



**Arizona / California Combined Crop Analysis**

# **2014 Desert Durum® Crop Quality Report**

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## Desert Durum®

Desert Durum®, a trademark of the Arizona Grain Research and Promotion Council and the California Wheat Commission, refers only to durum wheat produced under irrigation in the desert valleys and lowlands of Arizona and California.

These are regions of high temperatures (May-June temperatures average above 32C) and low rainfall (annual precipitation averages less than 200 mm). Desert Durum® wheat is planted in November through February and harvested in May to July. Desert Durum® enters the market up to three months ahead of the spring durum crops harvested in other North American durum-producing areas.

Desert Durum® wheat is often delivered "identity preserved" to domestic and export markets; this allows buyers to purchase varieties having intrinsic quality characteristics specific to their needs. Annual volume requirements can be pre-contracted to insure ample supply. After harvest, handlers can store grain by varietal identity for season-long shipment on the buyer's preferred delivery schedules.

Total 2014 Desert Durum® harvested acreage was lower than in 2013, due primarily to the low price at planting time. Grain yields were generally higher, resulting in similar total production. The new crop grain exhibited consistently large kernel size and low moisture, traits that contribute to high extraction rates.

Overall, grain quality characteristics met expectations. In summary, the 2014 Desert Durum® crop will deliver the valuable milling, semolina, and pasta quality traits that customers have learned to expect and appreciate.

The milling, semolina, and pasta analyses used to produce this report were conducted at the California Wheat Commission's wheat quality laboratory.



### DESERT DURUM® PRODUCTION

#### METRIC TONS

YEAR	Arizona	California	Total
2014	217,509	87,118*	304,118
2013	205,425	108,537	315,000
2012	296,380	280,000	576,380
2011	217,155	263,500	480,655
2010	247,256	197,860	445,116
2009	337,476	299,374	636,850
2008	397,405	270,389	667,794

\*Final data available December 2014 from USDA

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## 2014 DESERT DURUM® VARIETIES

	Desert King		DuraKing		Havasu		Helios	Kronos		Ocotillo	
WHEAT	2014	2013	2014	2013	2014	2013	2014	2014	2013	2014	2013
Protein (12% MB)	12.7	12.5	13.1	13.3	13.7	13.3	13.1	13.0	13.5	13.3	14.1
Protein (Dry Basis)	14.4	14.2	14.8	15.1	15.5	15.1	14.9	14.8	15.3	15.1	16.1
Protein (As-Is)	13.5	13.3	13.7	14.1	14.6	14.2	14.0	13.8	14.5	14.1	14.4
Ash (14% MB)	1.97	1.92	1.86	1.99	1.74	1.91	1.70	1.67	2.00	1.76	2.01
Ash (Dry Basis)	2.29	2.18	2.17	2.26	2.02	2.17	1.98	1.95	2.33	2.05	2.34
Moisture	6.77	6.60	8.26	6.70	6.51	6.30	6.17	6.33	5.80	6.43	10.30
Test Weight											
lb/bu	63.2	62.4	62.9	63.1	63.9	63.3	61.7	63.2	63.0	63.8	63.8
kg/hl	83.0	82.1	82.7	82.9	83.9	83.2	81.2	83.1	82.8	83.9	83.9
1000 Kernel Weight (g)	47.3	43.1	39.4	43.3	49.4	47.7	46.5	51.6	51.3	48.1	45.3
Kernel Size Distribution											
Large	90	87	75	83	95	90	89	95	94	94	87
Medium	9	13	24	17	5	10	11	5	6	6	13
Small	1	0	1	0	0	0	0	0	0	0	0
SEMOLINA											
Lab Mill Extraction (%)	73.9	77.1	68.3	78.2	72.8	77.6	69.5	68.6	78.3	69.5	80.9
Semolina Extraction (%)	63.8	62.2	62.5	63.6	62.7	61.6	61.1	61.2	62.2	62.2	63.1
Protein (14% MB)	11.3	11.5	11.7	11.5	12.5	12.5	11.8	12.0	12.5	11.7	13.2
Protein (Dry Basis)	13.2	13.4	13.6	13.4	14.5	14.5	13.7	14.0	14.5	13.6	15.3
Ash (14% MB)	0.92	0.94	0.91	0.99	0.86	1.00	0.73	0.79	0.93	0.68	1.14
Ash (Dry Basis)	1.07	1.10	1.06	1.15	1.00	1.16	0.85	0.92	1.10	0.79	1.33
Specks (no/10 sq in)	24	25	23	23	23	16	20	21	31	14	23
Wet Gluten (14% MB)	32.9	32.3	31.4	33.4	29.4	34.3	30.2	32.6	35.3	33.8	36.8
Gluten Index*	58.5	-	60.7	-	89.7	-	93.7	71.3	-	64.4	-
Falling Number (sec)	493	553	999	597	782	742	999	789	883	703	617
Color 'b' value	24.6	25.1	22.4	22.9	26.2	26.0	25.9	26.4	24.9	23.6	23.3
ALVEOGRAPH											
P/L Ratio	1.36	1.19	1.70	1.97	2.31	2.03	1.78	2.16	2.15	0.70	0.70
W (10-4 joules)	147.0	181.5	140.3	174.6	340.6	291.5	238.0	249.5	199.9	136.7	107.3
PASTA											
Color Score	7.6	8.1	6.0	5.5	8.5	8.6	9.0	9.8	8.2	9.5	6.0
Cooked weight (gm)	29.4	31.1	29.7	31.4	28.5	29.4	29.3	29.7	29.5	30.1	29.2
Cooking Loss (%)	6.7	8.3	5.7	7.3	5.6	6.4	5.9	5.6	7.0	6.3	7.2
Cooked Firmness (g/cm)	7.2	7.2	6.0	7.0	7.2	7.7	5.8	6.2	7.5	5.7	8.4
Data represent weighted means calculated to characterize the Arizona/California southwestern desert crop. Weather, soil, and cultural practices can influence the quality of all varieties between years and particular lots of any one variety. Wheat and semolina protein-Leco Combustion Nitrogen Analyzer Model TruSpec. Pasta and semolina color-Minolta Chromameter. Model CR-200. Manual adjustments to test mill may make year-to-year extraction results incomparable. *Gluten Index not performed on 2013 samples.											

