2013 Hard Red Wheat / Hard White Wheat
Crop Quality Report

California WHEAT COMMISSION

California Wheat

California's wheat growing regions are defined by climate, value of alternative crops, and the distinct differences in variety selection.

Of the five wheat classes grown in California, Hard Red and Hard White wheat accounted for 75% and 9%, respectively, of the acreage planted in 2013. This report includes quality data for the most abundantly grown milling varieties of Hard Red and Hard White wheat for the current year.

Most California hard wheat is planted from October to January and harvested in the months of June and July. With the strong demand for new crop wheat in the domestic marketplace, export buyers are encouraged to express their interest in purchasing California wheat in early spring. For Hard White wheat, buyers should consider communicating with grain handlers before planting time.

In normal growing conditions, California hard wheat varieties have low moisture and large and uniform kernel size. Because it is predominantly grown under irrigation, growers benefit from high yields and consistent quality.

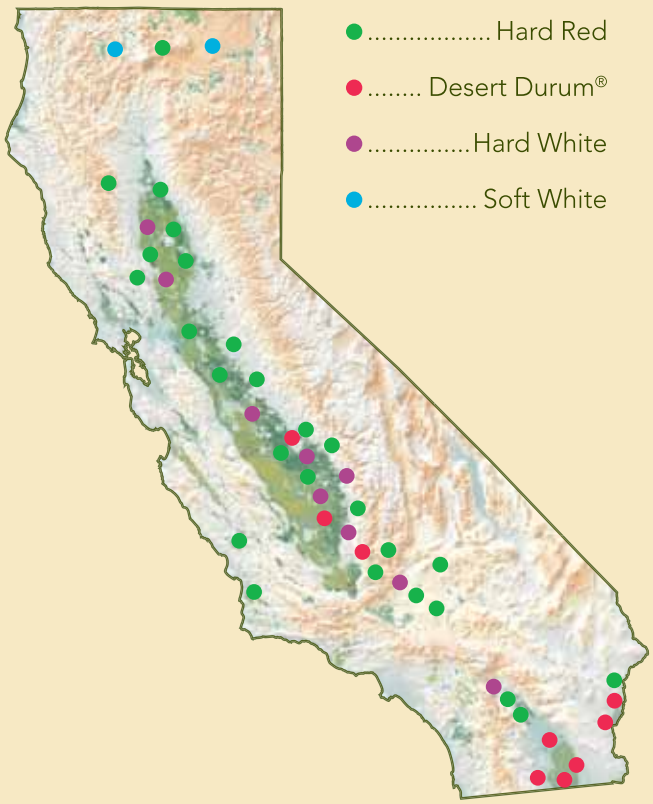
2013 Crop Conditions

After a wet start at planting time, California experienced very dry weather during the growing season. (Approximately 80% of California wheat acreage is grown on irrigable land; however, local water is not always available when needed.) Yields were average to below average, although better than expected for the weather conditions. Some dryland wheat was a complete loss. Protein and overall quality were excellent. Stripe Rust was present only in susceptible varieties.

Data in this Report

Samples for this year's report were collected from grain handlers and producers around the state. This program collects samples throughout the harvest season, resulting in a crop quality report that is highly representative of the crop. Grade information is provided by the Federal Grain Inspection Service. Milling and end-use quality analysis was conducted by the California Wheat Commission Laboratory.

GROWING REGIONS



Locations are approximate

PRODUCTION HISTORY*

YEAR	METRIC TONS (1,000 MT's)	SHORT TONS (1,000 ST's)
2013	740	816
2012	718	791
2011	972	1071
2010	784	864
2009	718	792
2008	925	1020
2007	584	644
2006	395	435

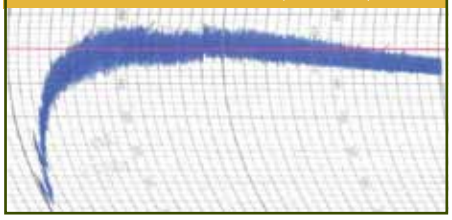
*Winter wheat - all classes excluding Durum

HARD RED WINTER (MIXED VARIETIES)

