2014 Harvest

U.S. Pacific Northwest

Soft White Wheat Quality Report

This project is funded by the Washington Grain Commission, Oregon Wheat Commission, Idaho Wheat Commission, Wheat Marketing Center, Inc., and U.S. Wheat Associates

Executive Summary

Dry growing conditions prevailed over much of the Pacific Northwest soft white and white club wheat growing area. Test weights were high. Wheat protein content was high. Falling numbers results indicated a sound crop with little or no sprout damage. Wheat milling produced flours with high ash contents. Dough testing instruments indicated typically weak gluten strength for soft white and white club wheat. Sponge cakes had low volumes while steamed bread specific volumes were high.

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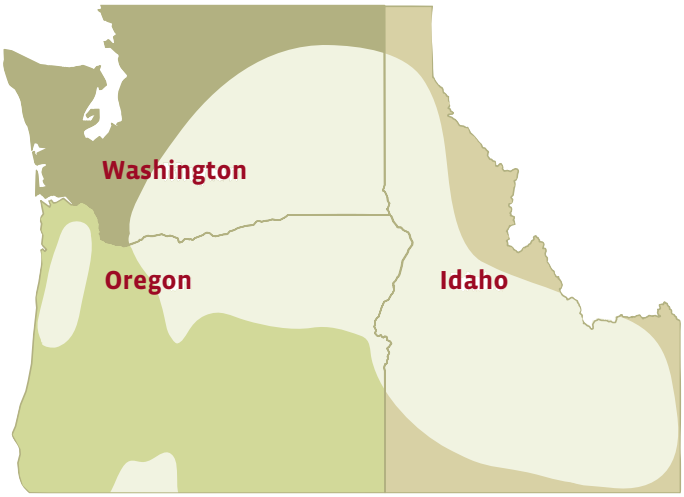
Pacific Northwest

Wheat Production

U.S. soft white wheat is grown in the Pacific Northwest, which includes the states of Idaho, Oregon, and Washington.

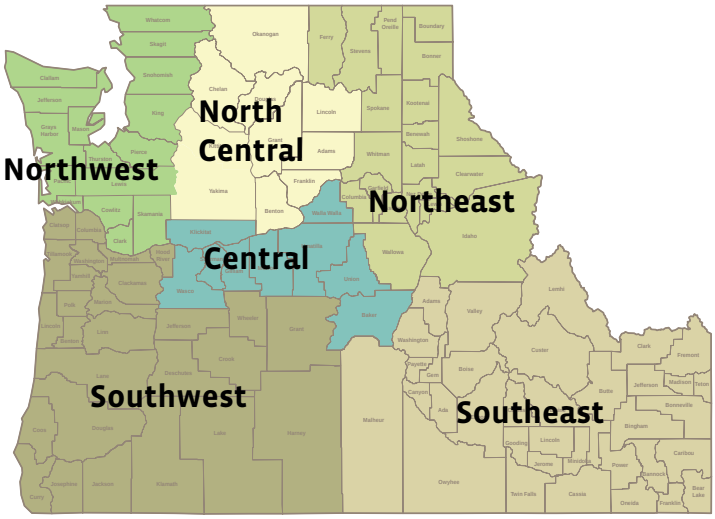


Pacific Northwest soft white wheat is known for its white bran, low moisture content, and weak dough strength characteristics. Soft white wheat is well suited for products such as cakes, pastries, cookies, crackers, pancakes, sponge cakes, snack foods, flat breads, and Chinese southern-type steamed breads.

The soft white wheat class includes the subclasses of white club wheat and western white wheat. White club wheat has very weak gluten characteristics. Western white wheat is a blend of the white club wheat subclass and soft white wheat. The amount of white club wheat in western white wheat ranges from 10 to 90 percent. The minimum percentage of white club wheat in western white wheat is 10 percent and any higher amounts are contract specifications that are negotiated between buyer and seller.

Soft White and White Club Wheat Summary

	SOFT WHITE		WHITE CLUB	
	2014	3 yr av	2014	3 yr av
Test Weight (lb/bu)	61.0	61.3	61.7	60.3
Hectoliter Weight (kg/hl)	80.2	80.6	81.1	79.3
Grade	1SWH	1SWH	1WHCB	1WHCB
Dockage (%)	0.3	0.5	0.2	0.8
Wheat Moisture (%)	9.2	9.4	8.7	9.0
Wheat Protein (%, 12% mb)	10.8	9.7	11.1	9.8
Wheat Ash (%, 14% mb)	1.31	1.33	1.25	1.27
1000 Kernel Weight (g, 14% mb)	33.9	35.3	31.1	33.8
Wheat Falling Number (seconds, 14% mb)	352	333	336	307
Flour Extraction (%)	74.6	76.4	75.9	76.4
Flour Ash (%, 14% mb)	0.52	0.49	0.55	0.48
Flour Wet Gluten (%, 14% mb)	27.1	21.1	30.2	19.4
Farinograph: Absorption (%, 14% mb)	54.9	53.3	53.8	51.9
Peak Time (minute)	2.7	1.8	1.8	1.5
Stability Time (minute)	3.1	2.7	1.1	1.7
Alveograph: L (mm)	107	108	82	87
W (10^{-4} joules)	98	94	48	49
Production (mmt)	4.93	6.14	0.20	0.43



Wheat Samples

At harvest, wheat samples were collected from a number of sources, including state and private grain inspection agencies and commercial wheat handling operations. Sample collection was based on wheat production. For the 2014 harvest, Wheat Marketing Center received 373 soft white wheat and 91 white club wheat samples from the states of Idaho, Oregon, and Washington. Federal Grain Inspection Service (FGIS) graded each sample. Wheat Marketing Center conducted wheat, flour, dough, and finished product tests on composites based on production zones and protein levels.

The major soft white wheat varieties were ORCF- 101, ORCF-102, Xerpha, Westbred 528, and Ovation. The major club wheat variety was Bruehl.

Weather

The Pacific Northwest had limited to adequate soil moisture at planting. Most of the wheat production area received adequate rainfall during the late winter and early spring. Generally dry and warm weather conditions were reported in the later spring. Timely rains occurred in early summer in some areas. Hot, dry conditions occurred during beginning of grain filling and continued to the end of wheat kernel development and during wheat harvest. Some wheat growing areas, particularly southeastern Idaho, received rainfall at harvest.

