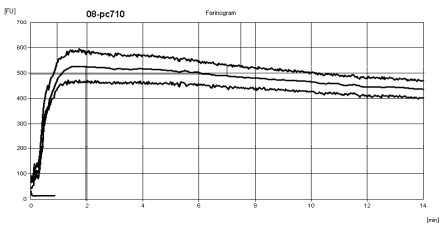
FARINOGRAMS:
HIGH PROTEIN



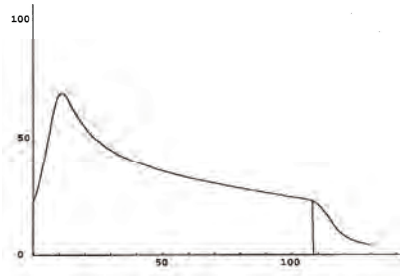
MEDIUM PROTEIN



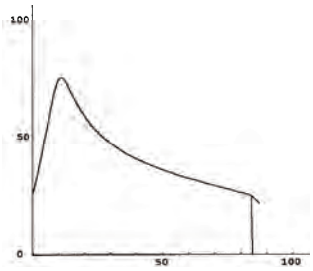
LOW PROTEIN



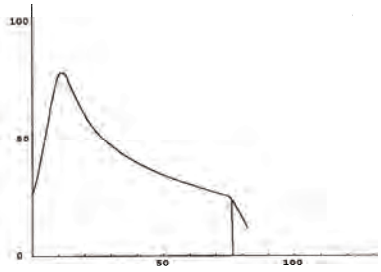
ALVEOGRAMS:
HIGH PROTEIN



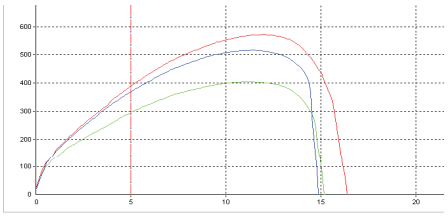
MEDIUM PROTEIN



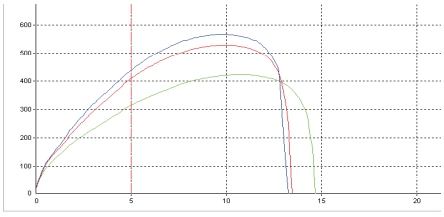
LOW PROTEIN



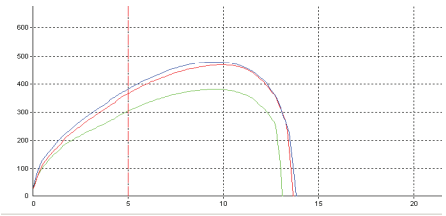
EXTENSOGRAMS:
HIGH PROTEIN



MEDIUM PROTEIN



LOW PROTEIN





HARVEST SURVEY

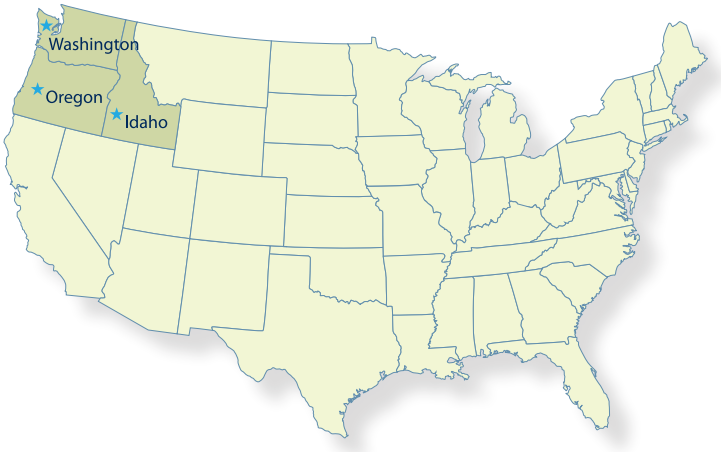
Weather and Harvest: The Pacific Northwest (PNW) experienced unusual weather this crop year: dry at planting and early fall, a cool spring and early summer and very hot mid-summer. These weather conditions contributed to a crop with lower average yield in dryland farming areas in Idaho, Oregon, and Washington. Dry conditions prevailed during most of the harvest, although rain showers occurred toward the end of harvest in northeastern PNW.

Survey and Analysis Methods: Wheat quality testing and data analyses were conducted by the Wheat Marketing Center, Portland, Oregon. Laboratory testing was conducted according to either American Association of Cereal Chemists Approved Methods (10th Edition) or Wheat Marketing Center Standard Methods. Survey samples were collected from producers under the management of the National Agricultural Statistics Services, USDA, and represent a statistical sampling of the crop. USDA's Federal Grain Inspection Service (FGIS) graded the wheat samples. The wheat commissions of Idaho, Oregon, and Washington, U.S. Wheat Associates, Inc., and the U.S. Department of Agriculture supported this program.

Wheat and Grade Data: The average test weight for the 2008 soft white (SW) at 58.9 lb/bu (77.5 kg/hl) was below last year's average, and white club (WC) at 58.8 lb/bu (77.4 kg/hl) was also below last year. Other FGIS grading factors for SW and WC were similar to last year and the five-year averages. SW dockage increased by 0.1 percentage points to 0.7% and WC increased by 0.2 to 1.0% from last year. Wheat moisture contents of SW at 9.6% and WC at 9.5% were higher than last year and the five-year averages.

SW protein content (12% mb) of 11.2% was higher than last year and the five-year averages, and WC protein (12% mb) of 11.4% was higher than last year and the five-year averages. Wheat ash contents were similar to last year and the five-year averages for SW and WC. SW and WC thousand kernel weights were lower, but kernel diameter values were higher than last year and the five-year averages. Falling number values (14% mb) were 321 seconds for SW and 303 seconds for WC, both of which were lower than last year and the five-year averages

Flour, Dough and Baking Data: Buhler Laboratory Mill flour extractions of 71.1% for SW and 74.1% for WC were higher than last year and the five-year average, while flour ash for both SW and WC were slightly lower than last year. Flour protein contents (14% mb) were 9.3 and 9.8% for SW and WC, respectively. Falling number values indicated sound flour samples for SW and WC, and amylograph peak viscosity values were higher than last year and five-year averages at 600 BU for SW and 581 BU for WC. Starch damage values for SW and WC were lower than last year and the five-year averages. Farinograph peak and stability times showed that



THREE STATES SURVEYED

Idaho • Oregon • Washington

SW had slightly stronger gluten properties with lower water absorption than last year and the five-year averages, and WC had slightly weaker gluten properties than last year, but similar to the five-year averages. Alveograph L values, which typically shows longer times with higher protein content, did display longer values for SW and WC than last year and the five-year averages. SW and WC extensograph extensibility indicated higher values than last year and the five-year averages. Sponge cake volume for SW of 1213 cc was slightly larger with a higher score than last year and the five-year averages, and the volume for WC of 1213 cc was smaller than last year and the five-year average. Cookie diameter for SW was slightly larger and for WC was slightly smaller than last year and the five-year averages. SW cookie spread factor was greater and WC was slightly less than last year.

Chinese Southern-Type Steamed Bread: Each flour was made into southern-type steamed bread and compared with control flour. Specific volumes were higher for SW and lower for WC than last year and similar to the five-year averages. Total score for SW was slightly lower than last year average, but higher than the five-year average. Total score for WC was lower than last year, but slightly higher than the five-year average.

EXPORT CARGO SURVEY

The PNW SW export cargo data show the results of analyses of individual sublot samples including 97 drawn from the 2006 crop and 100 from the 2007 crop (August 2007 through May 2008). Representative samples were selected from official Federal Grain Inspection Service samples. Grade data were the actual grades on the individual sublots. Milling and processing analyses were conducted by the Wheat Marketing Center, Portland, Oregon.

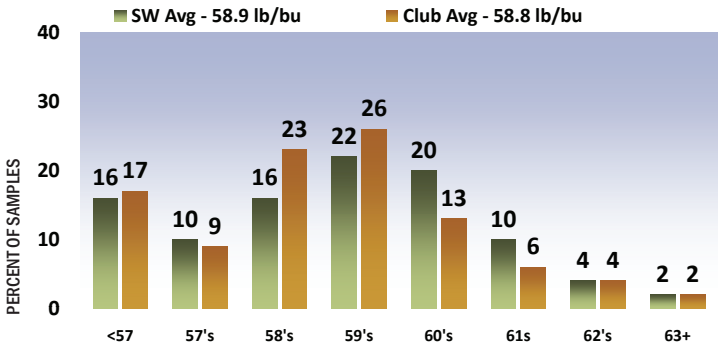
Pacific Northwest Soft White Wheat Production

in major producing states
(million metric tons)

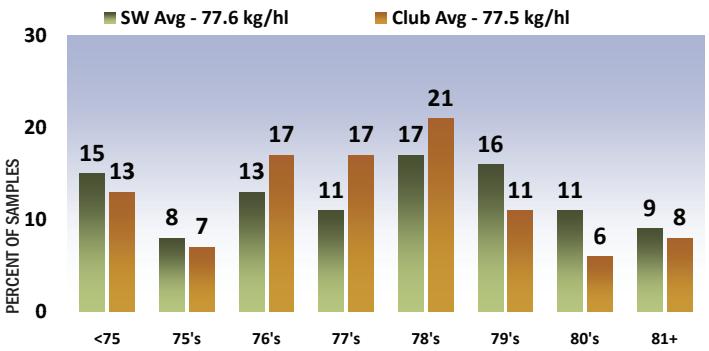
	2008		2007		2006		2005		2004	
	SW	CLUB	SW	CLUB	SW	CLUB	SW	CLUB	SW	CLUB
Washington	2.36	0.14	2.19	0.27	2.91	0.18	3.13	0.17	3.10	0.24
Oregon	1.29	0.01	1.13	0.02	1.44	0.04	1.35	0.04	1.54	0.05
Idaho	1.44	0.04	1.16	0.07	1.09	0.02	1.92	0.04	1.53	0.06
Three-state Total	**5.09**	**0.20**	**4.48**	**0.36**	**5.44**	**0.24**	**6.40**	**0.25**	**6.17**	**0.34**
Three-state Total Soft White Wheat	**5.29**		**4.84**		**5.68**		**6.65**		**6.51**	
Total US Soft White Wheat	**6.13**		**5.43**		**7.30**		**7.33**		**6.99**	

Based on USDA crop estimates of 9/31/2008.

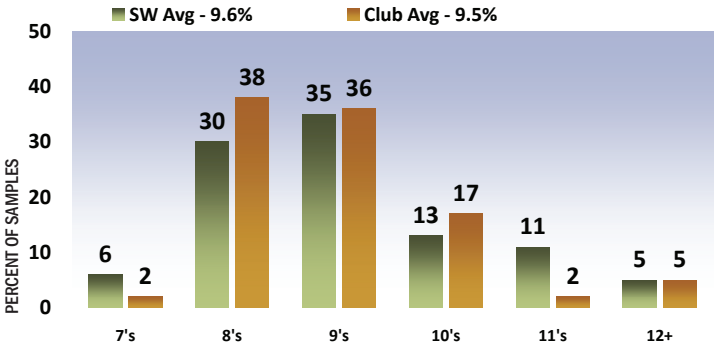
TEST WEIGHT | Pounds/Bushel



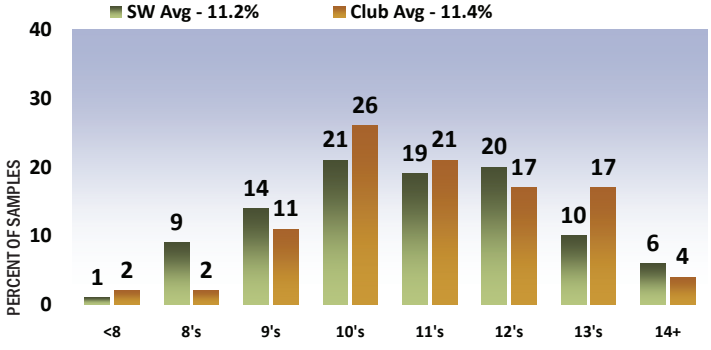
HECTOLITER WEIGHT | Kilograms/Hectoliter



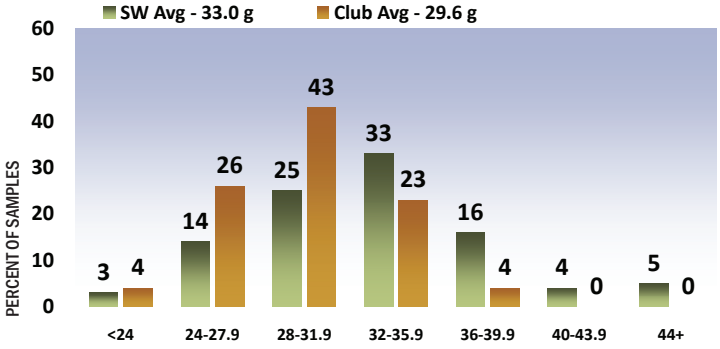
WHEAT MOISTURE | Percent



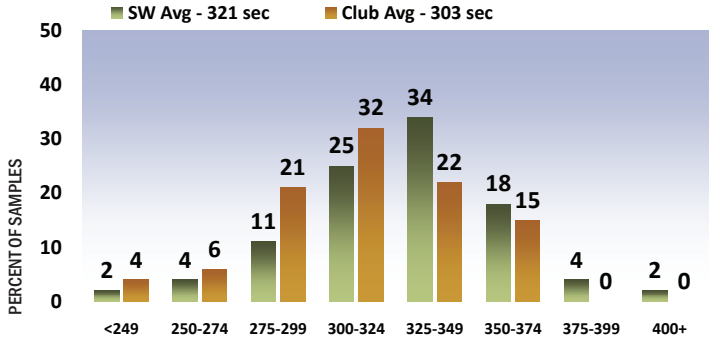
PROTEIN (12% MB) | Percent



1000 KERNEL WEIGHT | Grams

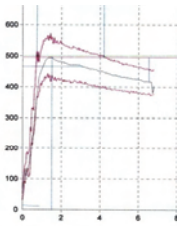


FALLING NUMBER | Seconds

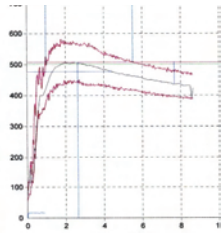


FARINOGRAMS:

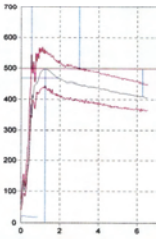
HIGH PROTEIN



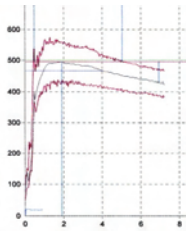
MEDIUM PROTEIN



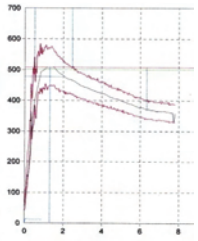
LOW PROTEIN



AVERAGE PROTEIN

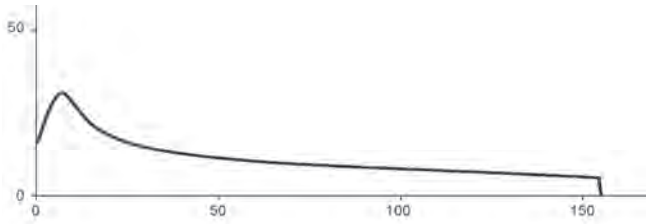


CLUB

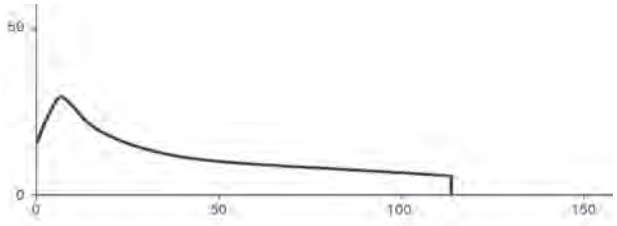


ALVEOGRAMS:

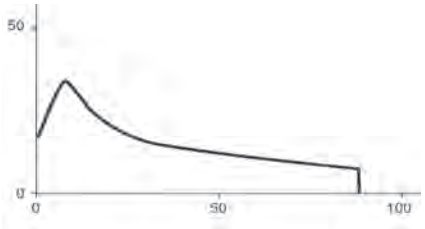
HIGH PROTEIN



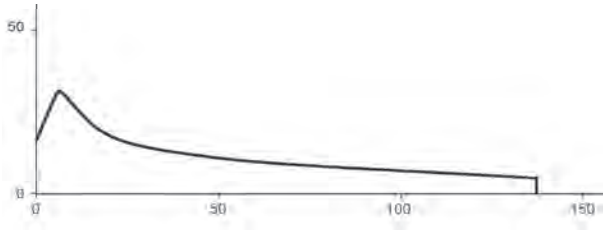
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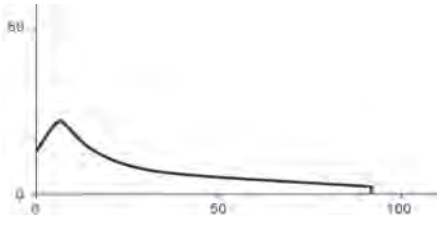
LOW PROTEIN