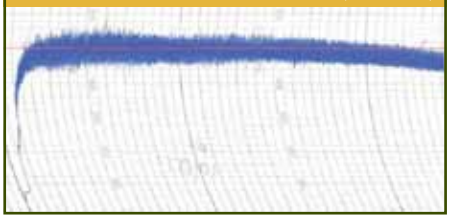
	High Protein (12.5% & Above)		Intermediate Protein (11.0% - 12.4%)		Low Protein (10.9% & Below)	
WHEAT	**2013**	**2012**	**2013**	**2012**	**2013**	**2012**
Protein						
Dry Basis	15.1	14.9	13.3	13.5	11.2	11.7
As - Is	13.9	13.7	12.1	12.4	10.2	10.7
12% MB	13.3	13.1	11.7	11.9	9.9	10.3
Moisture	7.7	8.1	8.4	8.1	8.7	8.4
Test Weight						
lb/bu	63.1	62.6	62.9	63.0	63.3	62.9
kg/hl	82.9	82.2	82.7	82.8	83.2	82.7
1000 Kernel Weight (gr)	40.4	41.1	39.2	41.2	39.5	41.8
SKCS Hardness Score	69	66	67	66	67	69
Kernel Size Distribution						
Large (7W)	87	87	84	88	88	90
Medium (10W)	13	13	16	12	12	10
Small (12W)	0	0	0	0	0	0
MILLING						
Test Mill Yield (%)	72.5	73.3	70.7	73.3	69.4	71.5
Wheat Protein (Dry-Basis)	15.1	14.9	13.3	13.5	11.2	11.7
Flour Protein (Dry-Basis)	13.7	13.7	12.0	12.3	9.9	10.6
Wheat Ash (Dry-Basis)	1.87	1.79	1.79	1.78	1.72	1.80
Flour Ash (Dry-Basis)	0.50	0.52	0.51	0.52	0.53	0.56
FLOUR						
Flour Protein (14% MB)	11.8	11.8	10.3	10.6	8.5	9.1
Flour Ash (14% MB)	0.43	0.44	0.44	0.45	0.46	0.48
Wet Gluten (14% MB)	33.5	31.1	28.3	27.1	21.6	22.2
Falling Number (sec.)	431	416	414	419	404	387
FARINOGRAM						
Arrival Time (min.)	4.3	3.6	2.8	2.7	1.4	1.5
Mixing Peak (min.)	11.3	9.1	7.3	8.1	3.0	4.0
Mixing Tolerance (min.)	19.6	17.0	18.0	17.2	11.8	10.8
Absorption (%)	63.9	63.4	60.4	62.4	59.5	62.3
BAKING RESULTS						
Bake Volume (cc)	985	963	919	928	810	812

Wheat samples were collected by handlers. Wheat and Flour Protein: Leco Combustion Nitrogen Analyzer Model TruSpec; Test mill yield: Brabender Quadromat Senior Mill, modified in 1997; Bake Volume = AACC Method 10-10B; Test weight conversion from lb/bu to kg/hl according to FGIS-PN-97-5, {(1.292 x (lb/bu) + 1.419}

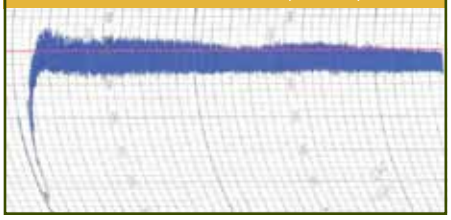
HIGH PROTEIN (13.3%)



INTERMEDIATE PROTEIN (11.7%)



LOW PROTEIN (9.9%)



2013 HARD RED VARIETY SPECIFIC INFORMATION

	CAL ROJO		JOAQUIN		WB-JOAQUIN ORO
WHEAT	High Protein	Int. Protein	High Protein	Int. Protein	High Protein
Protein					
Dry Basis	15.5	13.2	14.7	13.5	15.6
As - Is	14.2	12.1	13.5	12.4	14.5
12% MB	13.6	11.6	12.9	11.8	13.7
Moisture	8.1	8.6	8.2	8.1	7.3
Test Weight					
lb/bu	60.7	61.1	63.8	64.1	63.3
kg/hl	79.9	80.4	83.9	84.2	83.2
1000 Kernel Weight (gr)	35.9	37.2	42.8	43.7	40.8
SKCS Hardness Score	62	59	68	67	70
Kernel Size Distribution					
Large (7W)	76	75	91	91	88
Medium (10W)	23	24	9	9	11
Small (12W)	1	1	0	0	0
MILLING					
Test Mill Yield (%)	69.9	69.5	74.5	74.3	72.9
Wheat Protein (Dry-Basis)	15.5	13.2	14.7	13.5	15.6
Flour Protein (Dry-Basis)	14.3	11.9	13.2	12.4	14.2
Wheat Ash (Dry-Basis)	2.00	1.89	1.85	1.72	1.84
Flour Ash (Dry-Basis)	0.56	0.56	0.46	0.46	0.48
FLOUR					
Flour Protein (14% MB)	12.3	10.2	11.4	10.6	12.2
Flour Ash (14% MB)	0.50	0.48	0.40	0.40	0.41
Wet Gluten (14% MB)	31.5	26.5	32.4	30.7	35.7
Falling Number (sec.)	416	418	415	433	462
FARINOGRAM					
Arrival Time (min.)	2.6	3.0	3.9	3.3	5.5
Mixing Peak (min.)	8.1	6.8	10.6	9.1	11.9
Mixing Tolerance (min.)	24.1	19.1	18.4	17.9	16.2
Absorption (%)	61.0	57.5	63.1	62.7	66.2
BAKING RESULTS					
Bake Volume (cc)	975	888	973	955	1009

