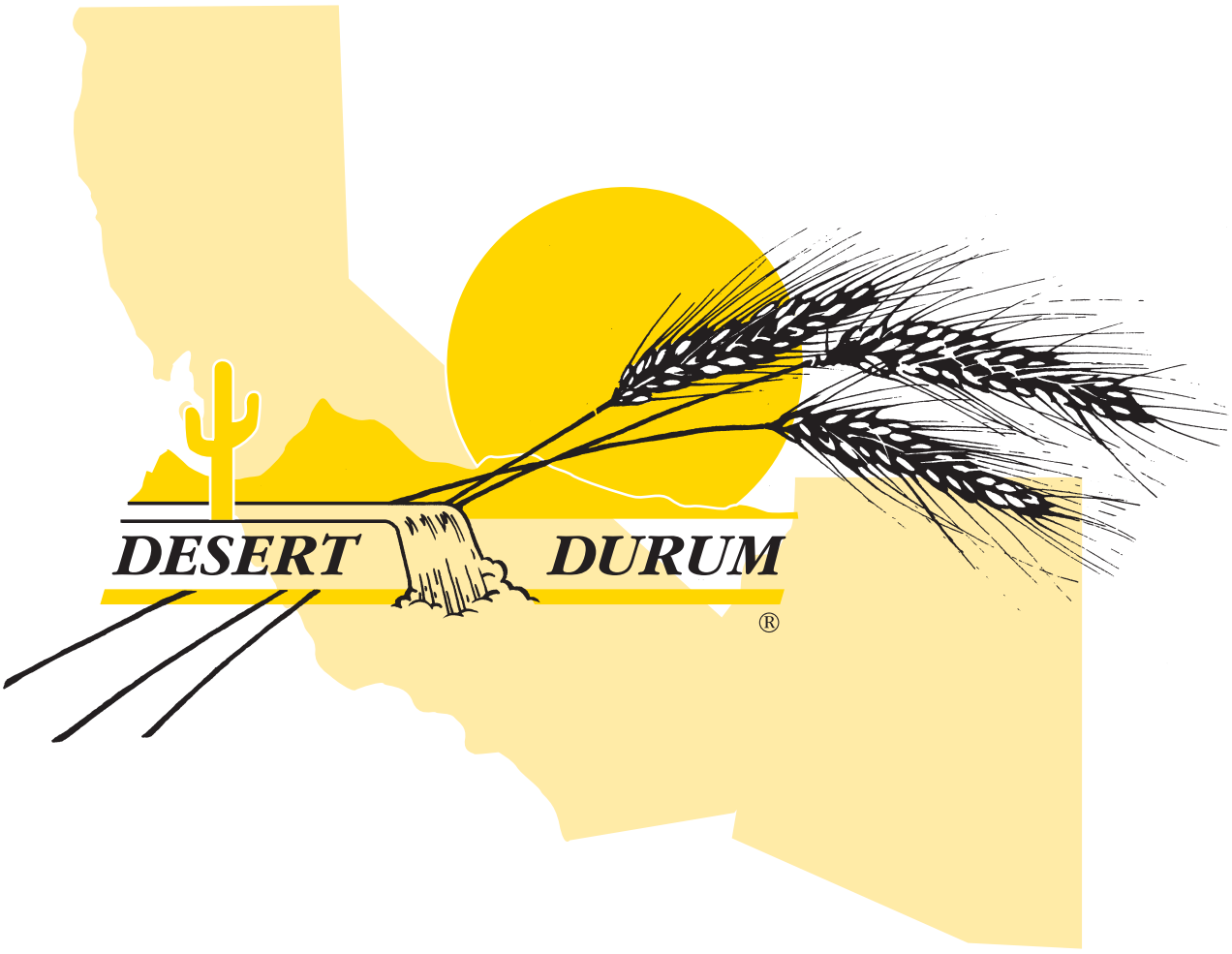
DESERT DURUM®

• 2008 • CROP • QUALITY •

ARIZONA / CALIFORNIA COMBINED CROP ANALYSIS



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DESERT DURUM®

The phrase "DESERT DURUM" has been trademarked in the U.S. and Mexico under the ownership of the Arizona Grain Research and Promotion Council and the California Wheat Commission. Only durum grown in the states of Arizona and California may qualify as DESERT DURUM®.