AVERAGE PROTEIN

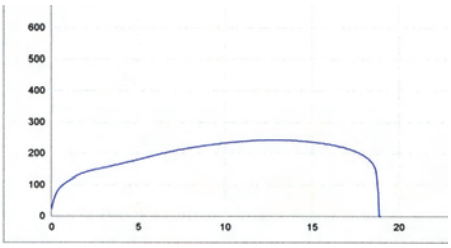


CLUB

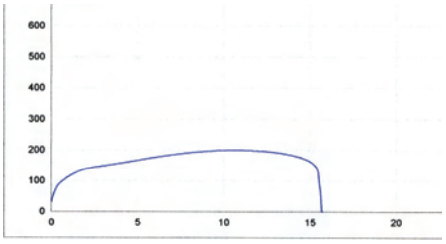


EXTENSOGRAMS:

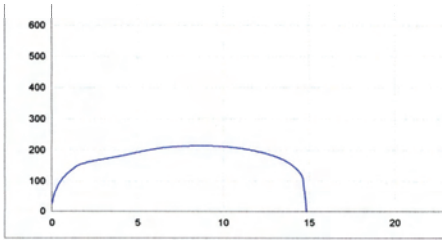
HIGH PROTEIN



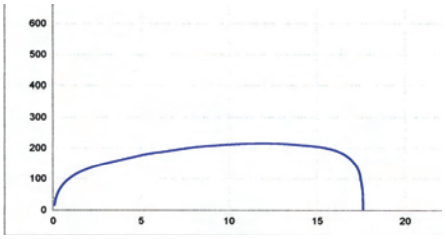
MEDIUM PROTEIN



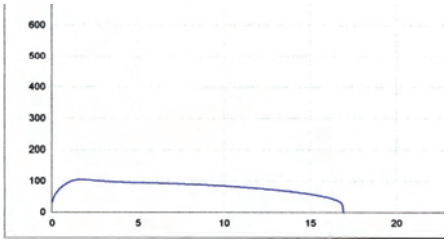
LOW PROTEIN



AVERAGE PROTEIN



CLUB

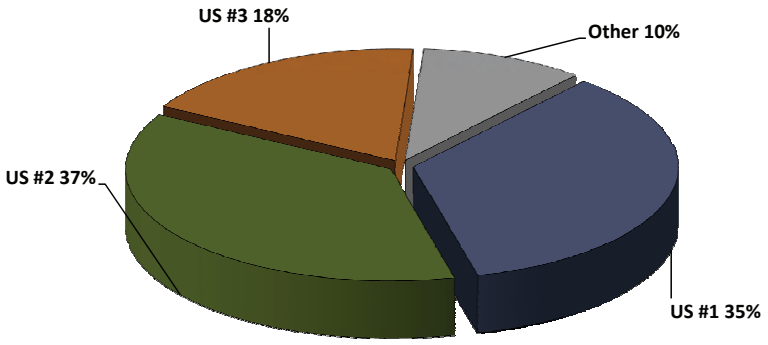


Soft White	2008					2007		5-Year Average	
	Soft White By Protein*				Club Average				
	Low	Med	High	All		SW	Club	SW	Club
Wheat Grade Data:									
Test Weight (lb/bu)	60.2	59.6	58.5	58.9	58.8	60.0	60.2	59.8	60.0
(kg/hl)	79.2	78.4	77.0	77.5	77.4	78.9	79.2	78.7	78.9
Damaged Kernels (%)	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.2	0.1
Foreign Material (%)	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1
Shrunken & Broken (%)	0.4	0.8	1.1	0.9	1.6	0.9	1.3	0.9	1.3
Total Defects (%)	0.5	0.8	1.3	1.1	2.0	1.1	1.4	1.1	1.4
Grade	1 SW	2 SW	2 SW	2 SW	1 WC	1 SW	1 WC	2 SW	1 WC
Wheat Non-Grade Data:									
Dockage (%)	0.4	0.6	0.7	0.7	1.0	0.6	0.8	0.6	0.9
Moisture (%)	10.0	9.6	9.5	9.6	9.5	9.3	8.9	9.3	8.9
Protein (%) 12%/0% moisture basis	8.5/9.7	9.9/11.2	12.2/13.9	11.2/12.7	11.4/13.0	10.2/11.6	10.5/11.9	10.4/11.8	10.4/11.8
Ash (%) 14%/0% moisture basis	1.30/1.51	1.35/1.57	1.40/1.63	1.38/1.60	1.29/1.50	1.36/1.58	1.28/1.49	1.37/1.59	1.28/1.49
1000 Kernel Weight (g)	37.1	34.5	31.6	33.0	29.6	35.5	31.0	34.7	30.8
Kernel Size (%) lg/md/sm	88/12/0	81/18/1	70/29/1	75/24/1	66/33/1	80/19/1	74/25/1	81/18/1	74/25/1
Single Kernel: Hardness	31.1	33.7	32.4	32.5	34.2	35.0	36.9	33.7	36.2
Weight (mg)	39.9	38.1	35.8	36.8	33.7	37.8	34.4	36.5	34.2
Diameter (mm)	2.83	2.77	2.70	2.73	2.58	2.69	2.56	2.60	2.45
Sedimentation (cc)	14.9	15.9	21.9	19.6	25.3	16.1	15.4	17.4	16.5
Falling Number (sec)	307	319	322	321	303	331	337	339	333
Flour Data:									
Lab Mill Extraction (%)	71.7	71.4	70.9	71.1	74.1	68.8	70.0	68.8	70.1
Color: L*	92.8	92.2	92.2	92.3	92.3	92.3	92.3	92.3	92.3
a*	-2.6	-2.6	-2.5	-2.5	-2.3	-2.3	-2.1	-2.5	-2.3
b*	7.9	7.8	7.8	7.8	7.6	8.1	7.9	7.7	7.5
Protein (%) 14%/0% moisture basis	7.1/8.3	8.2/9.5	10.1/11.7	9.3/10.8	9.8/11.4	8.5/9.9	9.0/10.5	8.7/10.1	8.8/10.2
Ash (%) 14%/0% moisture basis	0.36/0.42	0.38/0.44	0.40/0.47	0.39/0.45	0.41/0.48	0.41/0.48	0.42/0.49	0.40/0.47	0.40/0.47
Wet Gluten (%)	16.0	21.8	26.3	24.0	24.8	20.6	18.3	22.0	20.0
Gluten Index	87.7	44.8	67.3	63.7	1.6	49.4	3.5	-	-
Falling Number (sec)	366	301	352	340	336	331	325	343	339
Amylograph Viscosity 65 g (BU)	630	576	605	600	581	558	562	538	556
Starch Damage (%)	4.0	4.0	3.8	3.8	3.2	4.7	3.8	4.2	3.6
Solvent Retention Capacity (%)									
Water/50% Sucrose	53/98	53/119	53/103	53/107	49/94	55/110	50/100	54/107	47/97
5% Lactic Acid/5% Na2CO3	99/76	103/79	115/76	110/77	85/72	111/84	90/78	109/82	84/76
Dough Properties:									
Farinograph: Peak Time (min)	1.3	1.5	2.7	1.9	1.3	1.5	1.7	1.7	1.4
Stability (min)	2.5	3.5	4.5	4.6	2.0	4.0	2.3	4.1	1.9
Absorption (%)	51.4	51.4	52.4	52.0	51.6	53.6	52.1	52.5	51.3
Alveograph: P (mm)	38	34	34	34	24	41	27	39	25
L (mm)	89	114	157	139	93	110	77	119	85
P/L Ratio	0.43	0.30	0.22	0.24	0.26	0.37	0.35	0.34	0.30
W (10-4 joules)	89	89	111	103	44	104	43	108	43
Extensograph: Resistance (BU)	214	200	243	229	105	231	88	240	102
(45 min) Extensibility (cm)	14.8	15.8	19.0	17.7	16.9	16.3	15.7	16.6	15.6
Area (sq cm)	48	47	67	60	25	56	21	59	24
Baking Evaluation:									
Sponge Cake: Volume (cc)	1211	1237	1204	1213	1213	1200	1263	1205	1234
Score	51	58	51	53	48	46	53	50	50
Cookie: Diameter (cm)	8.5	8.4	8.2	8.3	8.4	8.1	8.5	8.2	8.6
Spread Factor (width/height)	9.3	9.2	8.1	8.5	9.8	8.1	10.0	-	-
Chinese Southern-Type Steamed Bread Evaluation:									
Specific Volume (ml/g)	2.5	2.7	2.6	2.6	2.7	2.4	2.9	2.5	2.7
Total Score	66.3	68.0	68.5	68.1	65.3	68.3	67.2	67.8	65.0
% of Area Production:	11	26	63	100	100	100	100	100	100

* Low: Less than 9.0%; Medium: 9.0 - 10.5%; High: Greater than 10.5%

Soft White	2007	2006
Wheat Grade Data:		
Test Weight (lb/bu)	61.6	61.6
(kg/hl)	81.0	81.0
Damaged Kernels (%)	0.1	0.1
Foreign Material (%)	0.1	0.1
Shrunken & Broken (%)	1.0	1.1
Total Defects (%)	1.2	1.3
Grade	1 SW	1 SW
Wheat Non-Grade Data:		
Dockage (%)	0.3	0.4
Moisture (%)	9.1	8.8
Protein (%) 12%/0% moisture basis	10.3/11.7	10.6/12.0
Ash (%) 14%/0% moisture basis	1.33/1.55	1.40/1.63
1000 Kernel Weight (g)	37.3	35.5
Kernel Size (%) lg/md/sm	81/19/1	78/21/1
Single Kernel: Hardness	39.2	43.8
Weight (mg)	36.2	35.2
Diameter (mm)	2.50	2.49
Sedimentation (cc)	15.6	14.6
Falling Number (sec)	356	365
Flour Data:		
Lab Mill Extraction (%)	68.7	70.6
Color: L*	92.5	92.2
a*	-2.2	-2.1
b*	8.0	8.1
Protein (%) 14%/0% moisture basis	8.6/10.1	9.0/10.4
Ash (%) 14%/0% moisture basis	0.41/0.48	0.44/0.52
Wet Gluten (%)	23.1	23.9
Gluten Index	66.7	62.7
Falling Number (sec)	376	386
Amylograph Viscosity 65 g (BU)	543	561
Starch Damage (%)	-	-
Solvent Retention Capacity (%)		
Water/50% Sucrose	-	-
5% Lactic Acid/5% Na_2CO_3	-	-
Dough Properties:		
Farinograph: Peak Time (min)	1.6	2.2
Stability (min)	3.2	4.4
Absorption (%)	52.7	54.9
Alveograph: P (mm)	39	48
L (mm)	109	97
P/L Ratio	0.36	0.50
W (10-4 joules)	95	126
Extensograph: Resistance (BU)	-	-
(45 min) Extensibility (cm)	-	-
Area (sq cm)	-	-
Baking Evaluation:		
Sponge Cake: Volume (cc)	1175	1213
Score	43	43
Cookie: Diameter (cm)	8.1	8.0
Spread Factor (width/height)	-	-
Chinese Southern-Type Steamed Bread Evaluation:		
Specific Volume (ml/g)	-	-
Total Score	-	-
Sample Count:	100	97

SW GRADE DISTRIBUTION





ABOUT SOFT WHITE WHEAT

Low protein, low moisture wheat. Soft endosperm, white bran, weak gluten. Used in pastries, cakes, biscuits, crackers, flat breads, Asian-style noodles and snack foods.

HARVEST SURVEY

Weather and Harvest: Planting progress was near normal due to good weather with the exception of some delays in the eastern portion of the region. Planting was finished by the end of May, slightly ahead of average. Emergence was slower than normal due to cool, dry conditions in the west and cool, wet conditions in the east. Extremely low subsoil and topsoil moisture was an acute problem in western areas. Growing conditions improved in June as temperatures became warmer and adequate precipitation fell across the region. In July hot, dry conditions stressed the crop in the western areas of the region, affecting yield potential. The crop in the eastern areas had adequate subsoil moisture and was not adversely. One benefit of the dry conditions was lack of disease. Harvest began in early August, one to two weeks behind normal. Weather was nearly ideal until rain showers caused minor disruptions near the end of harvest. Harvest was largely completed by mid-September.

Samples and Methods: Sample collection and analysis were conducted by the Hard Red Spring Wheat Quality Lab, Department of Plant Sciences, North Dakota State University, Fargo, ND. A total of 809 HRS samples were collected from growers and grain elevators during harvest in Minnesota (102), Montana (191), North Dakota (389) and South Dakota (127). The samples represent approximately 90% of the HRS harvested in the four states. Samples were segregated by export region and composited by protein range as follows: less than 13.5%, 13.5%-14.5% and greater than 14.5%. The methods are described in the Analysis Methods section of this booklet.

Wheat and Grade Data: The 2008 HRS crop averages Grade No. 1 Northern Spring and is about 13% larger than 2007. Three-fourths of the crop is Grade No. 1 as the crop boasts little damage and a high average test weight. However, there is a wider range of some quality parameters this year and a lower vitreous kernel level due to widely varying growing conditions and yields across the region. Average damage is a mere 0.1%, similar to 2007, and below the five-year average as disease was nearly non-existent. Total defects were also similar to last year at 1.5% with no change in shrunken and broken kernels. The PNW region has higher shrunken and broken kernels compared to the Gulf/Great Lakes region due to severe drought in some western locations. The average test weight is 60.8 lb/bu (80 kg/hl) similar to last year and the five-year average but about 10% of the crop falls below 57 lb/bu (75.1 kg/hl), primarily in the PNW region. Across both production regions, the crop has heavier thousand kernel weights with an average of 33.6 grams. The most notable gains from 2007 were in the PNW region. Buyers will also appreciate the lower kernel ash levels across the region.

The crop average protein is equal to last year and near the five-year average at 14.3%. There is a wider than normal spread in protein levels in the 2008 crop due to the extreme variance in yields and growing conditions. There is a more equal distribution of protein in low, medium and high categories compared to 2007 with 26% of the crop low, 32% medium and 42% high. The Gulf/Great Lakes production region had the largest shift in the percentage of the crop below 13.5% protein with some isolated areas producing unusually low protein levels for HRS.

The average falling number on the crop is 379 seconds, lower than 2007 and the five-year average but still indicative of a sound crop. The medium protein level crop in the PNW region averages slightly below 300 seconds, as some of the crop in northern PNW areas suffered rain delays in early September.

Flour and Baking Data: The laboratory mill extraction rate is one and a half percentage points higher than 2007 because of higher thousand kernel weight and increased average kernel diameter. There is an increase in flour ash and starch damage as a result of switching to a new Buhler Laboratory Mill with the standard Buhler setup.

Dough handling properties are excellent in this year's crop and farinograph absorption is one percentage point higher than last year and the five-year average. Both regions are showing an increase in absorption. The dough strength is much weaker than is traditionally found in HRS, however. The average farinograph peak time is 6.9 minutes compared to 12.3 last year. Stability time averages 11 minutes, down from 26.6 last year and 20.2 for a five-year average. Both regions are exhibiting relatively weak dough mixing properties, but strength does increase as the level of protein content increases and the crop in the PNW is showing stronger mixing properties. The strong crop yields in many areas and a growing season that lacked excessive heat were likely contributing factors.

The average alveograph W-value is 421, similar to last year

FOUR STATES SURVEYED

Minnesota • Montana • North Dakota • South Dakota



The average alveograph W-value is 421, similar to last year and the five-year average. However, W-values are higher than last year for the PNW region, but lower in the Gulf/Great Lakes region. Both areas showed a decline in the P/L ratio and the crop as a whole is a 0.94 compared to 1.11 in 2007. Extensograph tests are showing more extensibility in this year's crop across both regions, but still somewhat less than the five-year average.

Baking quality shows improved grain and texture scores over 2007. Average loaf volume is marginally higher than 2007, but still below the five-year average.

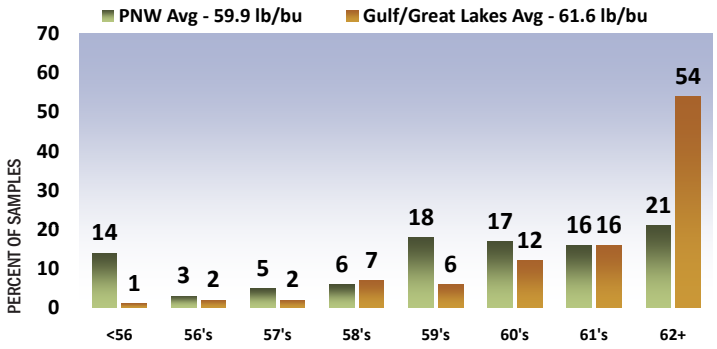
Summary: Buyers will find many positive attributes in the high grading 2008 HRS crop that is showing good baking quality. The wider variation of some quality parameters, especially protein, needs to be considered when establishing contract specifications as market values for protein are also wider than normal. The weaker mixing properties of the 2008 crop may also require more diligent work with suppliers to assure buyers receive the quality that meets their needs.