2014 Soft White and White Club Wheat Production

Production Zone	Million Metric Tons (mmt)	Million Bushels
North Central	1.48	54.5
Northeast	1.55	57.0
Central	1.10	40.3
Southeast	0.59	21.5
Southwest	0.38	14.0
Northwest	0.03	1.0
Total	5.13	188.3

By production zone; wheat production estimates courtesy of Washington Grain Commission

Wheat Quality

Production Zone	Wheat Protein Range 12% mb %	Grade	Test Weight lb/bu	Dockage %	Whole Kernel Moisture %	Falling Number 14% mb seconds	Ash 14% mb %	Thousand Kernel Weight 14% mb g	SKCS Kernel Hardness Index	Whole Meal Wet Gluten 14% mb %
NORTH CENTRAL	<8.5	1SWH	60.9	0.3	9.0	356	1.22	30.2	29	21.2
	9.5-10.4	1SWH	61.9	0.2	9.2	329	1.26	33.5	28	22.8
Soft White Wheat Estimated Production 1.31 MMT	10.5-12.0	1SWH	61.5	0.1	8.8	374	1.18	32.7	29	31.2
	>12.0	1SWH	60.9	0.5	8.7	389	1.31	32.3	26	31.4
	2014 Average	1SWH	61.3	0.3	8.9	368	1.24	32.4	28	28.4
	2013 Average	1SWH	60.7	0.5	9.2	352	1.25	35.8	29	23.0
	3 Year Average	1SWH	61.1	0.4	9.1	338	1.25	35.0	32	22.3
NORTHEAST	8.5-9.4	1SWH	61.3	0.3	9.6	332	1.25	36.8	28	21.3
	9.5-10.4	1SWH	61.1	0.1	9.1	323	1.30	35.0	27	23.6
Soft White Wheat Estimated Production 1.52 MMT	10.5-12.0	1SWH	61.3	0.2	9.1	350	1.29	35.0	28	23.7
	>12.0	2SWH	59.6	0.4	8.9	359	1.39	30.8	28	28.0
	2014 Average	1SWH	61.0	0.2	9.1	345	1.30	34.5	28	24.1
	2013 Average	1SWH	61.2	0.5	9.6	340	1.32	35.7	28	23.5
	3 Year Average	1SWH	61.5	0.4	9.4	328	1.33	34.7	32	21.7
CENTRAL	<8.5	1SWH	60.9	0.2	9.4	281	1.15	34.5	25	19.4
	8.5-9.4	1SWH	61.3	0.2	9.3	311	1.18	32.9	28	22.2
Soft White Wheat Estimated Production 1.09 MMT	9.5-10.4	1SWH	60.9	0.2	9.1	335	1.32	33.1	33	25.3
	10.5-12.0	1SWH	60.6	0.2	8.7	350	1.22	30.1	30	25.6
	>12.0	2SWH	58.9	0.3	8.7	403	1.35	29.8	27	36.5
	2014 Average	1SWH	60.3	0.2	8.9	352	1.27	31.3	29	27.8
	2013 Average	1SWH	61.0	0.6	8.8	362	1.32	35.2	35	22.3
	3 Year Average	1SWH	61.1	0.5	9.4	338	1.29	35.6	37	19.5
SOUTHEAST	8.5-9.4	1SWH	61.3	0.2	9.9	311	1.49	39.1	32	15.4
	9.5-10.4	1SWH	61.8	0.5	9.4	382	1.50	35.1	35	20.9
Soft White Wheat Estimated Production 0.59 MMT	10.5-12.0	1SWH	60.8	0.2	10.1	359	1.57	34.1	32	24.2
	2014 Average	1SWH	61.3	0.3	9.8	340	1.51	37.0	33	18.9
	2013 Average	1SWH	60.9	0.6	9.0	343	1.54	35.7	32	18.9
	3 Year Average	1SWH	61.2	0.6	9.2	333	1.53	35.7	33	20.6
SOUTHWEST	<8.5	1SWH	60.6	0.8	11.0	355	1.38	37.4	31	17.0
	8.5-9.4	1SWH	61.2	0.8	10.9	338	1.41	41.2	38	18.8
Soft White Wheat Estimated Production 0.38 MMT	9.5-10.4	1SWH	60.8	0.6	10.8	353	1.46	37.3	26	22.6
	2014 Average	1SWH	60.9	0.7	10.9	347	1.41	39.1	33	19.3
	2013 Average	1SWH	61.5	0.3	10.9	342	1.44	38.7	32	21.9
	3 Year Average	1SWH	61.3	0.4	11.0	322	1.42	38.1	35	19.8
WHITE CLUB WHEAT	2014 Average	1WHCB	61.7	0.2	8.7	336	1.25	31.1	33	15.2
	2013 Average	1WHCB	60.7	0.6	9.0	330	1.28	35.1	32	16.3
Estimated Production 0.20 MMT	3 Year Average	1WHCB	60.3	0.8	9.0	307	1.27	33.8	33	15.6

Flour Quality

Production Zone	Wheat Protein Range 12% mb %	Flour Yield %	Flour Ash 14% mb %	Flour Protein 14% mb %	Flour Color L*	Flour Color a*	Flour Color b*	Wet Gluten 14% mb %	Falling Number 14% mb seconds	Amylograph Peak Viscosity BU
NORTH CENTRAL	<8.5	73.0	0.52	8.1	92.3	-2.6	8.4	18.2	358	521
	9.5-10.4	77.2	0.52	9.3	92.4	-2.4	8.0	25.8	487	451
Soft White Wheat Estimated Production 1.31 MMT	10.5-12.0	72.0	0.48	10.4	92.4	-2.4	8.0	29.8	521	506
	>12.0	74.1	0.53	11.5	92.1	-2.1	7.4	33.8	408	556
	2014 Average	73.8	0.51	10.3	92.3	-2.3	7.8	28.9	454	515
	2013 Average	75.2	0.46	9.0	91.7	-2.4	7.8	23.3	387	468
	3 Year Average	75.8	0.47	8.6	91.9	-2.4	7.8	21.1	360	467
NORTHEAST	8.5-9.4	75.8	0.52	8.3	92.4	-2.5	8.4	21.4	372	484
	9.5-10.4	75.6	0.51	9.1	92.4	-2.3	7.9	25.5	391	561
Soft White Wheat Estimated Production 1.52 MMT	10.5-12.0	75.4	0.51	10.0	92.1	-2.1	7.5	28.5	411	530
	>12.0	74.3	0.54	11.5	92.3	-2.2	7.8	30.1	388	624
	2014 Average	75.3	0.51	9.9	92.2	-2.2	7.7	27.5	400	546
	2013 Average	77.2	0.45	9.3	92.0	-2.3	7.6	24.5	352	521
	3 Year Average	77.1	0.48	8.8	91.8	-2.3	7.9	20.8	347	467
CENTRAL	<8.5	75.4	0.50	8.0	92.4	-2.6	8.6	19.7	339	553
	8.5-9.4	76.4	0.47	8.2	92.4	-2.6	8.8	21.5	312	564
Soft White Wheat Estimated Production 1.09 MMT	9.5-10.4	75.0	0.55	9.1	92.1	-2.4	8.4	25.1	373	493
	10.5-12.0	72.3	0.51	10.2	92.2	-2.5	8.4	30.6	388	617
	>12.0	72.8	0.57	12.5	91.7	-2.3	8.2	38.6	439	580
	2014 Average	73.7	0.53	10.2	92.1	-2.4	8.4	29.8	387	568
	2013 Average	75.8	0.46	9.2	91.7	-2.4	8.2	25.6	384	516
	3 Year Average	76.2	0.48	8.5	91.8	-2.5	8.3	20.8	356	512
SOUTHEAST	8.5-9.4	75.5	0.56	8.3	92.2	-2.4	8.2	17.6	358	441
	9.5-10.4	73.4	0.55	9.6	92.1	-2.3	8.1	26.1	422	532
Soft White Wheat Estimated Production 0.59 MMT	10.5-12.0	75.8	0.56	10.1	92.1	-2.2	7.6	28.4	409	531
	2014 Average	75.1	0.56	9.1	92.1	-2.3	8.0	22.3	386	485
	2013 Average	76.6	0.50	9.1	92.1	-2.4	8.1	27.4	379	440
	3 Year Average	76.6	0.53	9.0	91.7	-2.4	8.0	23.9	353	443
SOUTHWEST	<8.5	76.1	0.55	7.2	92.1	-2.4	7.9	16.9	322	464
	8.5-9.4	77.2	0.57	7.8	91.9	-2.4	8.2	20.0	360	386
Soft White Wheat Estimated Production 0.38 MMT	9.5-10.4	75.3	0.56	8.4	91.9	-2.3	7.8	21.3	388	471
	2014 Average	76.4	0.56	7.8	91.9	-2.3	8.0	19.5	357	430
	2013 Average	76.1	0.49	8.3	92.2	-2.3	7.7	21.6	352	491
	3 Year Average	76.2	0.52	8.0	91.5	-2.3	7.8	18.2	334	412
WHITE CLUB	2014 Average	75.9	0.55	10.1	92.1	-2.3	7.8	30.2	368	435
WHEAT	2013 Average	76.7	0.46	9.4	91.3	-2.3	7.3	24.3	356	372
Estimated Production 0.20 MMT	3 Year Average	76.4	0.48	8.8	91.8	-2.4	7.6	19.4	340	431