For protein ranges not indicated, please contact the California Wheat Commission. Wheat and Flour Protein: Leco Combustion Nitrogen Analyzer Model TruSpec. Test mill yield: Brabender Quadromat Senior Mill, modified in 1997. Bake Volume = AACC Method 10-10B. Test weight conversion from lb/bu to kg/hl according to FGIS-PN-97-5, (1.292 x lb/bu) + 1.419. High Protein: (12.5% & Above). Intermediate Protein: (11.0-12.4%).

2013 HARD RED VARIETY SPECIFIC INFORMATION

REDWING		SUMMIT 515		WB-ROCKLAND		
High Protein	Int. Protein	High Protein	Int. Protein	High Protein	Int. Protein	WHEAT
						Protein
14.6	13.1	14.5	13.1	16.9	13.0	Dry Basis
13.5	12.0	13.3	12.0	15.4	11.9	As - Is
12.8	11.5	12.8	11.6	14.9	11.5	12% MB
7.5	8.1	8.4	8.5	8.8	8.6	Moisture
						Test Weight
61.8	61.7	63.2	63.4	60.0	63.2	lb/bu
81.3	81.1	83.1	83.4	78.9	83.0	kg/hl
34.2	40.1	37.3	37.4	32.8	36.0	1000 Kernel Weight (gr)
76	76	71	71	72	74	SKCS Hardness Score
						Kernel Size Distribution
86	89	87	85	60	83	Large (7W)
14	11	13	15	39	17	Medium (10W)
0	0	0	0	1	0	Small (12W)
						MILLING
68.8	68.8	68.7	69.3	65.5	67.7	Test Mill Yield (%)
14.6	13.1	14.5	13.1	16.9	13.0	Wheat Protein (Dry-Basis)
13.3	11.7	13.1	11.9	15.1	11.7	Flour Protein (Dry-Basis)
1.95	1.74	1.74	1.78	1.90	1.74	Wheat Ash (Dry-Basis)
0.56	0.50	0.48	0.51	0.50	0.55	Flour Ash (Dry-Basis)
						FLOUR
11.5	10.1	11.2	10.2	13.0	10.1	Flour Protein (14% MB)
0.48	0.43	0.41	0.44	0.43	0.47	Flour Ash (14% MB)
32.2	26.5	31.8	27.8	37.1	27.2	Wet Gluten (14% MB)
475	490	373	390	417	403	Falling Number (sec.)
						FARINOGRAM
2.3	2.0	3.0	2.0	6.0	3.9	Arrival Time (min.)
6.4	4.4	6.1	5.8	20.0	10.3	Mixing Peak (min.)
25.1	24.6	18.3	16.9	18.0	22.2	Mixing Tolerance (min.)
61.2	62.5	61.8	60.5	64.2	60.9	Absorption (%)
						BAKING RESULTS
943	900	958	911	1060	919	Bake Volume (cc)

For protein ranges not indicated, please contact the California Wheat Commission. Wheat and Flour Protein: Leco Combustion Nitrogen Analyzer Model TruSpec. Test mill yield: Brabender Quadromat Senior Mill, modified in 1997. Bake Volume = AACC Method 10-10B. Test weight conversion from lb/bu to kg/hl according to FGIS-PN-97-5, (1.292 x lb/bu) + 1.419. High Protein: (12.5% & Above). Intermediate Protein: (11.0-12.4%).