EXPORT CARGO SURVEY

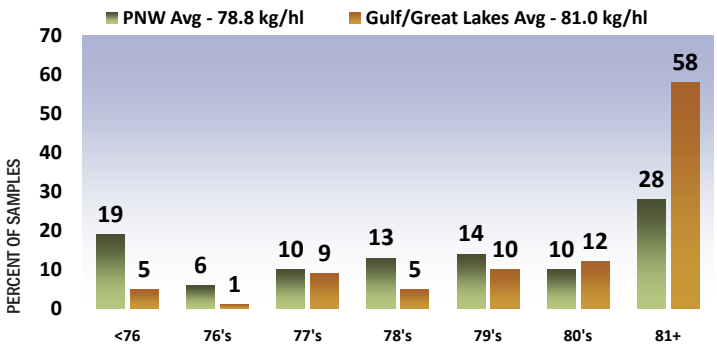
The export cargo survey shows the results of analysis of 159 individual sublot samples for crop year 2007 (collected from October through August) and 254 for crop year 2006. Of the

Continued on next page

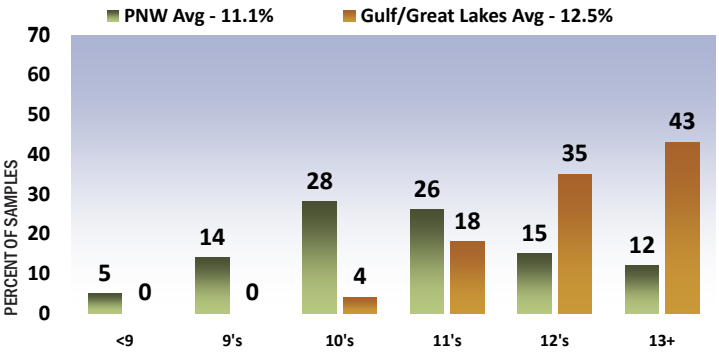
TEST WEIGHT | Pounds/Bushel



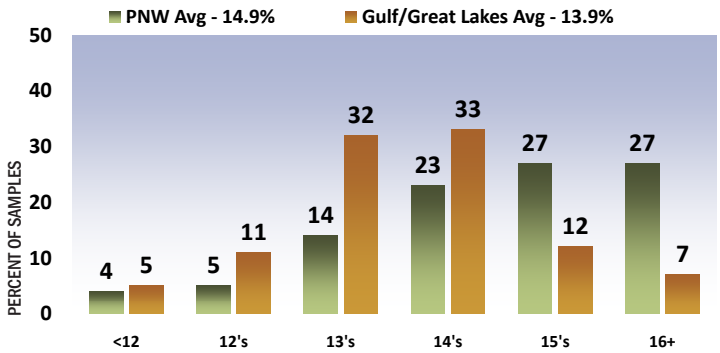
HECTOLITER WEIGHT | Kilograms/Hectoliter



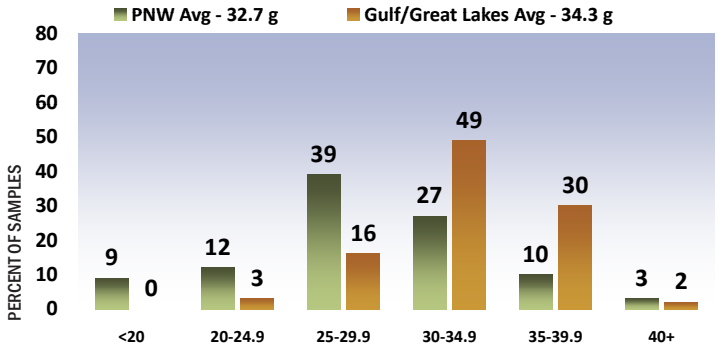
WHEAT MOISTURE | Percent



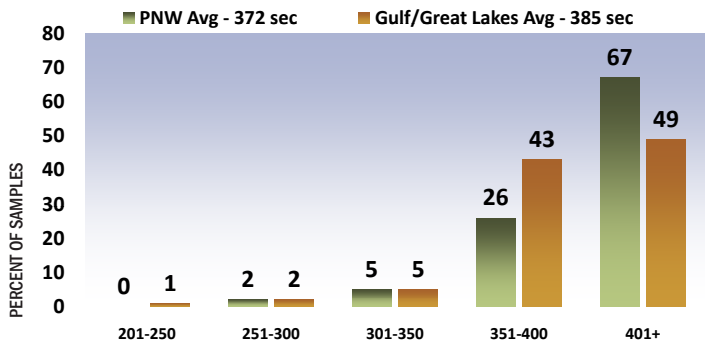
PROTEIN (12% MB) | Percent



1000 KERNEL WEIGHT | Grams



FALLING NUMBER | Seconds



ports, 21 from the Lakes and 31 from Gulf ports. Representative samples were selected from official Federal Grain Inspection Service samples. Grade data are the official grades on the individual sublots. Milling and baking analyses were conducted by North Dakota State University.



Hard Red Spring	Composite Average					
	2008 By Protein*				2007	5-year
	Low	Med	High	Overall	Overall	Average
Wheat Grade Data:						
Test Weight (lb/bu)	61.7	61.7	59.6	60.8	61.1	60.7
(kg/hl)	81.1	81.2	78.5	80.0	80.3	79.9
Damaged Kernels (%)	0.1	0.2	0.1	0.1	0.2	0.4
Foreign Material (%)	0.0	0.0	0.0	0.0	0.0	0.0
Shrunken & Broken (%)	1.0	0.9	2.0	1.4	1.3	1.4
Total Defects (%)	1.1	1.1	2.1	1.5	1.5	1.8
Vitreous Kernels (%)	53.8	64.1	77.8	67.2	79.4	77.7
Grade	1 NS	1 NS	1 DNS	1 NS	1 DNS	1 DNS
Wheat Non-Grade Data:						
Dockage (%)	0.5	0.5	0.8	0.6	0.4	0.9
Moisture (%)	12.3	12.2	11.4	11.9	11.9	11.9
Protein (%) 12%/0% moisture basis	12.6/14.3	14.0/15.9	15.7/17.8	14.3/16.3	14.3/16.3	14.4/16.4
Ash (%) 14%/0% moisture basis	1.56/1.81	1.50/1.74	1.55/1.80	1.54/1.79	1.64/1.91	1.62/1.88
1000 Kernel Weight (g)	34.2	34.1	32.8	33.6	30.4	30.0
Kernel Size (%) lg/md/sm	57/41/2	55/43/1	33/61/6	46/50/4	49/42/9	49/43/8
Single Kernel: Hardness	75.8	76.7	76.7	76.4	78.9	81.9
Weight (mg)	35.0	36.5	32.7	34.5	32.3	32.0
Diameter (mm)	2.89	2.91	2.78	2.85	2.29	2.29
Sedimentation (cc)	40.7	52.4	65.6	55.0	58.0	58.4
Falling Number (sec)	376	350	404	379	432	405
Flour Data:						
Lab Mill Extraction (%)	69.4	69.5	68.8	69.2	67.7	68.8
Color: L*	90.5	90.5	90.1	90.3	91.3	91.3
a*	-1.2	-1.1	-1.0	-1.1	-1.4	-1.3
b*	10.1	9.7	9.9	9.9	9.5	9.4
Protein (%) 14%/0% moisture basis	11.5/13.3	13.0/15.1	14.7/17.1	13.3/15.5	13.4/15.6	13.3/15.4
Ash (%) 14%/0% moisture basis	0.51/0.59	0.49/0.57	0.53/0.62	0.51/0.60	0.45/0.52	0.47/0.55
Wet Gluten (%)	29.7	34.5	39.8	35.5	36.5	35.7
Gluten Index	96.4	89.7	90.3	91.7	93.4	
Falling Number (sec)	390	377	400	390	447	422
Amylograph Viscosity: 65g (BU)	640	599	723	662	721	732
100g (BU)	2414	2102	2590	2390	2821	2615
Starch Damage (%)	7.9	7.6	6.9	7.4	6.6	7.5
Dough Properties:						
Farinograph:						
Peak Time (min)	5.4	7.0	7.8	6.9	12.3	10.8
Stability (min)	9.3	9.8	13.2	11.1	26.6	20.2
Absorption (%)	65.3	66.9	67.6	66.8	65.6	65.7
Classification	4.3	5.0	5.6	5.1	7.8	6.8
Alveograph: P (mm)	108	106	111	109	114	113
L (mm)	100	119	127	117	104	106
P/L Ratio	1.09	0.90	0.87	0.94	1.11	1.08
W (10^{-4} joules)	356	407	471	421	426	427
Extensograph: Resistance (BU)	408/545	413/533	461/672	432/595	522/642	506/582
(45/135 min) Extensibility (cm)	17.7/16.7	19.2/18.1	19.2/19.8	18.8/18.4	17.1/16.2	20.3/19.8
Area (sq cm)	97/117	107/126	116/171	108/143	114/132	130/144
Baking Evaluation:						
Absorption (%)	63.8	65.4	66.1	65.3	64.1	64.2
Crumb Grain and Texture	8.5	8.8	8.8	8.7	8.2	8.0
Loaf Volume (cc)	909	958	1045	982	960	1036
% Area Production:	26	32	42	100		

* Low: Less than 13.5%; Med: 13.5 - 14.5%; High: 14.5% or greater.

PNW Average						Gulf/Great Lakes Average					
2008 By Protein*				2007	5-year	2008 By Protein*				2007	5-year
Low	Med	High	Overall	Overall	Average	Low	Med	High	Overall	Overall	Average
61.4	61.4	58.9	59.9	60.0	59.9	61.8	61.9	60.9	61.6	62.0	61.4
80.7	80.7	77.5	78.8	78.9	78.8	81.3	81.4	80.1	81.0	81.4	80.7
0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.6
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.1	1.5	2.6	2.1	1.9	1.8	0.9	0.6	0.9	0.8	0.9	1.1
1.2	1.6	2.7	2.2	1.9	1.9	1.0	0.8	1.1	1.0	1.1	1.7
72.0	78.0	84.0	80.7	94.7	90.5	47.0	57.0	67.0	56.3	67.5	68.1
1 NS	1 DNS	1 DNS	1 DNS	1 DNS	1 DNS	1 NS	1 NS	1 NS	1 NS	1 NS	1 NS
1.0	0.6	0.9	0.8	0.4	0.8	0.3	0.4	0.6	0.4	0.4	0.9
11.1	11.3	11.0	11.1	10.9	11.0	12.8	12.6	12.1	12.5	12.7	12.6
12.1/13.8	14.0/15.9	16.0/18.1	14.9/16.9	14.9/16.9	14.9/17.0	12.8/14.5	13.9/15.9	15.1/17.2	13.9/15.8	13.8/15.7	14.0/15.9
1.49/1.74	1.49/1.73	1.53/1.78	1.51/1.76	1.62/1.88	1.60/1.85	1.58/1.84	1.50/1.75	1.59/1.85	1.55/1.81	1.66/1.93	1.63/1.90
34.1	33.9	31.8	32.7	27.7	28.2	34.2	34.2	34.6	34.3	32.5	31.5
42/55/3	40/58/2	23/68/9	30/64/6	29/57/14	36/52/12	63/36/1	63/36/1	50/48/2	59/39/1	65/30/5	59/36/5
75.5	74.0	77.2	76.1	79.6	82.1	75.9	78.0	75.7	76.7	78.4	82.0
35.9	36.1	30.5	32.7	30.6	30.8	34.7	36.6	36.5	35.9	33.6	33.0
2.87	2.88	2.68	2.76	2.18	2.20	2.89	2.92	2.94	2.92	2.38	2.37
40.0	59.0	66.0	60.2	59.6	60.3	41.0	49.0	65.0	50.7	56.7	56.9
372	298	401	372	447	416	377	376	408	385	420	396
69.3	69.1	68.5	68.8	67.6	68.1	69.5	69.7	69.5	69.6	67.9	69.4
90.8	90.6	90.1	90.3	91.3	91.4	90.4	90.4	90.1	90.3	91.3	91.3
-1.2	-1.1	-1.0	-1.1	-1.3	-1.2	-1.2	-1.0	-0.9	-1.1	-1.5	-1.3
9.8	9.7	9.9	9.8	9.3	9.2	10.2	9.7	9.7	9.9	9.6	9.5
11.2/13.0	13.0/15.1	15.1/17.5	14.0/16.2	14.1/16.4	13.8/16.1	11.5/13.4	13.0/15.1	14.1/16.4	12.8/14.9	12.9/15.0	12.8/14.9
0.50/0.58	0.47/0.55	0.53/0.61	0.51/0.59	0.46/0.53	0.47/0.55	0.51/0.59	0.50/0.59	0.54/0.63	0.51/0.60	0.44/0.51	0.47/0.55
29.2	34.8	40.6	37.4	38.1	36.9	29.8	34.3	38.4	33.9	35.3	34.7
90.2	93.4	89.8	90.7	92.1		98.7	87.8	91.1	92.4	94.4	
410	353	404	393	471	443	383	389	394	388	428	406
680	380	765	660	863	842	625	710	650	664	612	650
2560	1320	2840	2434	3228	2983	2360	2500	2150	2355	2509	2337
8.4	7.5	6.9	7.3	6.3	7.3	7.7	7.6	7.0	7.5	6.9	7.5
6.5	8.0	8.5	8.1	17.1	14.4	5.0	6.5	6.5	6.0	8.6	8.0
10.0	11.5	15.0	13.4	31.5	25.2	9.0	9.0	10.0	9.3	22.8	16.3
65.0	65.8	67.7	66.8	65.9	66.2	65.4	67.4	67.6	66.8	65.3	65.4
5.0	5.0	6.0	5.6	7.9	7.1	4.0	5.0	5.0	4.7	7.8	6.5
108	108	117	113	112	120	108	105	101	105	116	108
96	122	130	123	107	104	101	117	121	113	101	108
1.13	0.89	0.90	0.93	1.06	1.17	1.08	0.90	0.83	0.94	1.15	1.02
349	438	520	473	431	458	359	391	384	378	422	404
431/606	447/636	521/781	489/719	539/701	546/645	400/522	395/480	355/480	386/494	509/597	476/538
17.0/16.6	19.6/19.8	19.1/18.9	18.9/18.8	16.4/16.9	20.4/19.9	17.9/16.8	19.0/17.2	19.3/21.3	18.7/18.2	17.6/15.6	20.3/19.6
101/132	120/163	129/191	122/175	113/150	141/161	96/112	100/107	94/135	97/117	115/119	121/131
63.5	64.3	66.2	65.3	64.4	64.7	63.9	65.9	66.1	65.3	63.8	63.9
8.5	8.5	9.0	8.8	8.0	8.1	8.5	9.0	8.5	8.7	8.4	8.0
853	993	1035	996	955	1043	930	940	1063	971	964	1030
16	24	60	100			34	38	28	100		

HARD RED SPRING | EXPORT CARGO DATA

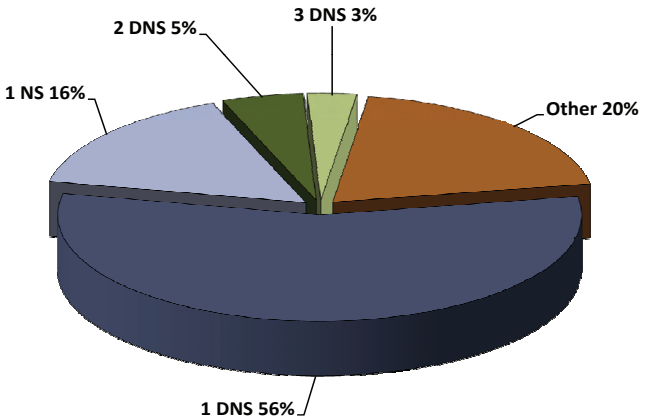
Hard Red Spring	PNW Average		Great Lakes Average		Gulf Average	
	2007	2006	2007	2006	2007	2006
Wheat Grade Data:						
Test Weight (lb/bu)	61.2	61.0	61.8	62.0	61.2	61.1
(kg/hl)	80.5	80.3	81.3	81.5	80.5	80.3
Damaged Kernels (%)	0.2	0.3	1.2	1.4	1.6	1.2
Foreign Material (%)	0.1	0.1	0.1	0.1	0.2	0.2
Shrunken & Broken (%)	1.7	1.7	1.2	1.1	1.2	1.4
Total Defects (%)	2.0	2.1	2.6	2.6	3.0	2.8
Vitreous Kernels (%)	81.7	83.9	53.7	58.6	54.6	63.2
Grade	1 DNS	1 DNS	1 NS	1 NS	1 NS	1 NS
Wheat Non-Grade Data:						
Dockage (%)	0.3	0.3	0.5	0.5	0.7	0.7
Moisture (%)	11.2	10.8	12.1	12.3	12.6	12.1
Protein (%) 12%/0% moisture basis	14.4/16.4	14.4/16.4	14.3/16.2	14.3/16.3	14.2/16.1	14.4/16.3
Ash (%) 14%/0% moisture basis	1.60/1.87	1.53/1.78	1.64/1.91	1.53/1.78	1.66/1.93	1.55/1.80
1000 Kernel Weight (g)	30.4	31.3	31.2	32.5	31.7	31.9
Kernel Size (%) lg/md/sm	14/64/28	42/48/9	36/54/11	55/41/5	27/50/26	50/43/7
Single Kernel: Hardness	79.3	81.0	81.5	82.1	78.9	80.5
Weight (mg)	29.2	29.3	29.1	30.1	30.0	29.9
Diameter (mm)	2.37	2.38	2.41	2.44	2.43	2.42
Sedimentation (cc)						
Falling Number (sec)	438	455	418	426	396	460
Flour Data:						
Lab Mill Extraction (%)	68.7	69.2	68.4	69.4	69.0	69.7
Color: L*	90.9	91.0	90.9	90.8	90.7	90.7
a*	-1.1	-1.3	-1.4	-1.4	-1.2	-1.3
b*	9.0	8.8	9.1	9.2	9.2	9.2
Protein (%) 14%/0% moisture basis	13.3/15.5	13.3/15.4	13.1/15.2	13.1/15.3	12.9/15.0	13.3/15.4
Ash (%) 14%/0% moisture basis	0.50/0.58	0.49/0.57	0.49/0.57	0.49/0.57	0.51/0.59	0.51/0.59
Wet Gluten (%)	35.4	34.3	34.8	34.1	34.7	34.3
Gluten Index	88.6	94.1	92.4	92.3	90.3	94.1
Falling Number (sec)	460	502	436	461	417	491
Amylograph Viscosity: 65g (BU)	824	832	723	703	592	767
100g (BU)						
Starch Damage (%)						
Dough Properties:						
Farinograph:						
Peak Time (min)	9.1	9.8	8.3	8.7	8.2	8.3
Stability (min)	20.9	21.8	18.7	17.2	16.9	17.1
Absorption (%)	64.7	64.6	65.2	64.3	64.3	63.9
Classification	6.9	7.0	6.7	6.3	6.3	6.4
Alveograph: P (mm)	114	107	119	98	109	99
L (mm)	104	114	99	118	106	117
P/L Ratio	1.10	0.93	1.20	0.83	1.03	0.85
W (10^{-4} joules)	424	433	431	404	405	400
Extensograph: Resistance (BU)						
(45/135 min) Extensibility (cm)						
Area (sq cm)						
Baking Evaluation:						
Absorption (%)	65.1	63.1	65.9	62.8	64.6	62.4
Crumb Grain and Texture	9.2	8.3	9.1	8.2	9.0	8.3
Loaf Volume (cc)	951	968	945	966	944	955
Sample Count:	107	176	21	33	31	45