Solvent Retention Capacity (SRC)

Production Zone	Wheat Protein Range 12% mb %	Water %	50% Sucrose %	5% Lactic Acid %	5% Sodium Carbonate %	Gluten Performance Index
NORTH CENTRAL	<8.5	59	110	107	84	0.55
	9.5-10.4	61	117	110	86	0.54
Soft White Wheat Estimated Production 1.31 MMT	10.5-12.0	56	116	124	83	0.62
	>12.0	57	118	127	81	0.64
	2014 Average	58	116	120	83	0.60
NORTHEAST	8.5-9.4	57	109	99	81	0.52
	9.5-10.4	57	113	109	81	0.56
Soft White Wheat Estimated Production 1.52 MMT	10.5-12.0	59	115	117	82	0.59
	>12.0	58	116	129	81	0.65
	2014 Average	58	114	116	81	0.59
CENTRAL	<8.5	61	107	95	81	0.51
	8.5-9.4	61	106	102	81	0.55
Soft White Wheat Estimated Production 1.09 MMT	9.5-10.4	60	112	99	81	0.51
	10.5-12.0	62	119	109	84	0.54
	>12.0	58	118	129	84	0.64
	2014 Average	60	115	110	83	0.56
SOUTHEAST	8.5-9.4	54	108	90	80	0.48
	9.5-10.4	54	114	95	80	0.49
Soft White Wheat Estimated Production 0.59 MMT	10.5-12.0	54	108	100	80	0.53
	2014 Average	54	109	93	80	0.49
SOUTHWEST	<8.5	61	105	92	83	0.49
	8.5-9.4	62	107	95	86	0.49
Soft White Wheat Estimated Production 0.38 MMT	9.5-10.4	56	108	103	81	0.54
	2014 Average	60	107	96	84	0.51
WHITE CLUB	2014 Average	54	99	83	75	0.48
WHEAT	2013 Average	54	107	84	78	0.45
Estimated Production 0.20 MMT	3 Year Average	57	97	97	82	0.54

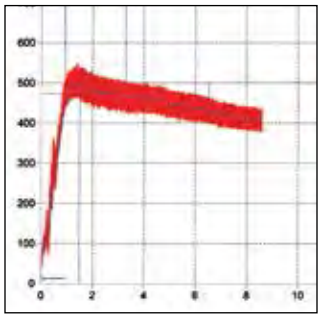
Physical Dough Properties

Production Zone	Wheat Protein Range 12% mb	Farinograph			Alveograph			
		Absorption 14% mb %	Peak Time minutes	Stability minutes	P mm	L mm	P/L	W 10^4 joules
NORTH CENTRAL	<8.5	53.0	1.5	2.4	49	65	0.75	100
	9.5-10.4	55.6	2.9	3.7	44	92	0.48	93
Soft White Wheat Estimated Production 1.31 MMT	10.5-12.0	55.6	3.9	4.5	46	130	0.35	143
	>12.0	56.3	3.9	4.3	41	154	0.27	132
	2014 Average	55.5	3.4	4.0	44	123	0.40	124
	2013 Average	53.6	2.2	3.1	50	111	0.55	134
	3 Year Average	53.4	2.1	3.2	46	113	0.47	118
NORTHEAST	8.5-9.4	54.6	1.4	2.4	43	66	0.65	81
	9.5-10.4	54.1	3.3	4.1	38	93	0.41	88
Soft White Wheat Estimated Production 1.52 MMT	10.5-12.0	54.9	2.8	3.2	39	119	0.33	103
	>12.0	56.7	3.5	3.4	39	154	0.25	118
	2014 Average	55.0	2.9	3.3	39	115	0.36	100
	2013 Average	52.7	2.1	2.6	40	117	0.36	101
	3 Year Average	52.9	1.7	2.7	38	116	0.35	93
CENTRAL	<8.5	53.0	1.3	1.4	35	68	0.51	67
	8.5-9.4	52.8	1.5	2.1	35	80	0.44	72
Soft White Wheat Estimated Production 1.09 MMT	9.5-10.4	53.6	2.0	2.3	36	89	0.40	74
	10.5-12.0	54.5	2.7	1.7	35	108	0.32	86
	>12.0	56.2	3.0	3.6	37	156	0.24	113
	2014 Average	54.5	2.4	2.4	36	111	0.34	88
	2013 Average	53.5	2.0	2.2	39	104	0.40	86
	3 Year Average	53.4	1.7	2.3	40	100	0.45	85
SOUTHEAST	8.5-9.4	54.6	1.7	2.8	40	65	0.62	69
	9.5-10.4	55.4	2.2	2.2	36	94	0.38	75
Soft White Wheat Estimated Production 0.59 MMT	10.5-12.0	53.6	1.4	1.3	37	67	0.55	63
	2014 Average	54.6	1.7	2.3	38	72	0.54	69
	2013 Average	52.8	1.5	1.6	33	94	0.35	59
	3 Year Average	53.4	1.6	2.1	33	99	0.34	61
SOUTHWEST	<8.5	53.7	1.3	2.5	44	62	0.71	73
	8.5-9.4	55.4	1.7	2.1	48	60	0.80	77
Soft White Wheat Estimated Production 0.38 MMT	9.5-10.4	53.8	1.7	3.2	43	73	0.59	84
	2014 Average	54.5	1.6	2.5	46	64	0.72	78
	2013 Average	52.7	1.7	2.6	40	96	0.49	89
	3 Year Average	53.3	1.7	2.5	41	93	0.53	85
WHITE CLUB	2014 Average	53.8	1.8	1.1	28	82	0.34	48
WHEAT	2013 Average	52.5	1.7	1.6	31	91	0.34	56
Estimated Production 0.20 MMT	3 Year Average	51.9	1.5	1.7	28	87	0.32	49