HARD RED WHEAT GRADE HARVEST DATA					
	2013	2012	2011	2010	2009
Test Weight: lb/bu	62.3	62.1	62.6	63.3	63.0
kg/hl	81.9	81.6	82.3	83.2	82.8
Moisture (%)	9.2	9.1	9.3	9.2	9.1
Damage (%)	0.0	0.0	0.1	0.1	0.1
Foreign Material* (%)	0.2	0.1	0.1	0.3	0.1
Shrunken/Broken* (%)	0.7	0.6	0.5	0.5	0.6
Total Defects (%)	1.0	0.7	0.7	0.9	0.8
Dockage* (%)	1.0	0.8	0.8	1.0	0.8
Total Screenings (%)	2.0	1.5	1.4	1.8	1.5
Moisture (%)	9.2	9.1	9.3	9.2	9.1
Net Wheat (%)	89.0	89.5	89.4	89.2	89.5
CTW (%)	105.9	106.5	106.4	106.1	106.5
MWVI (%)	94.4	93.9	93.9	94.2	93.9

Harvest year = Calendar year. *Total Screenings are those factors represented on the grade certificate that are cleaned out in the flour mill. Test weight conversion from lb/bu to kg/hl according to FGIS-PN-97-5, (1.292 x lb/bu) + 1.419. Net Wheat = (100%-(FM+SHBN+Dockage)) x (100%-Moisture)/100%. Clean, Tempered Wheat (CTW%) = (100%- (FM +SHBN+Dockage)) x (100%-Moisture)/(100%-16% (temper moisture)). Millable Wheat Value Index (MWVI) = 100%/CTW.

Varietal Descriptions

Cal Rojo (HRW) is a widely adapted, high yielding variety for both the San Joaquin and Sacramento Valleys. It is mid-early maturing and receives high scores for grain quality, milling and baking.

Joaquin (HRW) is adapted to the San Joaquin Valley and has high protein and test weight with excellent milling and baking properties.

WB-Joaquin Oro (HRW) is adapted to the San Joaquin Valley and has high protein and test weight with excellent milling and baking properties, similar to the variety Joaquin. In addition, WB-Joaquin Oro carries two genes for stripe rust resistance, one of which is effective against all current races.

Redwing (HRW), a high quality wheat for both Sacramento and San Joaquin Valleys has been one of the top yielding hard red varieties in University trials. Redwing receives high scores for grain, bread, and milling and baking qualities, with good protein patterns.

Summit 515 (HRW) is a variant of the variety Summit with two effective genes for stripe rust resistance added by marker assisted selection. Summit 515 has very high yield potential in both San Joaquin and Sacramento Valleys.

WB-Rockland (HRW) is a very high protein variety adapted to the Sacramento Valley. It has high falling numbers and very good milling and baking qualities.

Blanca Grande 515 (HW) is a variant of the variety Blanca Grande with two effective genes for stripe rust resistance added by marker assisted selection. Blanca Grande 515 has excellent end-use quality and high yielding ability in both the San Joaquin and Sacramento Valleys.

Blanca Royale (HW) is grown primarily in the San Joaquin Valley. Blanca Royale achieves higher protein but lower yields than Blanca Fuerte grown under the same conditions. It receives high scores for grain quality, milling and baking, and has been identified as being an outstanding wheat for noodle production due to its excellent noodle color and special starch characteristics.

Patwin (HW) is a high yielding white variety characterized by very high levels of protein. This variety is adapted to both the Sacramento and San Joaquin Valleys. Patwin uniquely carries resistance to root knot nematodes and has high falling numbers, even in years with cool springs. Patwin has received excellent scores for milling and baking parameters.