Hard Red Spring Production

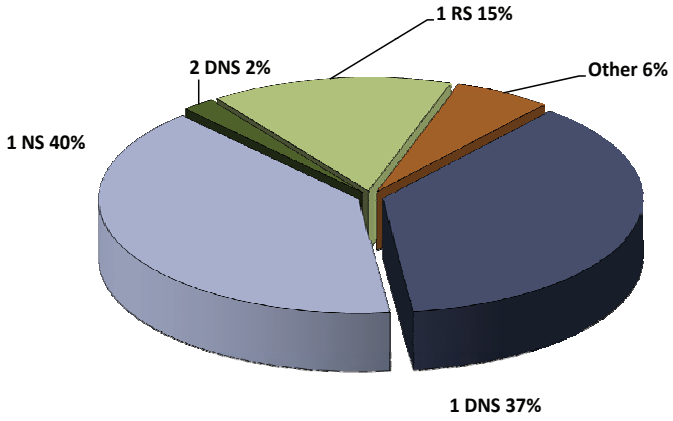
for the major producing states
(million metric tons)

	2008	2007	2006	2005	2004
Minnesota	2.74	2.11	2.11	1.93	2.41
Montana	1.60	1.49	1.72	2.20	2.38
North Dakota	6.71	6.37	5.78	6.11	6.64
South Dakota	1.86	1.42	1.16	1.84	1.96
Four-State Total	**12.91**	**11.39**	**10.77**	**12.08**	**13.39**
Total HRS Production	**13.92**	**12.22**	**11.77**	**12.70**	**14.30**

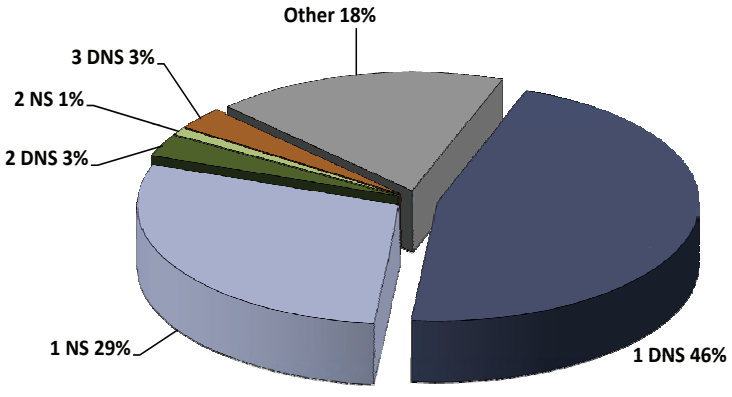
PNW



GULF/GREAT LAKES



OVERALL



ABOUT HARD RED SPRING WHEAT

Highest protein content, hard endosperm, red bran, strong gluten, high water absorption. Used in pan breads, hearth breads, rolls, croissants, bagels, hamburger buns, pizza crust and for blending.

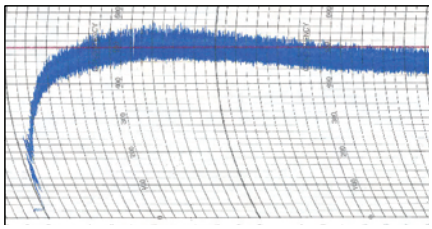


COMPOSITE AVERAGE

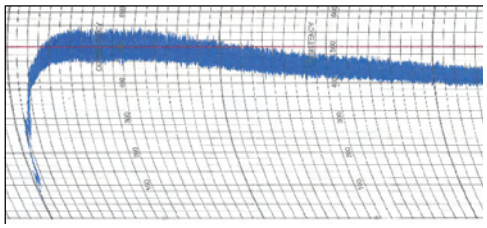
FARINOGRAMS, ALVEOGRAMS, EXTENSOGRAMS

FARINOGRAMS:

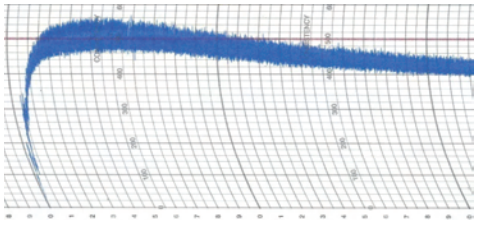
HIGH PROTEIN



MEDIUM PROTEIN

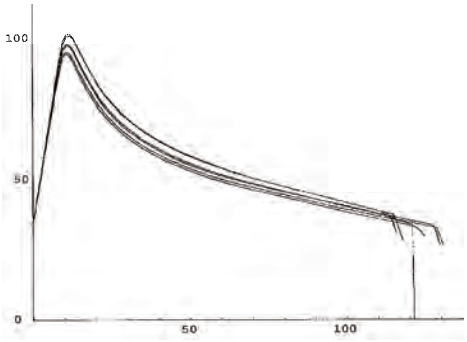


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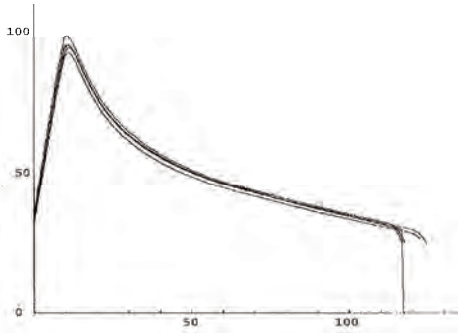


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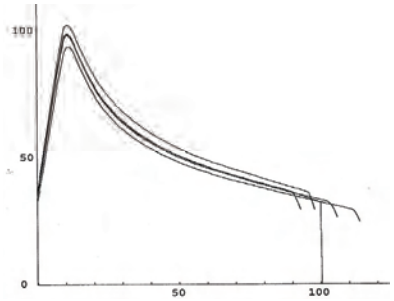
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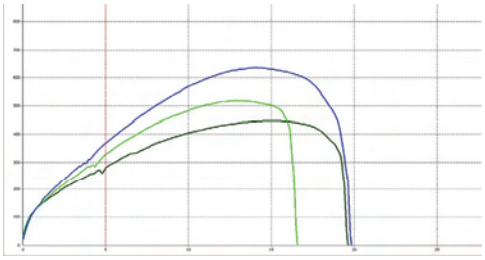


LOW PROTEIN

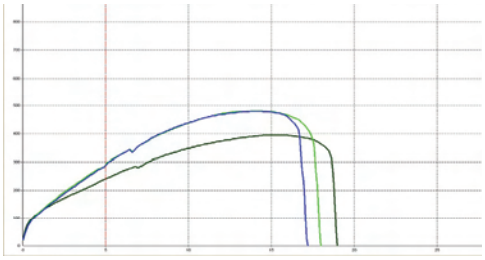


EXTENSOGRAMS:

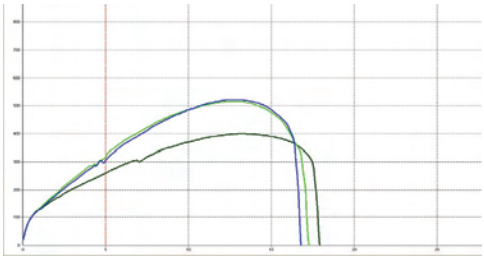
HIGH PROTEIN



MEDIUM PROTEIN



LOW PROTEIN





HARVEST SURVEY

Weather and Harvest: Soft red winter wheat (SRW) is grown over a wide area of the eastern United States. Planting conditions in fall 2007 were favorable which together with high prices prompted an increase in planted area of 25% over fall 2006. Weather conditions remained favorable throughout the winter months, but cool wet weather in May delayed the start of harvest in Arkansas, usually the first state sampled. Once harvesting started, it progressed rapidly in many areas, especially in the eastern states, but unusually heavy and prolonged rains delayed harvest in the last half of June from eastern Missouri through Illinois and Kentucky and into southern Indiana and Ohio. Despite the delays good weather in July allowed analysis of SRW survey samples to be completed by July 25, about the same as the previous year.

Survey Methods: Sample collection and analysis were conducted by CII Laboratory Services, Kansas City, Missouri. For 2008, 359 samples were collected from elevators in nine key production states: Arkansas, Illinois, Indiana, Maryland, Missouri, Ohio, North Carolina, Virginia and Kentucky. These states are divided into 18 reporting areas, and samples were collected at two different times reflecting early and late harvest conditions. Test weight, moisture, protein, thousand kernel weight, wheat ash and falling number were determined on individual samples, while the remaining tests were determined on 36 composite samples. The results were weighted by five-year average production for the 18 reporting areas and combined into "Composite Average", "East Coast" and "Gulf Ports" values. East Coast-tributary states include Maryland, North Carolina and Virginia, while the others are considered Gulf tributary. The Analysis Methods section of this booklet identifies the test methods used.

Wheat and Grade Data: Average test weight of 59.2 lb/bu (77.9 kg/hl) is 0.8 lb/bu (1.0 kg/hl) below 2007, but only slightly lower than the five-year average. The average test weight in the East Coast states is higher than that of the Gulf states, which reflects the prolonged rainy harvest conditions in the Gulf states. Likewise damage and total defects in the East Coast states are both about half the five-year average, while the Gulf Ports have values that are only slightly lower than the five-year average. Despite the rainy harvest weather the average falling number values are all above 300 though down somewhat from last year and the five-year average.

Flour and Baking Data: The Buhler Laboratory Mill flour extraction also shows differences between the East Coast and Gulf samples. Extraction in the East is up about 1 percentage point from last year and the five-year average, while Gulf results are down 1 from the five-year average and more than 3 from the unusually high results of last year. Farinograph peak and stability times are all lower than the high values last year. The values in the East are about the same as the five-year average while Gulf results are lower than the five-year average. Alveograph W values are lower than last year and the five-year average. Bread volume is somewhat lower than last year and the five-year average, but the overall cookie spread is higher than last year as a result of a higher average for the Gulf states.

Summary: Despite a cool wet spring and rain delays during harvest, the 2008 SRW crop compares well to the five-year averages with Gulf tributary states generally showing somewhat lower values than the East Coast states. Overall, the flour from this crop has very good soft wheat product functionality and is suitable for blending into bread flour.

EXPORT CARGO SURVEY

The export cargo data show the results of analysis of 175 individual sublot samples for marketing years 2008 and 2007 from Gulf of Mexico and East Coast ports. Representative samples were selected from official Federal Grain Inspection Service samples. Grade data are the actual official grades on the individual sublots. Milling and baking analyses were conducted by CII Laboratory Services.

ABOUT SOFT RED WINTER WHEAT

Low protein content, soft endosperm, red bran, weak gluten. Used in pastries, cakes, cookies, crackers, pretzels, and flat breads. Can also be used for blending.



NINE OF SIXTEEN STATES SURVEYED

Arkansas • Illinois • Indiana • Kentucky • Maryland
Missouri • North Carolina • Ohio • Virginia

SOFT RED WINTER | HARVEST DATA

Soft Red Winter	Composite Average			East Coast*			Gulf Ports*		
	2008	2007	5-Year Avg	2008	2007	5-Year Avg	2008	2007	5-Year Avg
Wheat Grade Data:									
Test Weight (lb/bu)	59.2	60.0	59.4	60.5	60.1	58.8	58.9	59.9	59.5
(kg/hl)	77.9	78.9	78.2	79.6	79.0	77.4	77.6	78.9	78.3
Damaged Kernels (%)	0.9	0.2	1.1	0.7	0.2	1.7	0.9	0.2	1.0
Foreign Material (%)	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1
Shrunken & Broken (%)	0.5	0.6	0.6	0.4	0.6	0.7	0.5	0.7	0.7
Total Defects (%)	1.4	0.9	1.8	1.2	0.8	2.4	1.4	0.9	1.8
Grade	2 SRW	1 SRW	2 SRW	1 SRW	1 SRW	2 SRW	2 SRW	2 SRW	2 SRW
Wheat Non-Grade Data:									
Dockage (%)	0.9	1.0	0.8	0.9	0.7	0.8	0.9	1.1	0.8
Moisture (%)	13.0	13.1	13.1	12.6	13.1	13.3	13.1	13.1	13.1
Protein (%) 12%/0% moisture basis	9.8/11.2	10.3/11.7	10.0/11.3	9.9/11.2	9.8/11.1	10.2/11.6	9.8/11.1	10.5/11.9	10.0/11.3
Ash (%) 14%/0% moisture basis	1.55/1.80	1.55/1.80	1.55/1.80	1.48/1.72	1.47/1.71	1.51/1.75	1.56/1.81	1.58/1.84	1.56/1.81
1000 Kernel Weight (g)	35.3	33.3	33.0	36.8	33.8	33.0	35.1	33.2	32.9
Kernel Size (%) lg/md/sm	85/14/01	81/18/01	83/16/01	89/10/01	81/18/01	82/17/01	85/14/01	81/18/01	83/16/01
Single Kernel: Hardness	14.4	22.2	19.8	18.2	21.8	18.0	13.7	22.3	20.3
Weight (mg)	32.4	31.7	30.9	35.3	32.1	32.9	31.9	31.5	30.3
Diameter (mm)	2.26	2.22	2.17	2.39	2.22	2.29	2.24	2.22	2.14
Sedimentation (cc)	11.6	14.1	13.6	13.0	13.9	15.1	11.3	14.2	13.3
Falling Number (sec)	325	343	343	352	339	332	320	344	347
DON (ppm)	0.6	0.3	NA	0.7	0.2	NA	0.6	0.4	NA
Flour Data:									
Lab Mill Extraction (%)	68.6	71.0	69.3	69.8	68.8	68.8	68.4	71.6	69.5
Color: L*	93.8	93.4	93.2	94.0	93.5	93.2	93.8	93.4	93.1
a*	-3.0	-3.1	-3.1	-3.0	-3.1	-3.2	-3.0	-3.1	-3.1
b*	8.2	8.6	8.1	8.2	8.6	8.0	8.2	8.5	8.1
Protein (%) 14%/0% moisture basis	8.2/9.6	8.8/10.2	8.3/9.7	8.3/9.7	8.4/9.8	8.5/9.9	8.2/9.6	8.9/10.3	8.3/9.7
Ash (%) 14%/0% moisture basis	0.43/0.50	0.46/0.53	0.43/0.50	0.42/0.49	0.45/0.52	0.42/0.49	0.43/0.50	0.46/0.53	0.43/0.50
Wet Gluten (%)	21.7	23.1	21.7	21.1	19.3	20.7	21.8	24.3	22.0
Gluten Index	71.8	78.8	86.1	79.3	83.1	91.2	70.4	77.5	84.7
Falling Number (sec)	323	352	334	337	342	325	321	356	337
Amylograph Viscosity 65 g (BU)	648	672	544	570	681	495	662	669	557
Starch Damage (%)	3.9	4.8	4.4	4.4	4.8	4.2	3.9	4.8	4.4
Solvent Retention Capacity (%)									
Water/50% Sucrose	52/106	53/108	53/108	54/110	54/111	54/111	52/107	53/107	53/107
5% Lactic Acid/5% Na2CO3	105/78	107/79	107/79	106/79	109/80	109/80	106/78	106/78	106/78
Dough Properties:									
Farinograph:									
Peak Time (min)	1.3	2.0	1.5	1.7	1.9	1.7	1.2	2.0	1.6
Stability (min)	2.5	3.4	2.9	3.1	3.2	3.0	2.4	3.5	3.0
Absorption (%)	51.7	52.5	52.6	53.0	51.3	52.7	51.4	52.9	52.6
Alveograph: P (mm)	38	42	36	46	44	41	37	42	37
L (mm)	70	100	97	66	84	97	71	105	98
P/L Ratio	0.55	0.42	0.38	0.69	0.52	0.43	0.52	0.40	0.37
W (10-4 joules)	80	107	89	92	98	104	78	110	91
Baking Evaluation:									
Crumb Grain	5.4	5.5	5.3	5.4	5.4	5.5	5.4	5.5	5.3
Crumb Texture	5.3	5.8	5.7	5.7	5.2	5.7	5.2	6.0	5.7
Loaf Volume (cc)	705	749	710	690	719	721	708	759	717
Cookie Spread Ratio	9.2	8.5	8.3	8.3	8.6	8.3	9.3	8.5	8.3
% of Area Sampled:	100%			16%			84%		