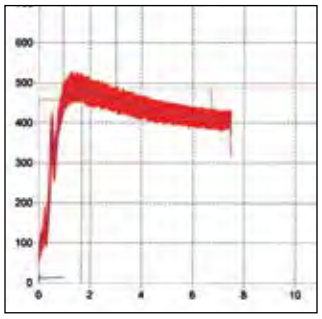
Finished Products

Production Zone	Wheat Protein Range 12% mb	Sugar Snap Cookie			Sponge Cake		Chinese Southern Type Steamed Bread	
		Spread cm	Spread Factor width/height	Top Grain Score	Volume cc	Total Score	Specific Volume cc/g	Total Score
NORTH CENTRAL	<8.5	8.7	10.2	4.5	1201	44	2.17	64
	9.5-10.4	8.2	8.4	2.5	1166	41	2.33	64
Soft White Wheat Estimated Production 1.31 MMT	10.5-12.0	8.5	8.7	2.5	1159	35	2.62	69
	>12.0	8.3	9.0	1.0	1121	35	3.04	70
	2014 Average	8.4	9.0	2.2	1153	37	2.65	68
	2013 Average	8.6	9.5	2.9	1244	50	1.84	67
	3 Year Average	8.6	10.0	3.9	1218	48	2.04	68
NORTHEAST	8.5-9.4	8.5	9.4	4.0	1233	52	2.21	65
	9.5-10.4	8.5	9.4	4.0	1212	45	2.36	68
Soft White Wheat Estimated Production 1.52 MMT	10.5-12.0	8.3	8.5	2.5	1203	47	2.54	71
	>12.0	8.3	8.7	1.0	1158	40	2.70	71
	2014 Average	8.3	8.8	2.7	1200	46	2.50	70
	2013 Average	8.7	10.4	3.1	1237	49	1.92	68
	3 Year Average	8.7	10.3	4.2	1213	51	2.05	68
CENTRAL	<8.5	8.8	9.7	4.5	1183	39	2.07	64
	8.5-9.4	8.6	9.8	2.5	1206	51	2.17	66
Soft White Wheat Estimated Production 1.09 MMT	9.5-10.4	8.3	9.3	3.0	1151	41	2.29	67
	10.5-12.0	8.3	8.9	3.0	1145	33	2.40	67
	>12.0	8.2	8.4	0.5	1098	27	2.75	68
	2014 Average	8.3	9.0	2.4	1142	35	2.43	67
	2013 Average	8.7	9.8	3.5	1219	45	1.90	65
	3 Year Average	8.6	9.7	4.0	1205	48	2.02	66
SOUTHEAST	8.5-9.4	8.5	9.4	4.0	1212	49	2.15	61
	9.5-10.4	8.5	9.2	2.5	1179	44	2.43	66
Soft White Wheat Estimated Production 0.59 MMT	10.5-12.0	8.5	8.9	2.5	1152	41	2.44	66
	2014 Average	8.5	9.3	3.3	1190	46	2.29	63
	2013 Average	8.8	10.2	4.7	1249	50	1.97	63
	3 Year Average	8.8	9.9	4.6	1211	49	2.08	65
SOUTHWEST	<8.5	8.5	9.5	4.0	1216	49	1.98	63
	8.5-9.4	8.3	8.1	3.5	1180	53	2.04	63
Soft White Wheat Estimated Production 0.38 MMT	9.5-10.4	8.6	9.2	1.5	1204	50	2.30	68
	2014 Average	8.5	8.8	3.1	1196	51	2.09	64
	2013 Average	8.7	9.3	4.2	1245	50	1.82	66
	3 Year Average	8.6	9.3	4.3	1204	50	1.94	67
WHITE CLUB WHEAT	2014 Average	8.8	10.2	4.0	1192	44	2.68	65
	2013 Average	8.9	11.1	4.0	1217	50	2.17	66
Estimated Production 0.20 MMT	3 Year Average	9.0	11.7	5.0	1234	52	2.18	66