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## 2014 DESERT DURUM® VARIETIES

	Orita		Platinum		Tiburon	WB-Mead		WB-Mohave		Westmore HP	
WHEAT	2014	2013	2014	2013	2014	2014	2013	2014	2013	2014	2013
Protein (12% MB)	13.6	13.3	12.7	12.1	13.6	12.7	10.9	13.5	13.6	13.3	13.7
Protein (Dry Basis)	15.4	15.1	14.4	13.8	15.4	14.5	12.4	15.3	15.4	15.1	15.6
Protein (As-Is)	14.4	14.2	13.6	12.9	14.3	13.6	11.8	14.4	14.5	14.2	14.7
Ash (14% MB)	1.82	1.92	1.91	2.03	1.78	1.71	2.29	1.76	1.88	1.53	1.88
Ash (Dry Basis)	2.11	2.23	2.22	2.36	2.07	1.98	2.66	2.04	2.19	1.78	2.15
Moisture	6.54	5.90	5.86	6.30	7.23	5.97	4.80	6.41	6.40	6.15	6.20
Test Weight											
lb/bu	62.3	62.0	62.9	63.3	62.9	64.5	64.1	62.6	63.1	63.2	62.0
kg/hl	81.9	81.5	82.6	83.2	82.6	84.8	84.5	82.4	82.9	83.1	81.5
1000 Kernel Weight (g)	51.9	49.2	39.2	41.2	52.8	48.5	50.5	44.6	48.8	41.6	37.2
Kernel Size Distribution											
Large	94	91	84	84	96	91	94	88	91	84	74
Medium	6	9	16	16	4	9	6	12	9	16	25
Small	0	0	0	0	0	0	0	0	0	0	1
SEMOLINA											
Lab Mill Extraction (%)	69.9	77.4	65.8	77.5	67.6	68.1	78.3	72.4	79.3	66.2	77.1
Semolina Extraction (%)	62.2	62.3	59.8	63.0	61.8	61.8	64.5	62.0	62.6	59.4	60.9
Protein (14% MB)	12.6	12.4	11.7	11.3	12.4	11.7	10.2	12.7	12.7	12.5	12.8
Protein (Dry Basis)	14.7	14.4	13.6	13.1	14.5	13.6	11.9	14.7	14.8	14.5	14.9
Ash (14% MB)	0.82	0.89	0.86	0.95	0.78	0.79	0.89	0.90	0.94	0.65	0.89
Ash (Dry Basis)	0.96	1.03	0.99	1.10	0.90	0.91	1.03	1.05	1.09	0.76	1.03
Specks (no/10 sq in)	24	13	14	22	21	17	24	19	18	20	25
Wet Gluten (14% MB)	36.9	36.5	30.2	32.8	33.6	31.4	30.1	33.6	36.8	33.5	37.7
Gluten Index*	52.9	-	96.9	-	82.2	72.6	-	87.4	-	79.6	-
Falling Number (sec)	755	702	913	706	656	665	758	872	899	695	799
Color 'b' value	25.4	25.2	27.4	26.1	27.9	26.1	25.8	26.2	26.1	27.1	26.9
ALVEOGRAPH											
P/L Ratio	1.32	1.33	1.18	1.89	1.77	1.47	1.70	2.34	2.30	2.21	2.46
W (10-4 joules)	179.6	172.8	222.0	260.9	290.2	173.5	164.2	262.8	266.2	265.4	252.3
PASTA											
Color Score	9.2	8.6	10.0	8.5	9.2	8.5	8.0	9.0	8.5	9.9	8.8
Cooked weight (gm)	29.2	39.3	29.1	29.6	29.7	29.8	29.4	29.6	28.8	29.2	29.4
Cooking Loss (%)	5.7	6.6	5.7	7.3	6.2	5.4	7.6	5.5	6.6	5.7	7.0
Cooked Firmness (g/cm)	6.8	8.2	6.4	7.0	6.0	6.2	6.9	4.9	7.7	6.1	7.7
Data represent weighted means calculated to characterize the Arizona/California southwestern desert crop. Weather, soil, and cultural practices can influence the quality of all varieties between years and particular lots of any one variety. Wheat and semolina protein-Leco Combustion Nitrogen Analyzer Model TruSpec. Pasta and semolina color-Minolta Chromameter. Model CR-200. Manual adjustments to test mill may make year-to-year extraction results incomparable. *Gluten Index not performed on 2013 samples.											