* East Coast - Maryland, Virginia and North Carolina; Gulf Ports - Arkansas, Illinois, Indiana, Kentucky, Missouri and Ohio

Soft Red Winter	2008	2007
Wheat Grade Data:		
Test Weight (lb/bu)	59.7	59.9
(kg/hl)	78.6	78.9
Damaged Kernels (%)	1.0	2.0
Foreign Material (%)	0.1	0.1
Shrunken & Broken (%)	0.6	0.7
Total Defects (%)	1.7	2.8
Grade	2 SRW	2 SRW
Wheat Non-Grade Data:		
Dockage (%)	0.7	0.7
Moisture (%)	12.7	12.8
Protein (%) 12%/0% moisture basis	9.9/11.2	10.3/11.7
Ash (%) 14%/0% moisture basis	1.51/1.76	1.56/1.81
1000 Kernel Weight (g)	33.6	32.0
Kernel Size (%) lg/md/sm	83/16/1	83/15/1
Single Kernel: Hardness		25.4
Weight (mg)		32.6
Diameter (mm)		2.35
Sedimentation (cc)	12.1	12.6
Falling Number (sec)	352	345
DON (ppm)		0.5
Flour Data:		
Lab Mill Extraction (%)	70.9	71.9
Color: L*	93.9	93.3
a*	-3.0	-2.9
b*	8.1	8.2
Protein (%) 14%/0% moisture basis	8.5/9.9	8.7/10.1
Ash (%) 14%/0% moisture basis	0.44/0.51	0.45/0.52
Wet Gluten (%)	22.0	23.6
Gluten Index	71.6	71.1
Falling Number (sec)	350	352
Amylograph Viscosity 65 g (BU)	636	564
Starch Damage (%)		
Solvent Retention Capacity (%)		
Water/50% Sucrose		
5% Lactic Acid/5% Na_2CO_3		
Dough Properties:		
Farinograph:		
Peak Time (min)	1.6	1.6
Stability (min)	3.3	3.7
Absorption (%)	51.6	52.3
Alveograph: P (mm)	42	44
L (mm)	82	86
P/L Ratio	0.51	0.52
W (10^{-4} joules)	97	108
Baking Evaluation:		
Crumb Grain	5.2	5.3
Crumb Texture	5.3	5.6
Loaf Volume (cc)	690	724
Cookie Spread Ratio	9.1	8.4
Sample Count:	43	132

Soft Red Winter Production

in major producing states
(million metric tons)

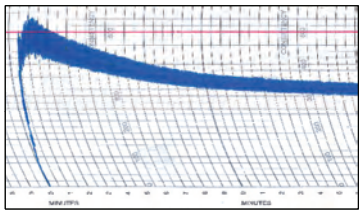
	2008	2007	2006	2005	2004
Alabama	0.39	0.09	0.07	0.06	0.08
Arkansas	1.52	0.78	0.51	0.23	0.89
Georgia	0.61	0.25	0.16	0.20	0.23
Illinois	1.90	1.35	1.63	0.99	1.43
Indiana	1.05	0.57	0.86	0.67	0.74
Kentucky	0.88	0.33	0.61	0.54	0.54
Louisiana	0.59	0.31	0.15	0.13	0.22
Maryland	0.36	0.31	0.23	0.25	0.23
Michigan	0.79	0.56	0.79	0.61	0.59
Mississippi	0.82	0.50	0.12	0.09	0.19
Missouri	1.45	0.97	1.26	0.75	1.25
North Carolina	1.18	0.54	0.67	0.67	0.63
Ohio	2.02	1.25	1.78	1.60	1.50
South Carolina	0.30	0.11	0.17	0.23	0.22
Tennessee	0.89	0.29	0.33	0.23	0.37
Virginia	0.54	0.36	0.29	0.27	0.27
16-State Total	**15.28**	**8.60**	**9.62**	**7.52**	**9.39**
Total SRW Production	**16.70**	**9.74**	**10.62**	**8.41**	**10.35**

Based on USDA crop estimates of 9/31/2008.

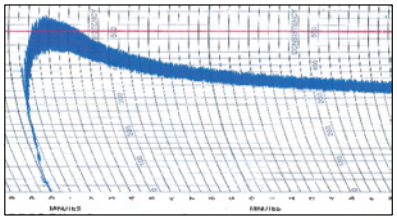
FARINOGRAMS & ALVEOGRAMS

FARINOGRAMS:

GULF

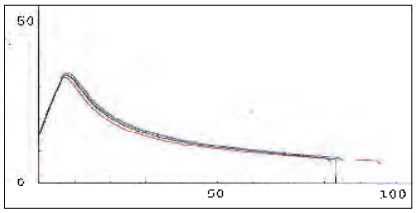


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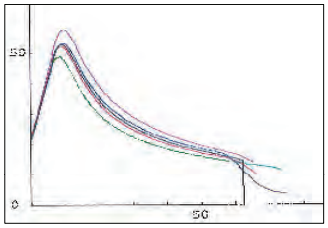


ALVEOGRAMS:

GULF

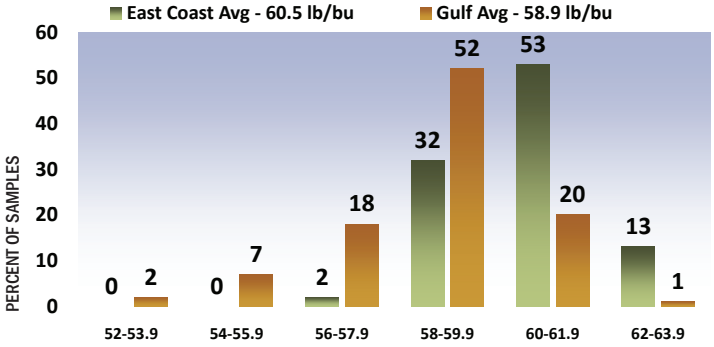


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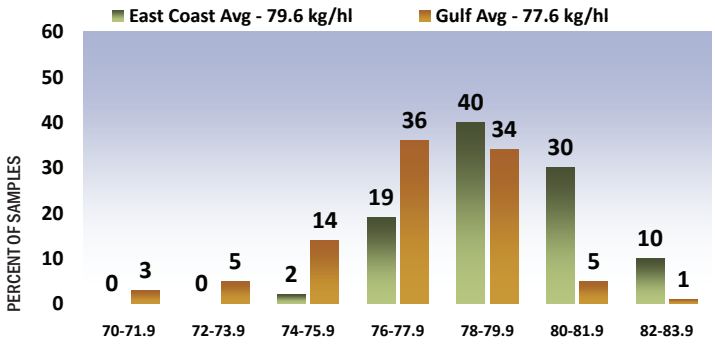


SOFT RED WINTER | OVERVIEW

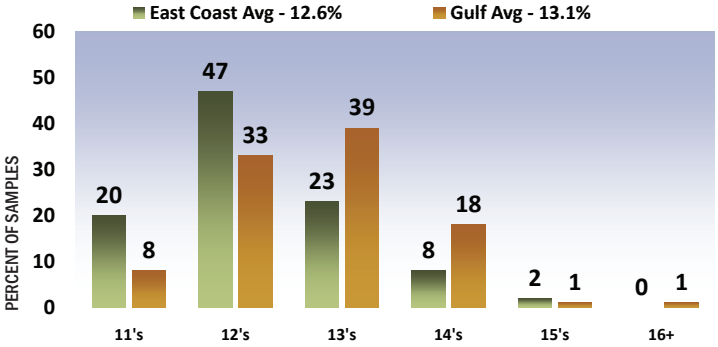
TEST WEIGHT | Pounds/Bushel



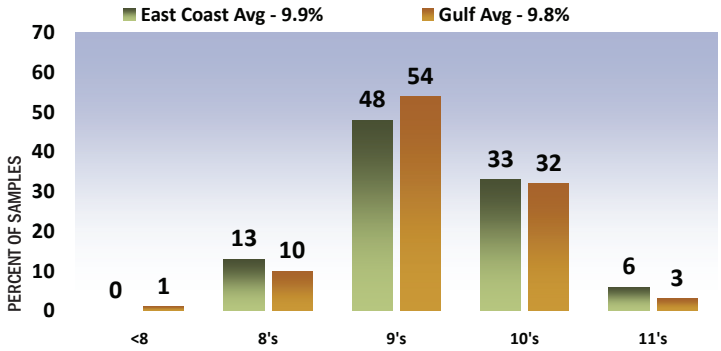
HECTOLITER WEIGHT | Kilograms/Hectoliter



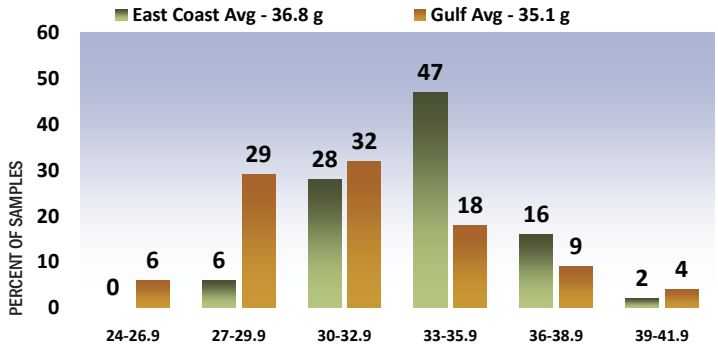
WHEAT MOISTURE | Percent



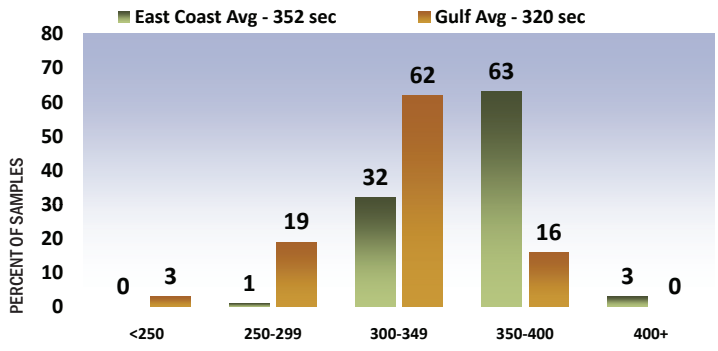
PROTEIN (12% MB) | Percent



1000 KERNEL WEIGHT | Grams



FALLING NUMBER | Seconds





NORTHERN GREAT PLAINS

Weather and Harvest: Planting began earlier than normal at the beginning of April. Dry conditions allowed rapid progress and, planting was mostly finished by the beginning of June. Dry, cool conditions delayed emergence, but growing conditions improved in June with rains across most of the durum region. However, by late June many areas still lacked sufficient subsoil moisture. Hot, dry conditions in July caused yield potential to deteriorate quickly in a significant portion of the durum area. Disease pressures remained minimal.

Harvest began in late August, behind average due to the slow development of the crop. Rain showers in early September delayed harvesting and caused some quality loss. Harvest was largely complete by the third week of September.

Survey Methods: A total of 225 samples were collected from the primary durum growing area of North Dakota (170) and Montana (55). State offices of the National Agricultural Statistics Service collected samples directly from producers at local elevators, in the field or from farm bins. These samples represent the grain at the point of origin before any conditioning or market blending, and represent the entire harvested crop, not just the crop being marketed at harvest time. Analysis was conducted by the Durum Quality Lab, North Dakota State University, Fargo, North Dakota.

Wheat and Grade Data: The 2008 northern durum crop again has very low levels of damaged kernels and high average protein. Test weight is slightly higher than last year and the overall grade is No. 1 Hard Amber Durum, compared to No. 2 last year. Production is about 4% lower than last year as severe mid-season drought and extremely dry subsoil in key durum producing areas led to lower yields in many areas, offsetting an increase in planted area.

Test weight averages 60.2 lbs/bu (78.4 kg/hl) with 60% of the crop having a minimum test weight of 60 lbs/bu (78.2 kg/hl) or higher, up from 50% last year. Thousand kernel weight values are higher and kernel ash levels are lower for all growing districts compared to 2007. Overall protein of 14.8% is down marginally from last year but still nearly one-half point higher than the five-year average. Nearly two-thirds of the crop grades No. 2 Hard Amber Durum or better but there is a wider variability of quality compared to 2007, especially for subclasses. The wider variability is due to the extremes in growing season weather across the region, as well as an extended period of wet weather during the last one-third of the harvest.

The 2008 crop has lower average vitreous kernel counts and slightly lower falling number values. The average vitreous kernel count for the region is 83%, down from the exceptional 95% in 2007 and the five-year average of 91%. The average falling number is 322 seconds, down from both last year and the five-year average. Although crop averages are lower for these two factors, 56% of the crop has average vitreous kernels of 90% or higher and 80% of the crop has a falling number of 350 seconds or greater.

Semolina and Processing Data: Milling tests using a Buhler Laboratory Mill reveal lower total and semolina extractions but a significant reduction in ash levels. Processing performance on the crop in the laboratory is revealing slightly greater cooked firmness and reduced cooking loss in the finished product. Due to the reduced vitreous kernel counts, average color scores are lower than last year and the five-year average. Mixing properties of the semolina are weaker than the five-year average but similar to last year. The reduced color and weaker mixing qualities of the 2008 crop are solely due to the impacts of weather during harvest as there was no notable shift in varieties from last year.

Summary: The 2008 durum crop is of good quality with average grade of No. 1 Hard Amber Durum, although marginally lower in overall quality traits compared to the exceptional 2007 crop. Buyers can expect to find a wider value to be placed on various subclass qualities within the 2008 crop, and markets that can utilize lower vitreous kernel levels for their end-use products will find good opportunities with the 2008 crop. Likewise, buyers that command stringent specifications for vitreous kernel counts and tight quality limits for other grade factors will find that a significant portion of the crop will meet their needs, but values may rise accordingly. Diligent contract specifications are always encouraged to ensure buyers get the quality of durum they need.

OTHER DURUM PRODUCTION AREAS

Pacific Southwest: Desert Durum®, a trademark of the Arizona Grain Research and Promotion Council and the California Wheat Commission, applies only to durum wheat produced in the states of Arizona and California.

Desert Durum® is usually delivered "identity preserved" to U.S. domestic and export markets. The identity preservation system allows buyers to purchase grain of varieties having intrinsic quality parameters specific to their needs. Annual production requirements can be contracted ahead with experienced growers who plant certified seed. Handlers then

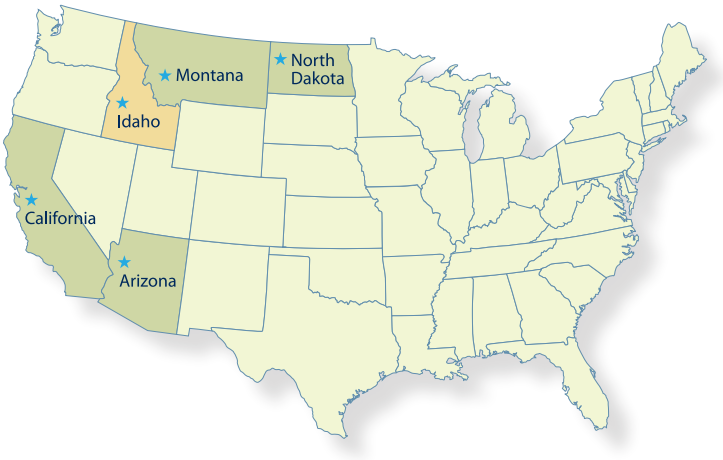
ABOUT DURUM WHEAT

Durum is the hardest of all wheats, high protein content, yellow endosperm, white bran. Used to make pasta, couscous, and some Mediterranean breads.

store by varietal identity for season-long shipment at the buyer's schedule.

Desert Durum® acreage planted in southern California for 2008 harvest increased an astonishing 139% over 2007 harvest plantings. Arizona plantings for 2008 harvest increased 87% over the previous year. The 2008 crop once again exhibited consistently large kernel size and low moisture, traits that contribute to achieving high extraction rates. Color scores for 2008 were better than 2007. In summary, the 2008 Desert Durum® crop will deliver the valuable milling, semolina and pasta quality traits that customers have come to expect.

Idaho: Idaho is gaining popularity as a durum-growing area because of its high desert environment and abundance of irrigation water. Durum grown in Idaho is noted for its mellow gluten, which is very good in fresh pasta. Quality data on Idaho's durum crop is available from the Idaho Wheat Commission.