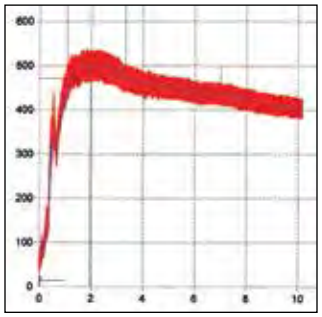
Farinograph



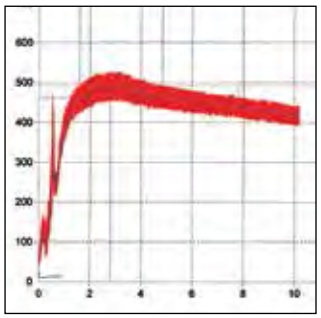
‹ 8.5% Wheat Protein Range



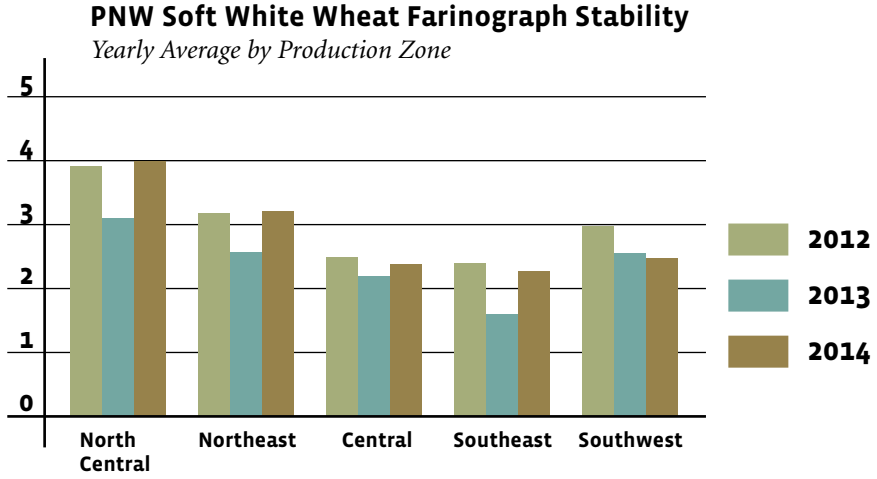
8.5-9.4% Wheat Protein Range

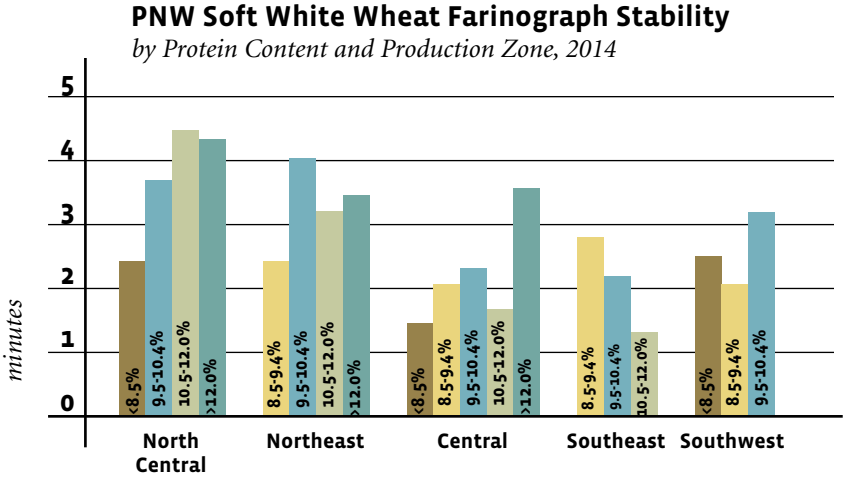


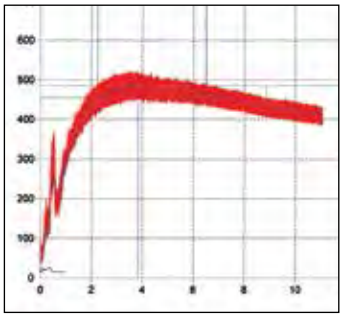
9.5-10.4 Wheat Protein Range



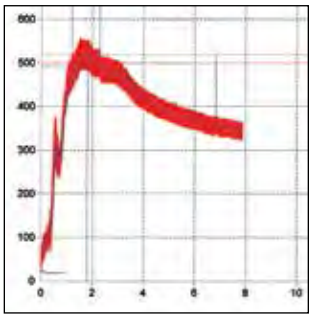
10.5-12.0% Wheat Protein Range





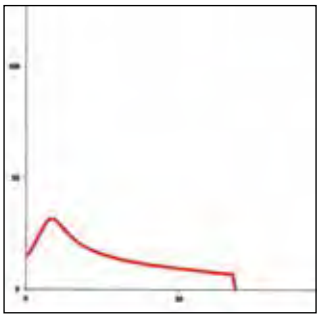


>12.0% Wheat Protein Range

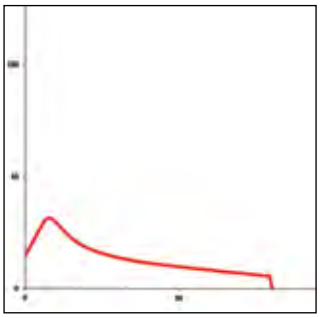


White Club Wheat

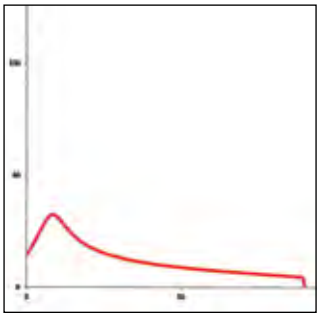
Alveograph



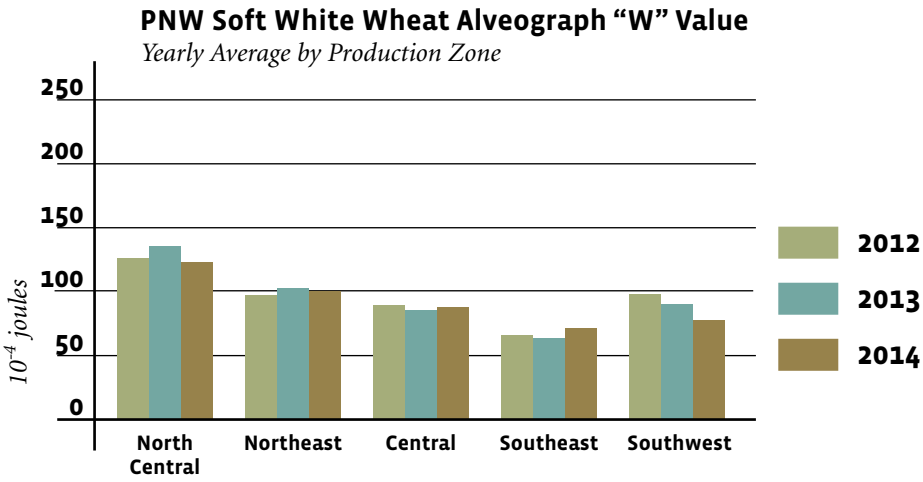
‹ 8.5% Wheat Protein Range

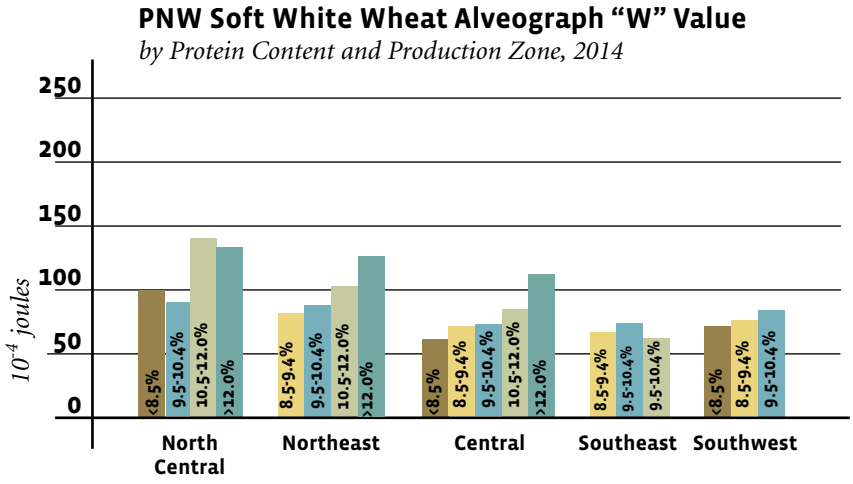


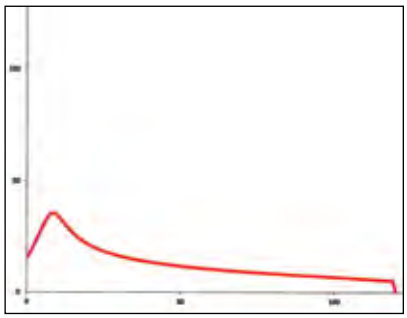
8.5-9.4% Wheat Protein Range



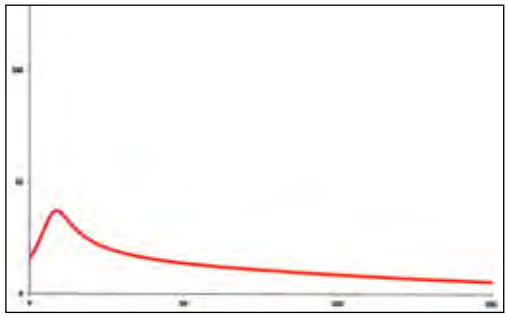
9.5-10.4 Wheat Protein Range



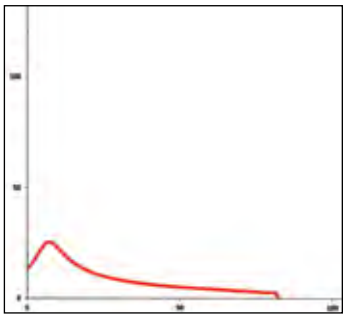




10.5-12.0% Wheat Protein Range

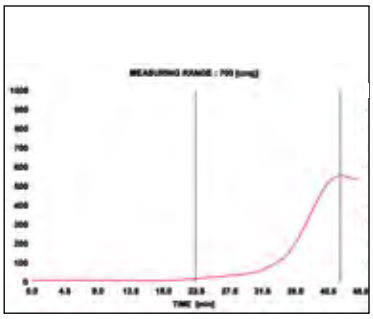


›12.0% Wheat Protein Range

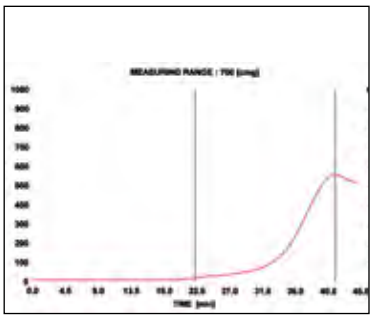


White Club Wheat

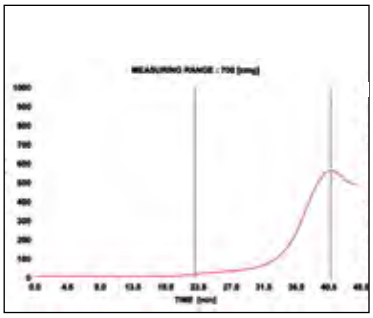
Amylograph



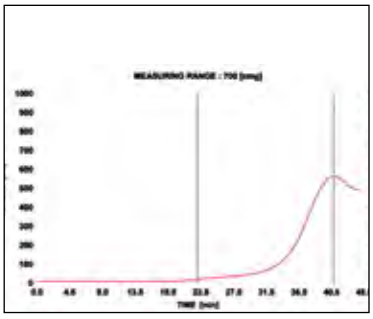
North Central Production Zone



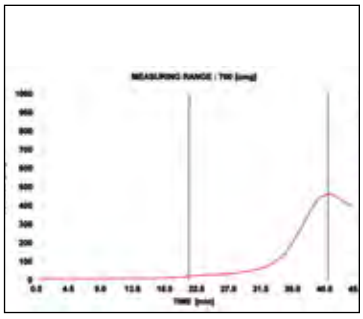
Northeast Production Zone



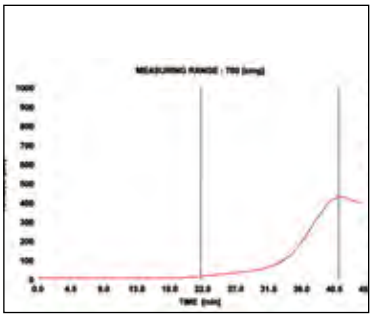
Central Production Zone



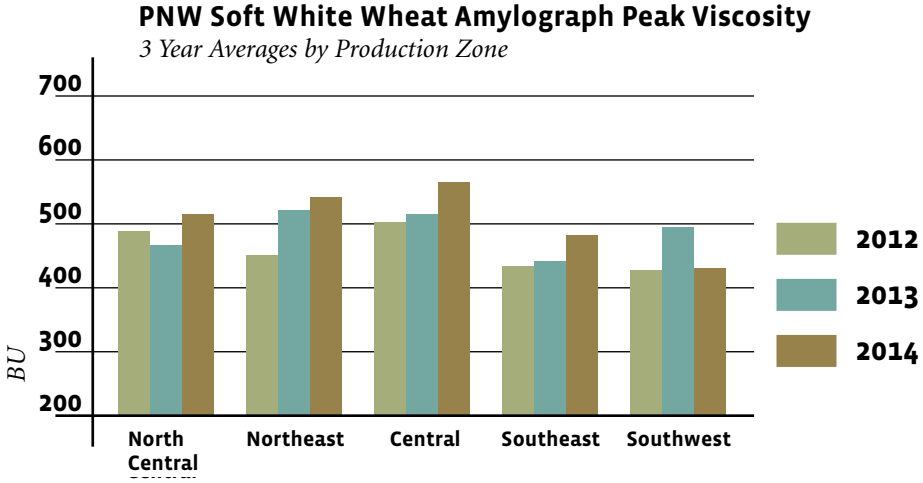
Southeast Production Zone

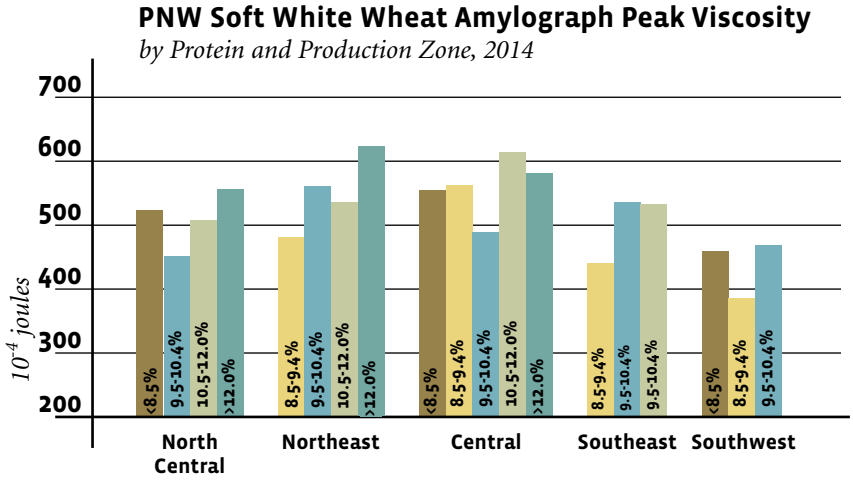


Southwest Production Zone



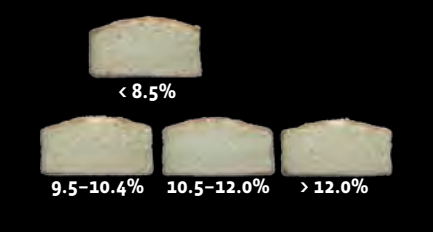
White Club Wheat