DESERT DURUM® wheat is produced under irrigation in the desert valleys and lowlands of Arizona and California. These are regions of high temperatures (May-June temperatures average 32C) and low rainfall (annual precipitation averages less than 200 mm). DESERT DURUM® wheat is planted in December through February and harvested in May and June. DESERT DURUM® grain 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 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 to experienced growers using Certified seed and then stored by identity for season-long shipment at the buyer's schedule.

The data presented in this crop quality report are from samples that were traceable to known quantities of grain of each variety. Sampling techniques have been approved by an agricultural statistician and at least 80% of the crop was sampled. Thus, these data are intended to characterize the 2008 DESERT DURUM® crop by both variety and as an entire crop.

The milling, semolina and pasta analyses used to produce these data were conducted at the California Wheat Commission wheat quality laboratory. The laboratory staff works closely with breeding companies and buyers to provide an accurate assessment of current crop quality and breeding material.

Desert Durum® Production

(Metric Tons)

Year	Arizona	California	Total
2008	397,401	442,933	840,334
2007	215,005	193,913	408,918
2006	201,397	175,134	376,531
2005	215,005	178,400	393,405
2004	261,354	244,942	506,296
2003	312,982	312,982	625,964
2002	244,942	258,550	503,492
2001	215,468	231,471	446,939

Milling, Semolina, and Pasta Characteristics of Desert Durum® Varieties

	Alamo		Crown		Desert King	
WHEAT	**'08**	**'07**	**'08[1]**	**'07**	**'08**	**'07**
Protein						
Dry (%)	15.3	16.8	16.1	15.5	15.0	14.9
As Is (%)	14.3	15.7	15.0	14.5	14.0	13.8
(12% mb)	13.5	14.8	14.2	13.6	13.2	13.1
Moisture (%)	6.5	6.3	6.9	6.5	6.9	7.1
1000 KernelWeight (g)	52.3	48.2	48.1	49.2	48.9	47.3
Kernel Size Distribution						
Large (%)	95	94	91	88	90	91
Medium (%)	5	6	9	12	10	9
Small (%)	0	0	0	0	0	0
MILLING AND SEMOLINA						
Total Extraction (%)	73.1	79.7	73.3	79.3	68.9	78.8
Semolina Extraction (%)	62.7	67.0	62.1	65.0	59.3	67.4
Wheat Ash (As Is % mb)	1.73	1.80	1.70	1.77	2.00	1.85
Semolina Ash (As Is % mb)	0.79	0.92	0.68	0.84	0.87	0.96
Semolina Protein (As Is % mb)	12.8	13.7	13.5	12.5	11.9	11.8
Falling Number (sec)	704	742	597	618	584	483
Specks (no/10 sq in)	12	10	9	9	23	29
Wet Gluten (%) (14% mb)	36.6	36.6	32.7	34.1	33.1	33.2
Dry Gluten (%) (As Is % mb)	14.0	14.4	13.3	13.5	13.0	11.6
Alveograph						
W	209.7	146.2	107.9	137.6	145.8	129.0
P/L	1.09	1.41	1.09	1.53	0.77	0.87
Color 'b' value	26.5	25.0	25.1	26.9	24.4	23.6
PASTA						
Color[2]						
Score	9.4	7.9	9.0	8.1	8.8	6.9
'b' value	41.4	38.4	40.1	39.4	40.4	37.4
Cooked Weight (g)	30.2	29.4	28.4	29.5	29.0	29.3
Cooking Loss (%)	7.9	6.3	8.1	7.0	7.5	7.1
Firmness (g/cm)	7.2	8.6	7.3	7.7	6.9	7.4

[1] Limited samples available for analysis; please contact the California Wheat Commission for more information. [2] Pasta and semolina color - Minolta Chromameter Model CR-200. Note: Data represent weighted means calculated to characterize the Arizona/California southwestern desert crop. Weather, soils, and cultural practices can influence the quality of all varieties between years and of particular lots of any one variety. Wheat and semolina protein - Leco Combustion Nitrogen Analyzer Model TruSpec. Manual adjustments to test mill may make year-to-year extraction results incomparable.