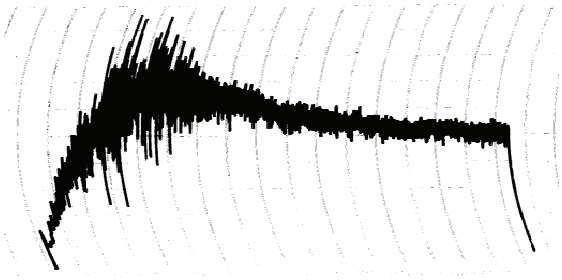
FOUR OF FIVE STATES SURVEYED

Arizona • California • Montana • North Dakota

GREAT PLAINS DURUM MIXOGRAM AND ALVEOGRAM

REGIONAL AVERAGE MIXOGRAM:

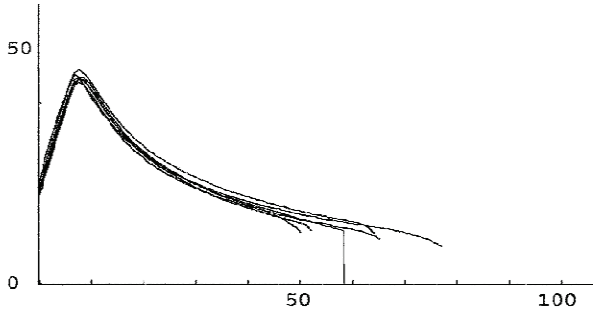
(SCORE = 5)



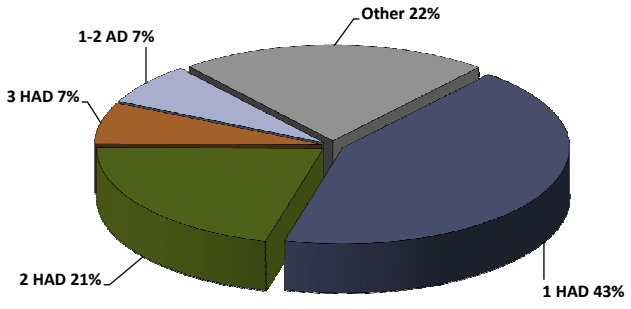
EXPORT CARGO SURVEY

The durum export cargo survey shows the results of analysis of 34 individual sublot samples for crop year 2007 (collected from October 2007 through June 2008) and 44 samples for 2006. Representative samples were selected from official Federal Grain Inspection Service samples. Grade data are the actual official grades on the individual sublots. Processing analysis was conducted by North Dakota State University.

ALVEOGRAM:

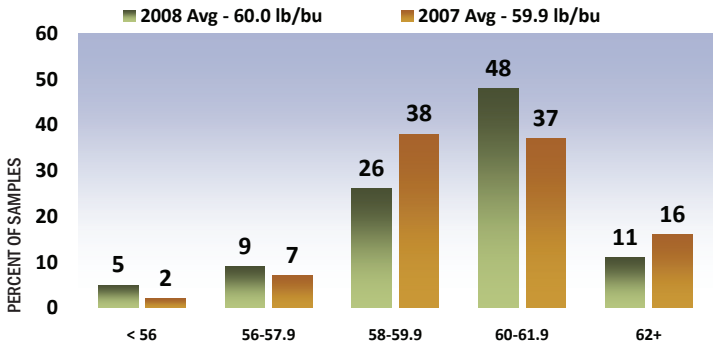


GREAT PLAINS DURUM GRADE DISTRIBUTION

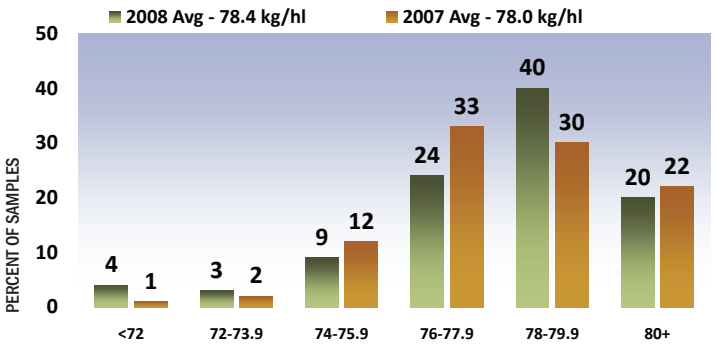


Durum	Harvest Data					Export Cargo Data			
	Northern			Pacific Southwest		Northern		Pacific Southwest	
	2008	2007	5-Year Avg	2008	2007	2007	2006	2007	2006
Wheat Grade Data:									
Test Weight (lb/bu)	60.2	59.9	60.7	62.9	62.7	61.0	61.1	63.1	62.4
(kg/hl)	78.4	78.0	79.0	81.9	81.7	80.2	79.9	82.9	81.3
Damaged Kernels (%)	0.3	0.4	0.4	0.1	0.5	1.2	1.6	0.6	0.7
Foreign Material (%)	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2
Shrunken and Broken (%)	1.3	1.4	1.3	0.4	0.3	1.7	1.5	0.6	0.7
Total Defects (%)	1.6	1.8	1.7	0.5	0.9	3.0	3.3	1.4	1.6
Contrasting Classes (%)	0.0	0.2	0.1	0.0	0.0	0.9	0.6	0.3	0.3
Vitreous Kernels (%)	83.0	95.0	91.0	94.1	96.0	85.8	83.2	92.6	90.9
Grade	1 HAD	2 HAD	1 HAD	1 HAD	1 HAD	2 HAD	2 HAD	1 HAD	1 HAD
Wheat Non-Grade Data:									
Dockage (%)	1.1	1.6	1.5	0.2	0.3	0.5	0.5	0.5	0.6
Moisture (%)	11.7	11.8	11.7	6.8	6.6	11.9	11.9	7.8	8.1
Protein (%) 12%/0% moisture basis	14.8/16.8	15.1/17.1	14.3/16.2	13.5/15.4	13.8/15.7	14.7/16.7	14.4/16.4	13.0/14.8	13.0/14.8
Ash (%) 14%/0% moisture basis	1.50/1.74	1.67/1.95	1.58/1.84	1.67/1.94	1.71/1.99	1.65/1.92	1.60/1.86	1.66/1.93	1.63/1.90
1000 Kernel Weight (g)	35.0	33.8	35.3	51.8	50.8	34.7	34.7	46.9	45.4
Kernel Size (%) lg/md/sm	34/58/8	29/63/8	41/51/8	94/6/0	93/7/0	27/61/10	35/57/8	78/20/2	75/23/2
Falling Number (sec)	322	367	375			419	436	689	1115
Sedimentation (cc)	49	52	50						
Semolina Data:									
Lab Mill Extraction (%)	67.1	69.6	70.7	72.6	78.8	71.5	71.2	73.6	72.8
Semolina Extraction (%)	61.1	63.8	64.5	62.2	65.7	64.7	64.4	66.9	65.9
Ash (%) 14%/0% moisture basis	0.64/0.74	0.76/0.89	0.70/0.81	0.83/0.97	0.88/1.03	0.71/0.82	0.69/0.80	0.70/0.81	0.70/0.81
Specks (no/10 sq in)	22	23	19	6	10	25	26	28	23
Protein (%) 14%/0% moisture basis	13.9/16.2	13.9/16.2	13.3/15.5	12.6/14.7	12.6/14.7	13.8/16.0	13.2/15.4	11.7/13.6	11.8/13.7
Wet Gluten (%)	39.5	39.2	37.2	35.5	33.5				
Gluten Index	41.4	48.0	47.3			50.1	50.2	79.0	86.9
Mixograph Classification	5.2	5.4	5.8			5.4	5.7	6.6	7.4
Alveograph: P (mm)	53.0	49.0	52.0						
L (mm)	65.0	95.0	91.0						
P/L Ratio	0.81	0.52	0.57	1.18	1.38				
W (10-4 joules)	109	113	78	176	155				
Color: L*	85.2	85.6	84.9			84.7	85.2	84.8	84.8
a*	-2.9	-2.6	-2.8			-2.4	-2.5	-2.3	-2.7
b*	29.2	28.8	27.4	26.2	25.8	27.0	26.3	25.9	25.7
Spaghetti Processing Data:									
Color Score	8.7	9.1	9.2	9.0	8.1	8.5	8.8	8.8	9.3
Cooked Weight (gm)	31.6	32.2	31.1	30.1	30.1	32.6	32.2	32.2	31.9
Cooking Loss (%)	5.5	5.6	5.7	7.3	7.2	5.6	5.5	6.1	6.1
Cooked Firmness (g cm)	5.7	5.6	5.7	7.2	7.9	6.0	5.4	5.2	5.1
Sample Count:						21	20	13	24

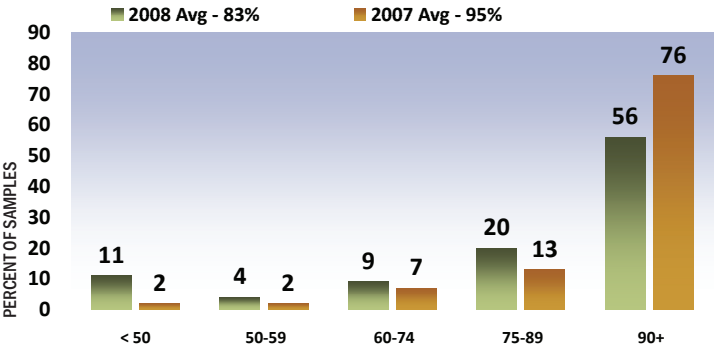
TEST WEIGHT | Pounds/Bushel



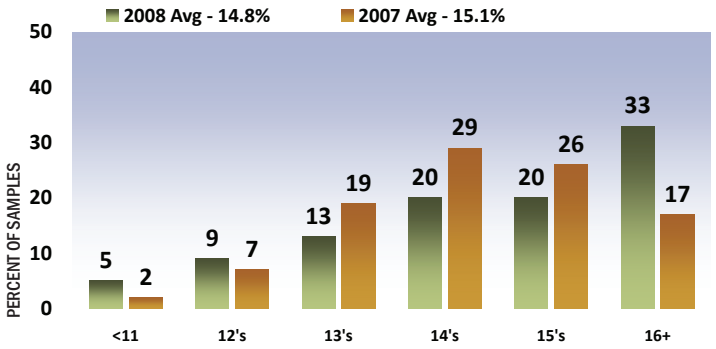
HECTOLITER WEIGHT | Kilograms/Hectoliter



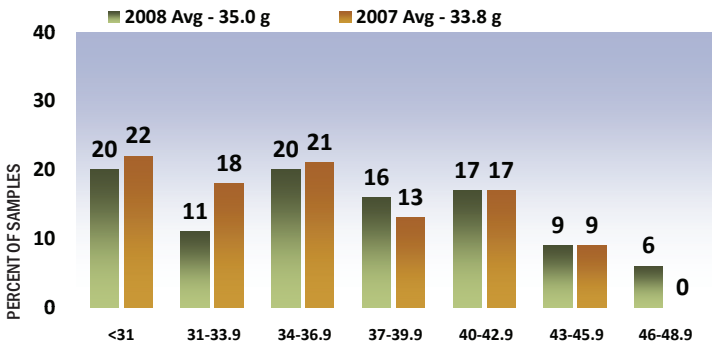
VITREOUS KERNELS | Percent



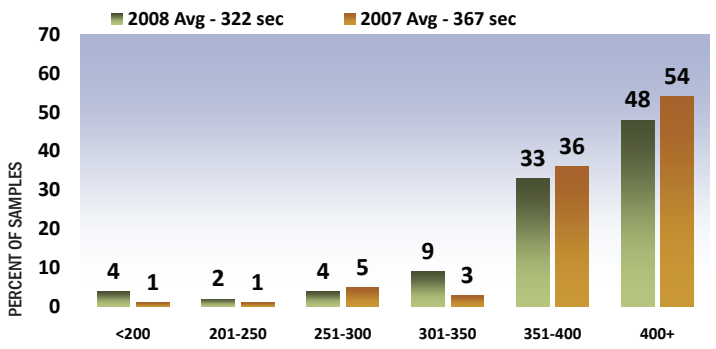
PROTEIN (12% MB) | Percent



1000 KERNEL WEIGHT | Grams



FALLING NUMBER | Seconds



Durum Production

for the major producing states
(million metric tons)

	2008	2007	2006	2005	2004
Arizona	0.40	0.22	0.20	0.22	0.26
California	0.44	0.19	0.18	0.18	0.24
Idaho	0.02	0.03	0.04	NA	NA
Montana	0.29	0.31	0.18	0.45	0.49
North Dakota	1.15	1.19	0.86	1.86	1.44
Total Durum Production	**2.31**	**1.96**	**1.46**	**2.75**	**2.45**

Based on USDA crop estimates of 9/31/2008.

HARVEST SURVEY

Hard white wheat (HW) is primarily grown in the states of California, Kansas, Colorado, Idaho, Oklahoma, Nebraska, Washington, and Montana. Other states such as North Dakota, South Dakota, Wyoming, and Oregon have limited production. According to USDA, total HW production in 2008 was about 790,000 metric tons (MT), a slight increase from last year's 735,000 MT.

Survey Methods: HW samples were collected from the Pacific Northwest (Idaho, Oregon, and Washington), California, Southern Plains (Colorado, Kansas, Oklahoma, and Nebraska), and Northern Plains (South Dakota). Samples from the Pacific Northwest (PNW) were collected by USDA's National Agricultural Statistics Service. Samples from California and the Northern Plains were sent directly to the Wheat Marketing Center by growers. Some samples from the Southern Plains were provided by Kansas State University Wheat Quality Lab and were collected by Plains Grains, Inc. (Stillwater, OK) and others were provided by growers. These samples represented diverse growing conditions across the country. Wheat grading was conducted by the Federal Grain Inspection Service (FGIS), Portland, Oregon. All other tests were conducted by the Wheat Marketing Center (WMC), Portland, Oregon.

HW samples were made into nine composites based on regions (PNW, California, Southern Plains, and Northern Plains) and protein levels (less than 11.5%, 11.5 – 12.5%, 12.6 – 13.5%, and higher than 13.5%). Wheat and flour tests were done according to the American Association of Cereal Chemists Methods (10th Edition). Chinese raw and wet noodle testing, and steamed bread evaluations were conducted according to protocols established by Asian noodle and steamed bread makers and flour millers at the WMC during US Wheat Associates' Asian Products Collaborative Program.

Wheat and Grade Data: Most samples were graded US No. 1 with test weights from 59.6 to 64.0 lb/bu (78.4 to 84.1 kg/hl). Wheat moisture range from 7.9%-11.2%; PNW and California composites had lower moisture than those from the Southern Plains and the Northern Plains. PNW and California composites also had higher thousand-kernel weights and kernel diameters than the Plains composites. Falling number values were above 330 seconds, indicating sound grain.

Flour, Dough and Baking Data: Buhler laboratory mill straight grade flour extractions ranged from 68.9% to 72.2% and flour ash varied from 0.42% to 0.50%. These suggested that this year's hard white had good milling performance.

Flour wet gluten ranged from 23.8% to 36.9%, which were mostly related to the flour protein. Amylograph peak viscosities were between 657 and 1201 BU, indicating good starch pasting characteristics and suitability for Asian noodle products. Starch damage values were in the range of 4.0% to 7.8%. Lactic acid SRC values showed positive correlations with loaf volume.

Farinograph absorption ranged from 57.2% to 60.8%, and stability times were 9.2 minutes or longer for all samples, showing the typically strong dough characteristics of HW. HW usually has similar farinograph water absorption to HRW, but the stability times were much longer indicating more tolerance to overmixing. Alveograph W values ranged from 250-456. Extensograph data at 135-minute resting showed that maximum resistance was in the range of 481-1305 BU, and extensibility was from 9.8-17.3 cm depending on the protein content. Both alveograph and extensograph data were similar to HRW or HRS of similar protein ranges.

Most samples showed good baking performance. with bake absorption in the range of 60.5%-65.6% and loaf volume from 759 to 1075 cc.

Noodle Evaluation: HW flours and a control flour were evaluated for both Chinese raw noodles (white salted) and Chinese wet noodles (yellow alkaline). Chinese raw noodle color was acceptable for the low and medium protein composite samples, but was duller for the high and very high protein composites. The boiled noodle texture was generally acceptable for medium and higher protein composites from California, the Southern Plains, and the Northern Plains. These results suggested that the noodle texture was generally associated with the flour protein content with the higher protein samples giving harder noodle bite, but the noodle color acceptability had a negative relationship to the flour protein content.

Chinese wet noodle color was acceptable for all samples compared to the control. However, uncooked noodles from high and very high protein composites had greater discoloration during 24-hour storage. The texture of cooked Chinese wet noodles was acceptable for all composites except for the very high protein composites from the PNW and the Southern Plains

Steamed Bread Evaluation: HW flours were evaluated for Asian steamed breads in comparison with a control flour. Results showed that most samples were acceptable for steamed breads except for the Southern Plains very high protein composite because of slightly dull color and coarse grain texture.

Summary: This year, the US HW production increased slightly from last year. Quality analyses indicated that this year's HW samples showed very good quality performance in milling, dough rheological properties, and end-products including pan breads, Asian noodles, and steamed breads.