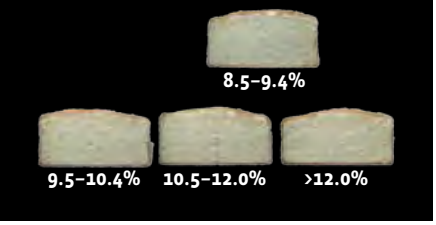


Sponge Cake

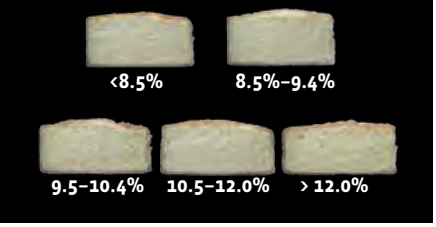
North Central Production Zone



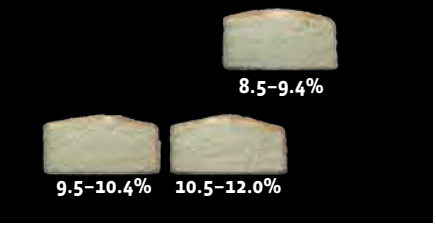
Northeast Production Zone



Central Production Zone

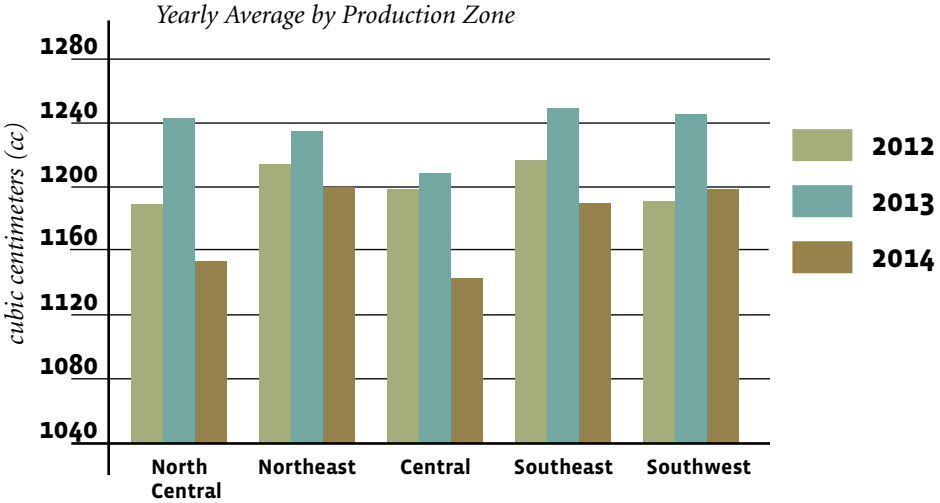


Southeast Production Zone



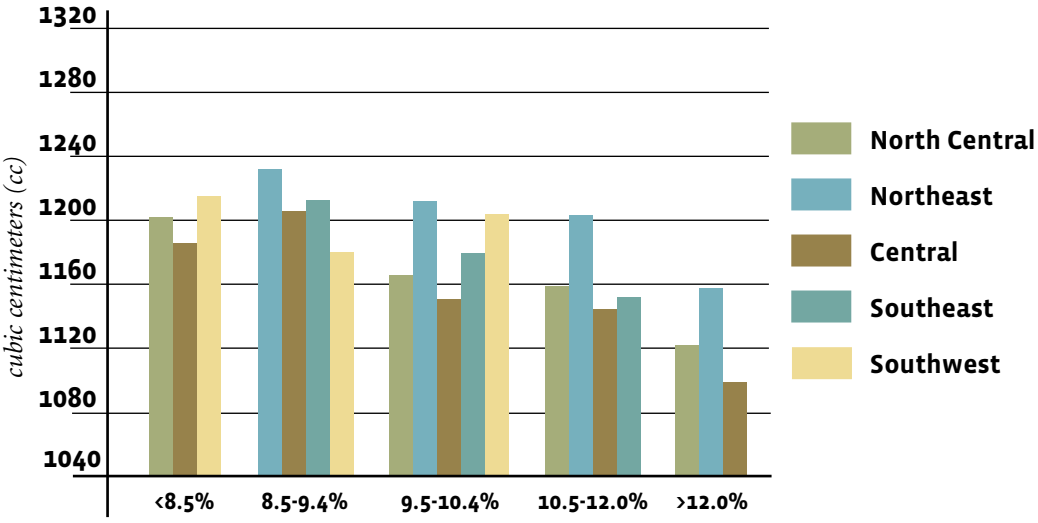
PNW Soft White Wheat Sponge Cake Volume

Yearly Average by Production Zone

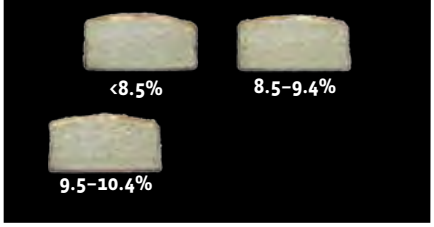


PNW Soft White Wheat Sponge Cake Volume

by Protein Content and Production Zone, 2014



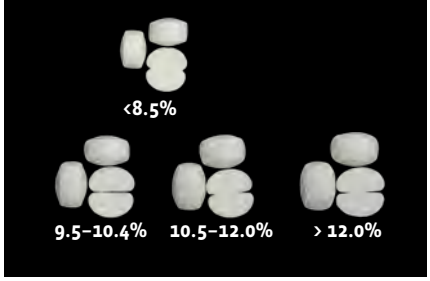
Southwest Production Zone



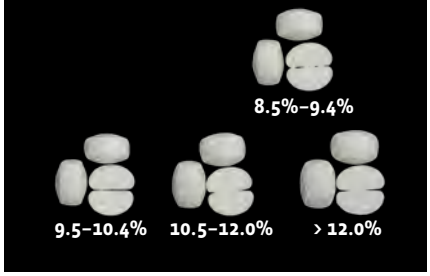
White Club Wheat

Chinese Southern Style Steamed Bread

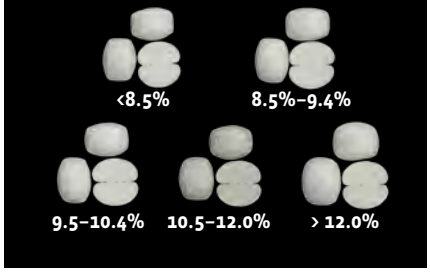
North Central Production Zone



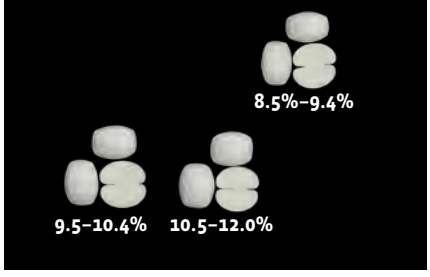
Northeast Production Zone



Central Production Zone

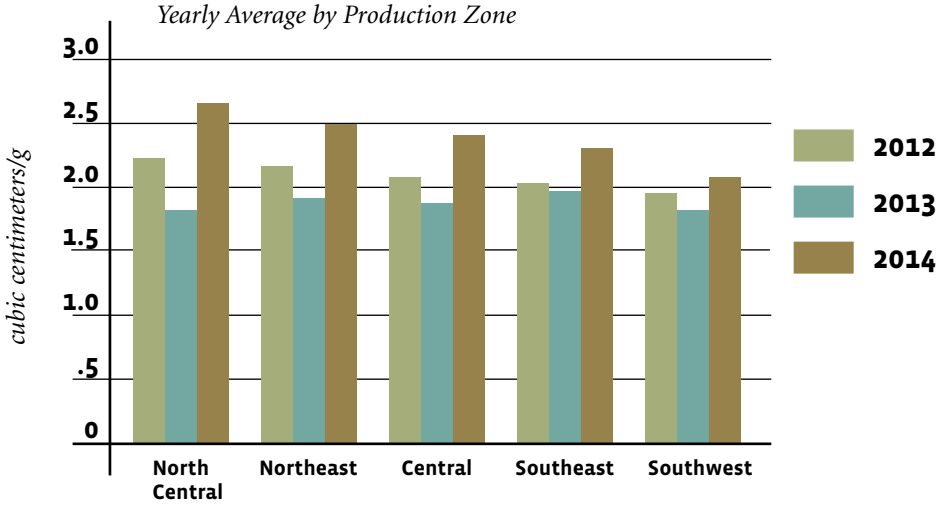


Southeast Production Zone



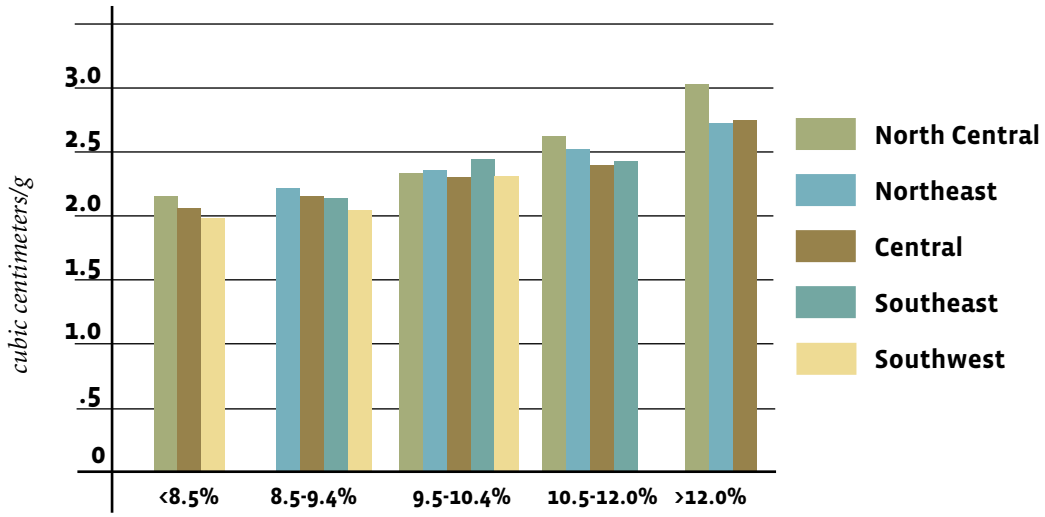
PNW Soft White Wheat Steamed Bread Specific Volume

Yearly Average by Production Zone

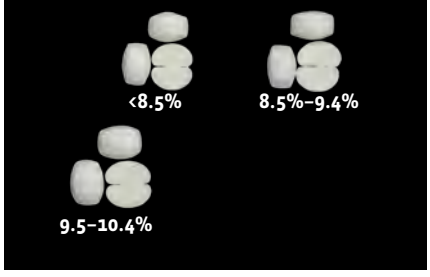


PNW Soft White Wheat Steamed Bread Specific Volume

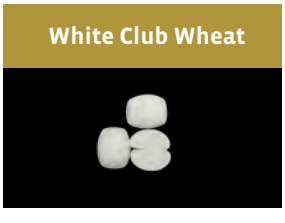
Yearly Average by Production Zone, 2014



Southwest Production Zone



White Club Wheat



Summary