2013 HARD WHITE WHEAT

WHEAT	BLANCA GRANDE 515 High Pro.	BLANCA GRANDE 515 Int. Pro.	BLANCA ROYALE High Pro.	BLANCA ROYALE Int. Pro.	PATWIN High Pro.	PATWIN Int. Pro.	WB-CRISTALLO High Pro.	WB-CRISTALLO Int. Pro.	WB-PERLA High Pro.	WB-PERLA Int. Pro.
Protein										
Dry Basis	14.6	13.5	14.2	13.2	14.2	13.5	14.7	13.3	14.5	13.1
As - Is	13.4	12.4	13.0	12.1	12.9	12.3	13.6	12.2	13.3	12.0
12% MB	12.9	11.9	12.5	11.6	12.5	11.9	12.9	11.7	12.8	11.5
Moisture	8.3	8.2	8.4	8.6	8.6	8.7	7.7	8.3	8.8	8.6
Test Weight										
lb/bu	64.9	65.4	62.9	63.4	62.1	60.1	58.1	59.9	62.8	63.3
kg/hl	85.2	85.9	82.7	83.3	81.7	79.0	76.5	78.7	82.6	83.2
1000 Kernel Weight (gr)	41.6	41.0	35.8	38.7	34.4	32.2	24.9	27.6	39.4	39.7
SKCS Hardness Score	63	65	70	68	82	83	76	77	74	75
Kernel Size Distribution										
Large (7W)	92	91	83	83	81	70	40	67	85	87
Medium (10W)	8	9	17	17	19	29	58	32	15	13
Small (12W)	0	0	0	0	0	1	2	1	0	0
MILLING										
Test Mill Yield (%)	71.2	71.5	71.4	70.2	70.0	67.0	65.9	67.0	72.2	72.0
Wheat Protein (Dry Basis)	14.6	13.5	14.2	13.2	14.2	13.5	14.7	13.3	14.5	13.1
Flour Protein (Dry Basis)	13.5	12.0	12.8	11.5	13.3	12.2	13.8	12.2	13.3	11.7
Wheat Ash (Dry Basis)	1.84	1.84	1.79	1.85	1.78	1.80	1.89	1.82	1.90	2.02
Flour Ash (Dry Basis)	0.48	0.46	0.57	0.50	0.55	0.61	0.63	0.55	0.51	0.53
FLOUR										
Flour Protein (14% MB)	11.6	10.3	11.0	9.9	11.4	10.5	11.9	10.5	11.4	10.0
Flour Ash (14% MB)	0.41	0.40	0.49	0.43	0.47	0.52	0.54	0.48	0.44	0.46
Wet Gluten (14% MB)	30.7	27.6	28.1	27.5	30.4	28.1	28.8	26.3	31.9	29.3
Falling Number (sec)	391	381	436	419	349	418	405	422	412	388
FARINOGRAM										
Arrival Time (min.)	4.9	2.8	2.5	2.4	3.0	2.7	12.5	6.0	5.8	3.4
Mixing Peak (min.)	11.4	7.5	4.5	9.3	6.5	5.8	19.1	17.7	11.9	8.3
Mixing Tolerance (min.)	15.3	14.9	7.0	20.9	11.8	15.8	23.5	16.3	19.3	15.7
Absorption (%)	64.4	63.4	59.0	58.4	64.0	63.3	62.9	60.5	66.7	67.4
BAKING RESULTS										
Bake Volume (cc)	980	937	900	855	950	924	968	928	985	938

Wheat and Flour Protein: Leco Combustion Nitrogen Analyzer Model TruSpec. Test mill yield: Brabender Quadromat Senior Mill, modified in 1997. Bake Volume = AACC Method 10-10B. Test weight conversion from lb/bu to kg/hl according to FGIS-PN-97-5: (1.292 x lb/bu) + 1.419.

Varietal Descriptions, continued

WB-Cristallo (HW) is adapted to the Sacramento Valley and has above average percent protein with good milling and baking properties, and good falling numbers for a white wheat variety. WB-Cristallo will not be marketed next year.

WB-Perla (HW) is adapted to the San Joaquin Valley and has excellent yield potential, outstanding protein content and very good milling and baking potential.

For details regarding agronomic performance and disease resistance, see http://smallgrains.ucdavis.edu/cereal.htm

Technical and Laboratory Services

The California Wheat Commission laboratory has the equipment necessary for evaluation of wheat and durum milling quality, chemical analysis of wheat and flour, physical dough testing, semolina analysis, bake and noodle production tests, and pasta analysis.

The Commission's staff is available to work with customers in the area of quality assurance, problem solving, quality control training, and research. The price list for laboratory services is available on the California Wheat Commission website at californiawheat.org.

Customer Assistance and Support

- The Commission is available to answer technical questions about California's wheat quality, including recommendations for blending and appropriate end-use.
- The Commission conducts specialized training programs in milling, baking, semolina, pasta, and quality control. These specific programs may be customized to meet the customer's needs.

Crop and Export Survey

California produces five of the six classes of U.S. wheat: Hard Red Winter (HRW), Desert Durum®, Hard White, Soft White and Hard Red Spring. While HRW, Hard White, and Durum are the predominately produced and exported classes, information and contacts for all the above classes of wheat are available by contacting the Commission office. Every effort is made to provide an accurate assessment of quality to buyers. With greater amounts of wheat being sold by variety, varietal specific information is emphasized in Commission surveys.

Varietal Development

Private and public breeding programs play an important role in the development of new varieties available to California wheat producers. The Commission analyzes hundreds of samples each year to support these programs and encourages the release of new varieties that will meet the customers' needs.

New varieties are evaluated by commercial mills through the California Wheat Collaborator program.

CWC Laboratory Director Sam Huang testing wheat protein.

Research

The Commission laboratory is available for flour, semolina, milling, end-product, and new-product research. Technical expertise is available in hearth breads, pasta, Asian food products, standard loaf bread, steamed bread, Asian noodles, cookies, tortillas and Middle Eastern flat breads.

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