Hard White	Pacific Northwest		California		Southern Plains				Northern Plains
	Medium*	Very High	Medium	High	Low	Medium	High	Very High	Very High
Wheat Grade Data:									
Test Weight (lb/bu)	64.0	61.6	63.7	63.1	63.7	63.0	60.8	61.3	59.6
(kg/hl)	84.1	81.0	83.7	82.9	83.7	82.8	80.0	80.6	78.4
Damaged Kernels Total (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign Material (%)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Shrunken & Broken (%)	0.4	0.3	0.3	0.2	1.3	0.9	1.2	0.9	0.3
Total Defects (%)	0.4	0.3	0.3	0.2	1.3	1.0	1.2	0.9	0.3
Grade	1 HW	1 HW	1 HW	1 HW	1 HW	1 HW	1 HW	1 HW	2 HW
Wheat Non-Grade Data:									
Dockage (%)	0.6	0.4	0.5	0.8	0.4	0.5	0.4	0.6	0.5
Moisture (%)	9.3	8.3	8.5	7.9	9.9	10.5	10.9	10.4	11.2
Protein (%) 12%/0% moisture basis	11.9/13.5	14.1/16.1	12.1/13.8	13.3/15.1	10.3/11.7	12.5/14.2	13.2/15.0	14.4/16.4	14.7/16.7
Ash (%) 14%/0% moisture basis	1.50/1.74	1.59/1.85	1.41/1.64	1.51/1.76	1.58/1.83	1.62/1.88	1.54/1.79	1.56/1.81	1.47/1.71
1000 Kernel Weight (g)	41.0	36.3	44.0	44.8	32.1	30.0	30.0	30.7	29.7
Kernel Size (%) lg/md/sm	95/5/0	86/14/0	93/7/0	93/7/0	86/14/0	61/38/1	54/45/1	49/50/1	74/26/0
Single Kernel: Hardness	65.1	59.3	59.3	60.0	67.4	67.4	62.4	71.5	56.4
Weight (mg)	45.1	41.0	42.6	44.2	33.9	31.1	30.3	30.3	32.5
Diameter (mm)	3.04	2.92	2.96	3.00	2.85	2.65	2.62	2.60	2.71
Sedimentation (cc)	42.8	55.0	38.5	39.9	24.2	36.3	36.8	41.6	60.8
Falling Number (sec)	354	339	411	399	374	370	402	403	419
Flour Data:									
Lab Mill Extraction (%)	72.2	71.8	71.1	70.5	70.8	69.3	69.9	68.9	71.2
Color: L*	92.2	91.9	91.2	91.0	91.6	91.6	91.6	91.1	92.0
a*	-2.0	-2.1	-2.0	-1.9	-2.2	-2.2	-2.3	-2.3	-1.9
b*	7.5	8.1	8.0	8.0	8.2	8.4	8.7	9.3	7.2
Protein (%) 14%/0% moisture basis	10.6/12.3	12.9/15.0	10.8/12.5	11.9/13.8	9.0/10.5	10.9/12.7	11.5/13.4	12.9/15.0	13.3/15.5
Ash (%) 14%/0% moisture basis	0.46/0.53	0.47/0.54	0.48/0.56	0.48/0.56	0.45/0.53	0.49/0.57	0.46/0.54	0.50/0.58	0.42/0.48
Wet Gluten (%)	27.8	32.8	26.7	31.2	23.8	31.8	31.7	36.9	36.4
Gluten Index	97.6	97.6	99.3	93.6	93.9	79.1	89.9	76.0	97.2
Falling Number (sec)	349	389	428	491	340	429	431	490	372
Amylograph Viscosity 65 g (BU)	1201	947	657	639	562	999	1110	1018	937
Starch Damage (%)	5.6	4.6	7.5	7.8	5.9	5.4	4.8	4.9	4.0
Solvent Retention Capacity (%)									
Water/50% Sucrose	63/118	61/121	67/110	67/115	59/97	61/117	59/113	61/118	55/112
5% Lactic Acid/5% Na2CO3	152/90	159/81	136/87	140/91	118/78	140/85	147/78	142/78	181/69
Dough Properties:									
Farinograph:									
Peak Time (min)	6.7	9.3	2.7	7.1	1.7	5.0	5.5	5.9	10.5
Stability (min)	18.6	22.2	17.7	20.3	9.2	9.7	18.0	15.5	25.9
Absorption (%)	58.4	59.3	59.5	60.8	57.2	59.7	57.9	60.6	57.8
Alveograph: P (mm)	79	76	102	106	166	72	66	70	58
L (mm)	163	188	94	129	36	152	179	180	195
P/L Ratio	0.48	0.40	1.09	0.82	4.61	0.47	0.37	0.39	0.30
W (10-4 joules)	401	456	336	446	250	288	318	333	380
Extensograph: Resistance (BU)	556/835	647/1128	460/771	600/1145	380/481	343/593	457/593	426/697	732/1305
(45/135 min) Extensibility (cm)	18.4/14.9	20.8/14.2	17.5/16.2	16.4/9.8	15.4/14.0	19.0/16.7	21.0/17.3	18.4/16.0	20.0/12.5
Area (sq cm)	126/151	158/182	107/153	113/125	80/90	83/120	117/127	97/137	178/188
Baking Evaluation:									
Bake Absorption (%)	60.5	62.0	64.3	65.6	62.1	63.2	61.8	64.1	60.5
Crumb Grain and Texture	7.0	8.0	7.3	6.5	6.5	7.0	7.5	7.5	7.8
Loaf Volume (cc)	916	1075	855	890	759	901	904	865	977

* Low: Less than 11.5%; Medium: 11.5 - 12.5%; High: 12.6% - 13.5%; Very High: Greater than 13.5%.

Hard White	Pacific Northwest		California		Southern Plains				Northern Plains
	Medium*	Very High	Medium	High	Low	Medium	High	Very High	Very High
Chinese Raw Noodle-Making Quality:									
Color at 0/24 hour: L*	84.3/73.1	82.1/70.6	84.0/72.5	82.5/70.1	85.5/76.7	82.6/71.4	81.7/70.9	80.4/69.1	79.5/70.1
a*	0.2/0.8	0.6/1.4	-0.2/0.8	0.4/1.2	-0.2/0.4	-0.1/0.8	0.1/0.8	0.3/1.2	0.9/1.7
b*	17.1/21.3	19.0/24.2	15.3/20.8	16.4/21.9	15.1/19.9	19.1/24.9	19.6/24.8	20.7/25.7	21.2/22.5
Change in L* (0-24 hr)	11.2	11.5	11.5	12.6	8.8	11.2	10.8	11.3	9.4
Cooking Yield (%)	119	119	121	115	122	111	114	116	119
Sensory Color Stability Score	7.5	6.5	6.7	6.2	9.0	6.5	6.2	6.0	6.2
Instrumental Texture:									
Firmness (g)	818	916	1004	1052	977	989	1017	1030	1025
Springiness (%)	94.7	94.5	95.2	97.4	97.8	96.7	96.2	92.8	94.8
Cohesiveness	0.69	0.67	0.65	0.65	0.63	0.66	0.66	0.66	0.66
Chewiness (g)	533	575	622	663	603	631	644	627	639
Chinese Wet Noodle-Making Quality:									
Uncooked Color at 0/24 hour: L*	75.1/64.0	78.5/64.2	78.2/66.0	77.2/63.5	80.9/69.8	78.3/65.6	77.9/66.0	80.0/64.6	77.9/64.3
a*	-1.8/-0.0	-1.7/-0.5	-1.2/-0.3	-1.1/0.4	-1.8/-0.3	-1.9/-0.2	-1.8/-0.1	-2.0/-0.4	-1.1/-0.5
b*	24.4/23.0	22.0/21.7	20.3/22.2	19.6/21.3	21.0/23.3	23.8/23.9	23.6/23.5	20.4/21.1	21.7/21.7
Change in L* (0-24 hr)	11.1	14.3	12.2	13.7	11.1	12.7	11.9	15.4	13.6
Parboiled Color at 0/24 hour: L*	75.7/76.1	72.2/72.9	75.4/76.2	74.3/75.4	77.3/78.6	76.8/77.9	76.5/77.7	76.1/76.8	75.9/76.6
a*	-1.4/-2.2	-0.8/-2.0	-1.4/-1.9	-1.1/-1.7	-1.8/-2.6	-1.6/-2.6	-1.9/-2.5	-1.5/-2.5	-1.2/-1.7
b*	27.9/26.6	27.7/26.1	25.9/24.9	25.1/24.0	28.6/26.5	28.3/26.5	27.8/26.6	27.1/25.1	25.4/24.0
Cooking Yield (1.5 min, %)	61	62	66	61	65	61	60	62	56
Uncooked Color Stability Score	6.8	6.8	6.5	6.5	7.5	7.0	7.0	7.5	6.8
Parboiled Color Stability Score	7.0	7.3	6.5	6.5	7.3	7.0	7.0	6.8	6.8
Instrumental Texture:									
Firmness (g)	784	650	743	810	720	727	723	640	884
Springiness (%)	96.5	95.6	95.1	95.6	95.2	95.4	94.9	94.7	95.7
Cohesiveness	0.66	0.69	0.65	0.65	0.64	0.67	0.67	0.68	0.65
Chewiness (g)	498	426	459	507	436	464	459	413	553
Asian-Type Steamed Bread Evaluation:									
Specific Volume (ml/g)	3.2	3.2	3.0	3.2	3.0	2.9	3.6	3.1	2.7
Total Score	71.3	69.6	74.2	75.2	72.5	68.8	73.8	66.4	70.3

* Low: Less than 11.5%; Medium: 11.5 - 12.5%; High: 12.6% - 13.5%; Very High: Greater than 13.5%.

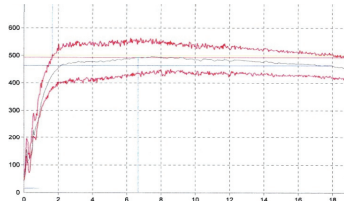
ABOUT HARD WHITE WHEAT

Medium to high protein content, hard endosperm, white bran. Used in Asian noodles, whole wheat or high extraction flour applications, pan breads and flat breads.

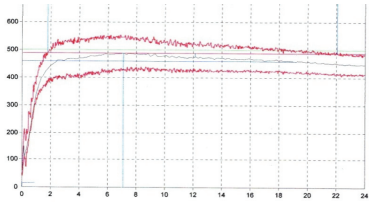


COMPOSITE AVERAGE FARINOGRAMS:

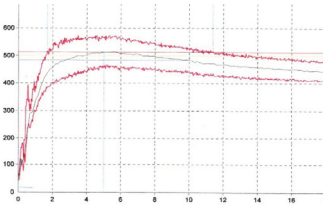
PNW MEDIUM



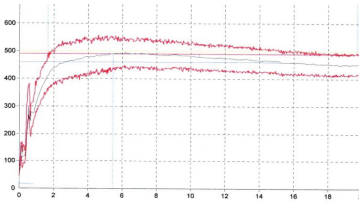
CALIFORNIA HIGH



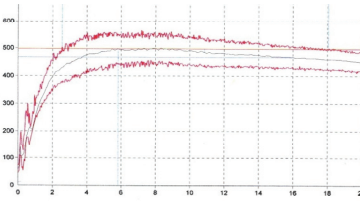
SOUTHERN PLAINS MEDIUM



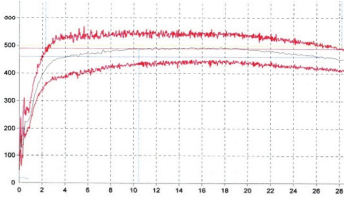
SOUTHERN PLAINS HIGH



SOUTHERN PLAINS VERY HIGH

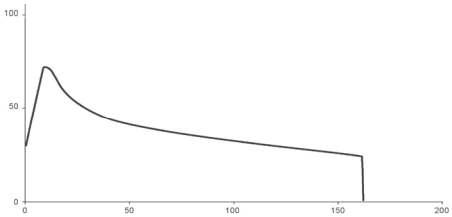


NORTHERN PLAINS VERY HIGH

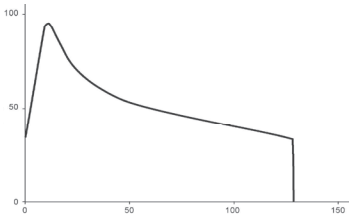


COMPOSITE AVERAGE ALVEOGRAMS:

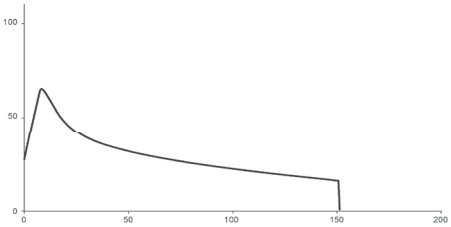
PNW MEDIUM



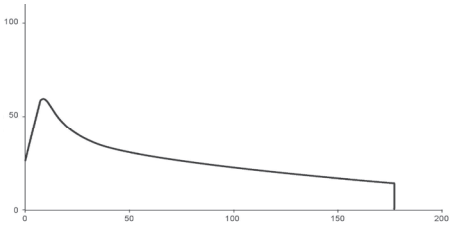
CALIFORNIA HIGH



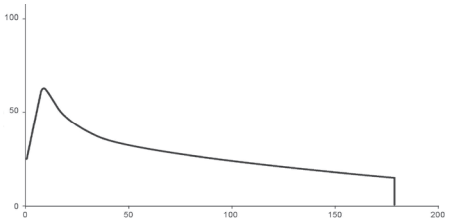
SOUTHERN PLAINS MEDIUM



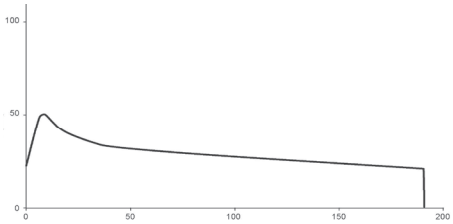
SOUTHERN PLAINS HIGH



SOUTHERN PLAINS VERY HIGH

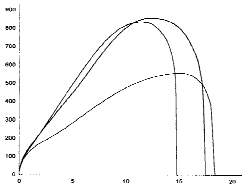


NORTHERN PLAINS VERY HIGH

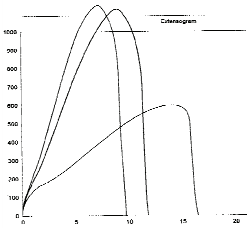


COMPOSITE AVERAGE EXTENSOGRAMS:

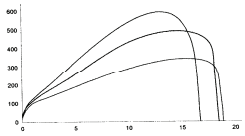
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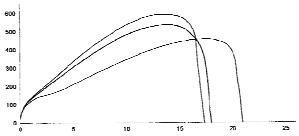
CALIFORNIA HIGH



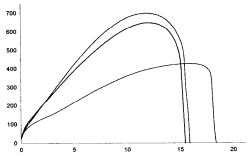
SOUTHERN PLAINS MEDIUM



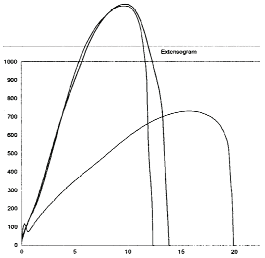
SOUTHERN PLAINS HIGH



SOUTHERN PLAINS VERY HIGH



NORTHERN PLAINS VERY HIGH



US Production by Class

Crop Year (Beginning June 1)
(million metric tons)

	2008	2007	2006	2005	2004
Hard Red Winter	28.18	26.17	18.56	25.31	23.30
Soft Red Winter	16.70	9.74	10.62	8.41	10.35
Hard Red Spring	13.92	12.22	11.77	12.70	14.30
Soft White	6.13	5.43	7.30	7.33	6.99
Hard White	0.79	0.62	0.53	0.81	1.10
Durum	2.31	1.96	1.46	2.75	2.45
Total	**68.03**	**56.26**	**49.32**	**57.29**	**58.74**

Based on USDA crop estimates of 9/31/2008

US Supply and Demand

Estimated for 2008/2009 (year beginning June 1)
(million metric tons)

	HRW	HRS	SRW	White	Durum	TOTAL
Supply:						
Beginning Stocks	3.76	1.85	1.50	1.01	0.22	8.33
Production	28.17	13.93	16.71	6.91	2.31	68.04
Total Supply	**31.95**	**16.87**	**18.34**	**8.16**	**3.76**	**79.06**
Demand:						
Domestic Use	13.96	6.64	9.58	2.88	2.42	35.49
Exports	12.11	6.53	4.22	3.54	0.82	27.22
Total Demand	26.07	13.17	13.80	6.42	3.24	62.70
Ending Stocks	**5.88**	**3.70**	**4.54**	**1.74**	**0.52**	**16.36**

Based on USDA Supply/Demand estimates of October 10, 2008.



ANALYSIS METHODS

The harvest samples and cargo samples for each class were evaluated using the same methods as described below. All flour, semolina and end-use tests utilize flour or semolina produced as documented below under the methods labeled "Extraction."