These results were from composite samples of the Pacific Northwest soft white wheat and white club wheat harvest. Composite samples were prepared by production zone and protein levels. One composite sample was prepared from all club wheat samples. These composite samples were analyzed for wheat quality, flour quality, physical dough properties, and finished product characteristics. Harvest information is summarized as follows:

Wheat Quality

Wheat data indicated average test weights greater than 60 pounds per bushel (lbs/bu) at most protein levels in all production zones. Dockage levels were lower than the three year average in the North Central, Northeast, Central, and Southeast wheat production zones. In general, low wheat moisture at less than 10 percent prevailed in the major wheat producing zones of North Central, Northeast, Central, and Southeast. Average falling number values in all production zones were greater than 300 seconds at most protein ranges. Wheat ash contents were similar to the three year average in the North Central, Northeast, Central, Southeast, and Southwest Production Zones. Wheat samples from North Central, Northeast, Southeast, and Southwest production zones had thousand kernel weights greater than last year and three-year averages.

Flour Quality

Average flour extraction values were less than the three-year average and higher flour ash contents in the North Central, Northeast, Central, Southeast production zones. Flour quality parameters indicated higher wet gluten contents in samples with higher protein content. Flour falling number values were greater than 300 seconds at all protein ranges in all production zones. Amylograph peak viscosities above 450 BU were present in all protein ranges in samples from North Central, Northeast and Central production zones.

Solvent Retention Capacity (SRC)

The Southeast production zone and white club wheat composite sample had lower average water retention values due to lower 50 percent sucrose (pentosan content) and lower 5 percent lactic acid values (glutenin content) when compared to other production zones.

Physical Dough Properties

Physical dough property tests indicated generally lower average water absorption values and generally weaker gluten strength, as measured by the farinograph, in samples with lower protein content. Longer gluten extensibility, as shown by alveograph L values, was observed in samples with higher protein content. White club wheat had weaker gluten strength than soft white wheat samples, as indicated by much lower alveograph W values.

Finished Products

Within a production zone, lower protein samples made better sugar snap cookies. Average sponge cake volumes were generally lower than last year and the three-year averages. Steamed bread specific volumes generally increased with increasing protein content. Steamed bread specific volume averages in 2014 were higher than last year and three-year averages for all production zones.

Idaho Wheat Commission

Washington Grain Commission

OWC Oregon Wheat Commission

U.S. Wheat Associates

Wheat Marketing Center

www.idahowheat.org www.wawheat.com www.owgl.org www.uswheat.org www.wmcinc.org