Milling, Semolina, and Pasta Characteristics of Desert Durum® Varieties

WHEAT	Duraking		Havasu		Kofa	Kronos		Ocotillo		Orita		Sky		WestBred 881	
Protein	'08	'07	'08	'07	'08[1]	'08	'07	'08	'07	'08	'07	'08	'07	'08[1]	'07
Dry (%)	14.6	15.2	15.0	15.1	15.3	15.4	15.6	15.0	15.8	15.7	16.1	15.5	15.0	15.7	16.7
As Is (%)	13.6	13.9	14.0	14.0	14.4	14.3	14.6	13.9	14.7	14.7	15.1	14.4	14.0	14.6	15.6
(12% mb)	12.9	13.3	13.2	13.3	13.5	13.5	13.7	13.2	13.9	13.9	14.2	13.7	13.2	13.8	14.7
Moisture (%)	6.8	8.1	6.7	7.0	6.1	6.8	6.5	7.1	6.9	6.8	6.4	7.1	6.5	7.2	7.1
1000 Kernel Weight (g)	45.3	45.5	47.9	49.5	52.4	53.6	52.5	48.7	48.2	53.6	54.8	45.7	45.4	55.6	61.6
Kernel Size Distribution															
Large (%)	84	87	92	92	95	95	94	91	90	96	96	90	86	97	94
Medium (%)	16	13	8	8	5	5	6	9	10	4	4	10	14	3	6
Small (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MILLING AND SEMOLINA															
Total Extraction (%)	74.6	78.7	74.4	79.3	74.9	72.4	78.5	72.5	79.6	71.9	78.4	73.0	79.1	74.0	76.7
Semolina Extraction (%)	63.8	66.1	62.3	65.9	63.5	61.9	65.6	62.2	65.6	62.1	66.1	62.8	65.2	62.4	62.8
Wheat Ash (As Is % mb)	1.83	1.84	1.80	1.84	2.01	1.83	1.93	1.77	1.90	1.79	1.69	1.71	2.00	1.86	1.90
Semolina Ash (As Is % mb)	0.88	0.91	0.87	0.9	0.89	0.89	0.89	0.76	0.81	0.78	0.87	0.85	0.97	0.86	0.80
Semolina Protein (As Is % mb)	11.4	12.1	12.9	12.2	13.4	12.7	12.5	12.7	12.7	12.9	13.0	12.7	12.2	12.4	13.7
Falling Number (sec)	531	528	641	612	707	671	719	585	617	702	751	686	775	615	795
Specks (no/10 sq in)	8	4	10	11	11	14	11	15	3	11	12	15	5	9	6
Wet Gluten (%) (14 % mb)	36.1	32.0	32.5	31.0	37.7	33.8	32.9	37.0	35.0	38.0	34.5	32.6	31.8	36.7	36.4
Dry Gluten (%) (As Is % mb)	13.5	11.9	12.9	11.7	16.1	13.3	12.4	14.1	13.7	14.9	12.8	15.6	11.9	14.2	13.6
Alveograph															
W	144.4	97.7	224.0	218.5	255.7	192.1	164.5	119.6	104.8	145.2	135.6	241.8	196.0	182.3	156.1
P/L	1.45	1.64	1.47	1.78	1.52	1.41	1.55	0.52	0.68	0.96	1.18	1.66	1.49	1.05	0.93
Color 'b' value	23.3	23.4	29.4	28.2	26.9	26.2	26.1	25.0	24.6	26.2	25.3	26.3	26.4	25.0	25.6
PASTA															
Color[2]															
Score	6.5	5.8	9.6	8.4	9.5	9.3	8.4	9.1	7.3	8.4	8.1	9.9	8.8	9.5	8.1
'b' value	35.1	33.7	43.7	40.7	42.7	41.0	40.1	40.3	38.0	41.6	39.2	42.8	40.9	40.8	38.6
Cooked Weight (g)	30.4	30.2	29.7	29.7	29.0	30.2	30.7	30.0	30.4	30.4	30.4	30.2	30.3	29.4	29.9
Cooking Loss (%)	8.0	7.9	7.4	8.1	7.1	7.4	7.2	7.0	7.4	6.9	7.4	7.6	6.6	6.5	6.4
Firmness (g/cm)	5.9	7.0	7.1	7.6	8.3	7.1	7.8	7.6	7.7	7.1	7.9	7.5	8.0	7.5	8.6

[1] Limited samples available for analysis; please contact the California Wheat Commission for more information. [2] Pasta and semolina color - Minolta Chromameter Model CR-200. Note: Data represent weighted means calculated to characterize the Arizona/California southwestern desert crop. Weather, soils, and cultural practices can influence the quality of all varieties between years and of particular lots of any one variety. Wheat and semolina protein - Leco Combustion Nitrogen Analyzer Model TruSpec. Manual adjustments to test mill may make year-to-year extraction results incomparable.