WHEAT AND GRADE DATA

Grade: Official U.S. Standards for Grain.
Dockage: Official USDA procedure using the Carter Dockage Tester.
Moisture: HRS, Durum - Motomco Moisture Meter and AACC 44-15A (Air Oven Method); SRW - AACC 44-15A; HRW - NIR Method; SW, HW - Official US Standards for grain method using Dickey-John Grain Analysis Computer.
Test Weight: AACC 55-10; test weight is mathematically converted to hectoliter weight: for durum - kg/hl = lb/bu x 1.292 + 0.630, for other wheats - kg/hl = lb/bu x 1.292 + 1.419.
Protein: HRW – AACC 39-11 (NIR Method). All other classes - AACC 46-30 (Dumas Combustion Nitrogen Analysis method).
Single Kernel Characterization: Perten method using Perten SKCS 4100.
Sedimentation: HRS, HRW (Plains), SRW, SW, HW - AACC 56-61A; Durum - AACC 56-70.
1000 Kernel Weight: HRS, Durum, SRW - based on a 10-gram sample of clean wheat counted by an electronic counter. SW, HW - based on three 100-kernel sample weight expressed on a 14% moisture basis. HRW – calculated from SKCS data by taking average kernel weight times 1000.
Ash: AACC 08-01 expressed on a 14% moisture basis.
Falling Number: AACC 56-81B. An average value is a simple mean of sample results.
Vitreous Kernels: HRS and durum only - Percentage by weight of vitreous kernels hand-picked from a 50-gram sample of clean wheat.
Kernel Size Distribution: Cereal Foods World (Cereal Science Today) 5:(3), 71 (1960). Wheat is sifted with a RoTap sifter using a Tyler No. 7 screen (2.82 mm) and a Tyler No. 9 screen (2.00 mm). Kernels which do not pass through the No. 7 screen are classified as "Large." Kernels passing through the No. 7 screen but not the No. 9 screen are "Medium." Kernels passing through the No. 9 screen are "Small."

FLOUR DATA

Laboratory Milling Extraction: Samples were cleaned and tempered according to AACC 26-10A. All samples within each class other than California HRW were milled with standardized mill settings on a Buhler laboratory mill as described in the following procedures: SW - AACC 26-31; HW - AACC 26-31A; HRW (Midwestern), SRW, and HRS - AACC 26-21A. California HRW was milled on a Brabender® Quadrumat Senior mill using the Brabender® procedure. All extraction rates were calculated against total products on an "as is" moisture basis.
Ash: AACC 08-01, reported on a 14% moisture basis.
Color: Minolta Method using Minolta Chroma Meter CR-110 for HRW and SRW, CR-310 for HRS, or CR-410 for SW and HW with Granular-Materials Attachment CR-A50. CIE 1976 L*a*b* color system: L* indicates white-black, a* - red-green, and b* - yellow-blue.
Protein: HRW - AACC 39-11 (NIR Method). All other classes - AACC 46-30 (Dumas Combustion Nitrogen Analysis method),
Wet Gluten and Gluten Index: HRS, SRW, HW, HRW (Plains) - AACC 38-12A; SW - AACC 38-12A (water reduced from 4.8 to 4.2 ml); HRW (CA) - Glutomatic Method (ICC 137).
Falling Number: AACC 56-81B. An average value is a simple mean of sample results.
Farinograph: AACC 54-21 with 50-gram bowl. Absorption except HRW (California) is reported on 14% moisture basis. HRW (California) reports "as is" absorption. Classification (HRS only) incorporates peak time, mixing tolerance, and general curve characteristics to assign rating based on a scale of 1-8. Higher numbers indicate stronger protein flours.
Alveograph: Durum - AACC 54-30A modified. Other classes - AACC 54-30A.
Amylograph: HRS (100g) - AACC 22-10. HRS (65g), SRW, SW, HW - AACC 22-10 modified to use 65g flour (14% moisture basis) and 450ml distilled water with paddle (HRS) or pins (other classes). HRW - AACC 22-10 modified to use 10g flour and 100ml water.
Extensograph: AACC 54-10, modified 45 min. and 135 min. rest for HRS, HRW, HW; 45 min. rest for SW.
Starch Damage: HRW, HRS, SRW, Durum - AACC 76-30A. SW, HW - iodine absorption by Chopin SDMatic instrument.
Solvent Retention Capacity (SRC): AACC 56-11.

SEMOLINA DATA

Laboratory Milling Extraction: Great Plains samples were milled using a modified Buhler laboratory mill with identical settings and equipped with Miag laboratory purifiers, as described by Vasiljevic and Banasik 1980: Quality Testing Methods for Durum Wheat and its Products, pp. 64-72, Dept. of Cereal Chemistry and Technology, NDSU, Fargo, ND. Roll gaps have been modified to (in mm): B1-0.762; B2-0.305; B3-0.254; R1-0.102; B4-0.076; B5-0.038. Extraction rates were calculated against total products on an "as is" moisture basis. Procedure is derived from AACC 26-41 based on research showing improved correlation between laboratory and commercially milled semolina quality. Pacific Southwest samples were milled on a Modified Chopin CD2 mill.
Ash: AACC 08-01 on 14.0% moisture basis.
Color: Minolta Method using Minolta Chroma Meter CR-310.
Protein: AACC 46-30 (Dumas Combustion Nitrogen Analysis method).

Wet Gluten and Gluten Index: AACC 38-12 Glutomatic procedure.
Specks: Sample is pressed under 3 inch x 4 inch glass plate, and the specks within one-inch square marked on the plate are counted. Average of three determinations is expressed as specks per 10 square inches.
Mixogram: Ten grams of semolina are mixed in a 10-gram mixograph bowl with 5.8 ml of distilled water to give maximum dough consistency. An overall empirical classification incorporating peak height and general curve characteristics is assigned based on comparison with eight reference mixograms. The higher the classification number, the stronger the curve type.

BAKING, NOODLE, STEAMED BREAD AND SPAGHETTI DATA

HRW & SRW: AACC 10-10B (Pup Loaf Method) producing two loaves per batch using wet compressed yeast and ascorbic acid. After mixing, the dough is divided into two equal portions, fermented for 160 min., molded and panned in "pup loaf" pans before proofing and baking. Loaf volume is measured immediately after baking by rapeseed displacement. California HRW only - AACC 10-10B producing two loaves per batch using wet compressed yeast, malt flour, 45 ppm ascorbic acid, and 120 min. fermentation. Loaf volume is measured immediately after baking. Scoring of grain and texture for all is on a scale of 1-10 with higher numbers indicating preferred quality attributes.
SRW Cookie Spread Ratio - AACC 10-50D.
HRS: AACC 10-09 (Long Fermentation), modified: fungal amylase (I5 SKB units/100 g flour) replacing malt dry powder; instant dry yeast (1%); 10 ppm bromate, where additional oxidants are required; 2% added shortening. Doughs are mechanically punched, moulded, and baked in "Shogren-type" pans. Scoring is based on a scale of 1-10 with higher numbers indicating preferred quality attributes.
SW: Cookie diameter – AACC 10-52. Sponge cake volume* and score - Japanese standard method described by Nagao in Cereal Chemistry 53:977-988, 1976.
Durum: Pasta is made using the laboratory procedure described by Walsh, Ebeling, and Dick, Cereal Foods World: 16: (11) 385 (1971). Water (32.0% based on semolina weight) is added to semolina and mixed in a Hobart mixing bowl 3.5 min. Semolina-water mixture is extruded using a DeMaco laboratory pasta extruder. Spaghetti is dried using modified Buhler high-temperature drying cycle as described by Debbouz, Pitz, Moore, and D'Appolonia, Cereal Chemistry: 72 (1):128-131. Color scores are determined by the procedure described by Walsh, Macaroni Journal 52: (4) 20 (1970), using a Minolta Color Difference Meter (Model: CR 310). Higher values (scale 1-12) are preferred. Cooked weight, cooking loss and firmness are determined by AACC 16-50.
HW Baking: AACC 10-10B with 180 min fermentation.*
HW Noodle: Two types of Chinese noodles were prepared from each of the HW flours: Chinese raw noodles and Chinese wet noodles. The Chinese raw noodle formula was: flour 100%, salt 1.2%, and distilled water 28%. The Chinese wet noodle formula was: flour 100%, salt 2%, K_2CO_3 0.45%, Na_2CO_3 0.45%, and distilled water 32%. Noodle sheet color is measured by stacking three dough sheets and taking two readings from each side of two dough sheets (a total of eight readings) using a Minolta CR-310 Chroma Meter; the mean value is reported. For Chinese wet noodles, noodle sheet color was measured on both uncooked and parboiled (boiling for 1.5 min) sheets. Cooking yield is % of weight gain after cooking for 5 min for Chinese raw noodles and for 1.5 min for Chinese wet noodles, rinsing in 270° C water and draining. Sensory Noodle Color Stability Score is a total score of noodle color rated at 2 hr and 24 hr against a control sample (an assigned score of 7) and is reported based on a scale of 1-10; higher scores indicate better color stability. Noodle texture is determined on five strands of cooked noodles (2.5 x 1.2 mm for raw noodles, W x T; 1.7 x 1.6 mm for wet noodles, W x T) using a Stable Micro Systems TA.XT2 Texture Analyzer. Firmness indicates noodle bite; springiness indicates the degree of recovery after first bite; cohesiveness is a measure of the extent to which noodle structure is disrupted during first bite; and chewiness is a product of firmness, cohesiveness and springiness (firmness x cohesiveness x springiness) and thus is a single parameter that incorporates the three textural parameters. Higher values of these textural parameters are generally more desirable for Chinese-style noodles.
Chinese Steamed Bread: Two types of steamed breads were prepared: Chinese southern-type from each of the SW and club wheat flours and Asian steamed breads from each of the HW flours. The Chinese southern-type formula was: flour 100%, sugar 15%, shortening 4%, baking powder 1.2%, instant yeast 0.8%, nonfat dry milk powder 3% and water 39-43%. The Asian-type formula was: flour 100%, instant yeast 1.5%, sugar 12%, shortening 2%, and water 42.5-45%. Yeast was dissolved in water before use. All steamed breads were prepared using no-time dough methods (WMC protocols). The Total Product Score comprises volume, external characteristics, internal characteristics, eating quality and flavor. Each property was rated compared with a control sample. The control flour was scored 70.

** Finished Product Volume Measurement for SW sponge cake and steamed bread and HW bread and steamed bread: Laser light using a Tex Vol Instrument (BVM-L370).*

Wheat Grades and Grade Requirements Table

Grading Factors	Grades U.S. Nos.				
	1	2	3	4	5
	Minimum limits:				
Test Weight (lbs/bu)					
Hard Red Spring or White Club	58.0	57.0	55.0	53.0	50.0
All other classes and subclasses	60.0	58.0	56.0	54.0	51.0
Test Weight (kg/hl)					
Hard Red Spring or White Club	76.4	75.1	72.5	69.9	66.0
Durum	78.2	75.6	73.0	70.4	66.5
All other classes and subclasses	78.9	76.4	73.8	71.2	67.3
	Maximum percent limits:				
Defects					
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 and 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:				
Other material (1000 gram sample)					
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 substance	3	3	3	3	3
Total 4/	4	4	4	4	4
Insect-damaged kernels in 100 grams	31	31	31	31	31

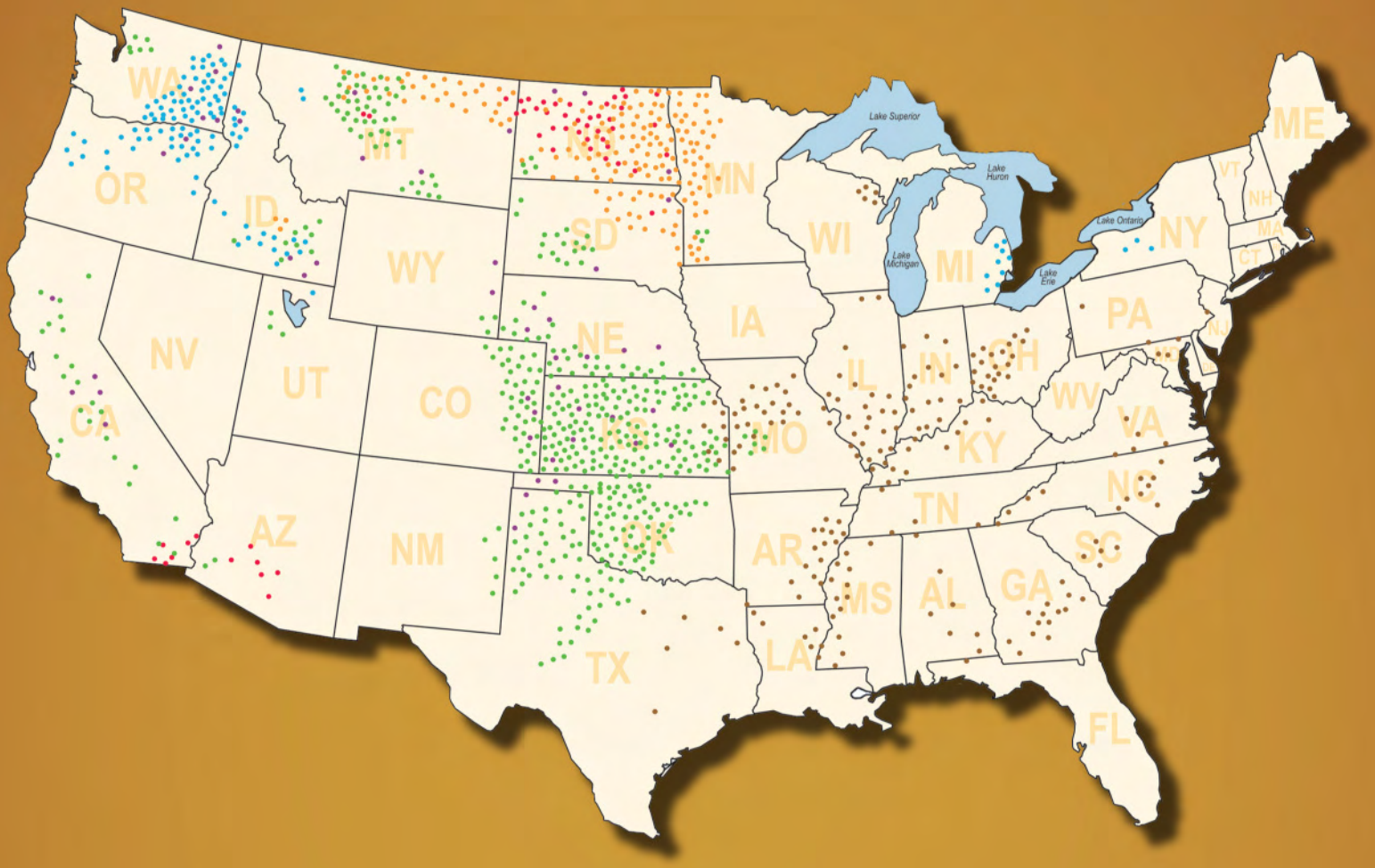
U.S. Sample grade:
Wheat that:
(a) Does not meet the requirements for U.S. Nos. 1, 2, 3, 4, 5; or
(b) Has a musty, sour or commercially objectionable foreign odor (except smut or garlic odor); o
(c) Is heating or of distinctly low quality.

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% of wheat of other classes
3/ Includes contrasting classes.
4/ Includes any combination of animal filth, castor beans, crotalaria seeds, glass, stones, o unknown foreign substance.

Conversion Factors

Wheat Equivalents:		**Metric Equivalents:**	
1 bushel =	60 pounds (27.2 kg)	1 pound =	0.4536 kg
36.74 bushels =	1 metric ton	1 metric ton (MT) =	2204.6 lbs
37.33 bushels =	1 long ton	1 short ton (2000 lbs) =	0.9072 MT, or 907.2 kg
33.33 bushels =	1 short ton	1 long ton (2240 lbs) =	1.0160 MT, or 1016.0 kg
3.67 bushels =	1 quintal	1 metric ton =	10 quintals
tons/ha =	0.06725 bu/acre	1 hectare =	2.47 acres
durum kg/hl =	lbs/bu x 1.292 + 0.630	1 acre =	0.40 hectare
other wheat kg/hl =	lbs/bu x 1.292 + 1.419	1 hundredweight =	100 pounds or 45.36 kg

U.S. wheat...the world's most reliable choice



HARD RED WINTER



Medium to high protein, medium hard endosperm, red bran, medium gluten content and mellow gluten. Used in pan breads, Asian noodles, hard rolls, flatbreads and general-purpose flour.

HARD RED SPRING



Highest protein content, hard endosperm, red bran, strong gluten, high water absorption. Used in pan breads, hearth breads, rolls, croissants, bagels, hamburger buns, pizza crust and for blending.

SOFT RED WINTER



Low protein content, soft endosperm, red bran, weak gluten. Used in pastries, cakes, cookies, crackers, pretzels, and flat breads. Can also be used for blending.

DURUM



Hardest of all wheats, high protein content, yellow endosperm, white bran. Used to make pasta, couscous, and some Mediterranean breads.

HARD WHITE



Medium to high protein content, hard endosperm, white bran. Used in Asian noodles, whole wheat or high extraction flour applications, pan breads and flat breads.

SOFT WHITE



Low protein, low moisture wheat. Soft endosperm, white bran, weak gluten. Used in pastries, cakes, biscuits, crackers, flat breads, Asian-style noodles and snack foods.

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