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## DESERT DURUM® AVERAGE GRADE RESULTS

	Harvest Data			Export Cargo Data		
	2014	2013	2012	13/14	12/13	11/12
Protein (12% MB)	13.3	13.4	13.4	13.4	13.2	13
Graded No. 1 (%)	Over 90% of samples graded No. 1			100	100	100
HVAC (%)	97.0	97.1	97.1	96.5	95.9	95.1
Test Weight: lb/bu	63.2	62.5	62.1	62.1	62	62.5
kg/hl	82.2	81.3	80.9	80.9	80.7	81.3
Moisture (%)	7.0	6.8	6.1	6.9	6.5	7.1
Damage (%)	0.2	0.2	0.2	0.4	0.4	0.4
Foreign Material* (%)	0.0	0.1	0.1	0.1	0.1	0.1
Shrunken/Broken* (%)	0.4	0.6	0.6	0.9	1	0.9
Total Defects (%)	0.6	0.8	0.9	1.4	1.5	1.4
Dockage* (%)	0.3	0.5	0.4	0.6	0.5	0.5
Total Screenings (%)	0.7	1.2	1.1	1.6	1.6	1.5
Net Wheat (%)	92.3	92.1	92.9	91.6	91.9	91.5
CTW (%)	109.9	109.7	110.6	109.1	109.4	108.9
MWVI (%)	91	91.2	90.4	91.7	91.4	91.8

\*Total Screenings are those factors represented on the grade certificate that are cleaned out in the flour mill. Samples were either official samples collected by licensee of FGIS or submitted by handlers to a licensee for grading. Desert Durum® cargo data represents information obtained from official export inspection certificates. Test weight conversion from lb/bu to kg/hl is according to FGIS-PN-97-5, (1.292 x lb/bu) + 0.630. 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.

## 2014 DESERT DURUM®: AVERAGE GRADE RESULTS BY VARIETY

WHEAT	Desert King	Duraking	Havasus	Helios	Kronos	Ocotillo	Orita	Platinum	Tiburón	WB-Mead	WB-Mohave	Westmore-HP
Protein (12%mb)	12.4	13.2	13.5	13.1	12.9	12.9	13.2	12.8	13.7	12.8	13.7	13.5
Graded No. 1 (%)	Over 90% of samples graded No. 1											
HVAC (%)	97.5	99.0	98.5	96.0	94.6	96.0	97.6	99.0	98.0	94.0	98.8	95.7
Moisture (%)	7.6	8.6	7.1	6.7	6.8	6.7	6.9	6.2	7.5	6.6	6.7	7.0
Test Weight: lb/bu	63.2	63.0	64.0	62.1	63.1	64.0	62.0	63.0	62.8	63.8	62.8	63.6
kg/hl	82.3	82.0	83.3	80.9	82.2	83.3	80.7	82.0	81.8	83.1	81.8	82.8
Damage (%)	0.0	0.0	0.3	0.4	0.2	0.0	0.1	0.0	0.4	0.0	0.5	0.1
Foreign Material (%)	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Shrunken/Broken (%)	0.6	0.5	0.3	0.1	0.1	0.2	0.5	0.1	0.3	0.6	0.3	0.3
Total Defects (%)	0.8	0.5	0.7	0.5	0.3	0.3	0.6	0.1	0.7	0.7	0.8	0.4
Dockage	0.6	0.9	0.3	0.1	0.1	0.0	0.4	0.2	0.2	0.7	0.4	0.1

Samples were either official samples collected by a licensee of FGIS or submitted by handlers to a licensee for grading. Test weight conversions from lb/bu to kg/hl according to FGIS-PN97-5, (1.292 x lb/bu) + 0.630.

# 2014 Desert Durum® Crop Quality Report

## Technical and Laboratory Services



*CWC Laboratory Director, Claudia Carter*

The California Wheat Commission laboratory has the equipment necessary for evaluation of common and durum wheat milling quality, flour chemical analysis, 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 Lab Test Order Form of laboratory services is available on the California Wheat Commission's website.

### Customer Assistance and Support

The Commission can 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), 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.

### 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, cakes, cookies, tortillas, and Middle Eastern flat breads.



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