Average Grade Results

	HARVEST DATA			EXPORT CARGO DATA		
	2008	2007	2006	**07/08**	06/07	05/06
Protein (%) (12% MB)	13.5	13.8	13.5	----	-----	-----
Graded No. 1 (%)	Over 90% of samples graded No.1			93	97	97
HVAC (%)	94.1	95.9	97.5	94.3	92.6	94.0
Moisture (%)	6.8	6.6	6.7	7.4	7.3	7.4
Test Weight						
lb/bu	82.9	62.7	62.0	62.8	62.6	62.5
kg/hl	81.9	81.7	80.7	81.8	81.5	81.4
Damage (%)	0.1	0.5	0.1	0.6	0.6	0.9
*Foreign Material (%)	0.1	0.1	0.1	0.2	0.2	0.2
*Shrunken/Broken (%)	0.4	0.3	0.3	0.6	0.5	0.5
Total Defects (%)	0.5	0.9	0.5	1.3	1.3	1.6
*Dockage (%)	0.2	0.2	0.2	0.5	0.5	0.6
*Total Screenings (%)	0.7	0.6	0.6	1.3	1.2	1.3
Moisture (%)	6.8	6.6	6.7	7.4	7.3	7.4
Net Wheat (%)[1]	92.5	92.8	92.7	91.4	91.6	91.4
CTW (%)[2]	110.2	110.5	110.4	108.8	109.0	108.8
MWVI[3]	90.7	90.5	90.6	91.9	91.7	91.9

*Total Screenings are those factors represented on the grade certificate that are cleaned out in the flour mill. Note: All samples were collected through and graded by authorized Federal Grain Inspection sites (Farwell Grain Inspection Co.). Desert Durum® cargo data represents information obtained from official export inspection certificates. Test weight conversions from lb/bu to kg/hl is according to FGIS-PN-97-5, {(1.292 x lb/bu) + 0.630}. [1]Net Wheat = (100%- (FM+SHBN+Dockage)) x (100%-Moisture)/100%. [2] Clean, Tempered Wheat (CTW%) =(100%- (FM+SHBN+Dockage)) x (100%-Moisture)/(100%-16%(temper moisture)). [3] Millable Wheat Value Index (MWVI) = 100%/CTW.

2008 Desert Durum® : Average Grade Results by Variety

	Alamo	**Crown***	**Desert King**	**Duraking**	**Havasu**	**Kofa***	**Kronos**	**Ocotillo**	**Orita**	**Sky**	**Westbred 881***
Protein (%)(12% mb)	13.62	12.4	12.6	12.5	12.7	12.5	12.9	13.8	13.2	12.8	13.0
Graded No.1 (%)	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/
HVAC (%)	98	89	96	97	96	96	93	96	92	93	98
Moisture (%)	6.6	8.2	7.0	8.4	7.3	6.1	6.9	7.4	6.7	7.2	7.1
Test Weight											
lb/bu	63.6	61.9	62.3	63.4	63.8	63.0	62.4	62.8	62.6	62.0	62.0
kg/hl	83.0	80.8	81.3	82.7	83.3	82.2	81.4	82.0	81.7	81.0	80.9
Damage (%)	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.4
Foreign Material (%)	0.1	0.0	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0
Shrunken/Broken (%)	0.4	0.1	0.4	0.4	0.5	0.1	0.4	0.4	0.3	0.3	0.3
Total Defects (%)	0.8	0.1	0.6	0.5	0.6	0.4	0.5	0.5	0.5	0.5	0.7
Dockage	0.1	0.2	0.4	0.2	0.4	0.1	0.3	0.1	0.2	0.1	0.1

Note: *Limited samples available for analysis. All samples were collected through and graded by authorized Federal Grain Inspection sites (Farwell Grain Inspection Co.). Test weight conversions from lb/bu to kg/hl according to FGIS-PN-97-5, {(1.292 x lb/bu) + 0.630}. Graded No. 1 (%) reflects composite sample data. 1/. Over 90% of all samples collected through this program graded No. 1.