2006 California Almond Objective Measurement Report

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USDA, National Agricultural Statistics Service,
California Field Office

2006 CALIFORNIA ALMOND FORECAST

California's 2006 almond production is forecast at 1,050 million meat pounds, up 3 percent from May's subjective forecast and 15 percent above last year's crop. The forecast is based on 580 thousand bearing acres. Production for the Nonpareil variety is forecast at 378 million meat pounds, 34 percent above last year's deliveries. The Nonpareil variety represents 36 percent of California's total almond production.

Despite several factors that could have led to a lighter set, the 2006 California almond set appears spotty, but strong overall. Some of the factors contributing to the inconsistency of the set include a low accumulation of chilling hours that resulted in an early bloom, a frost that hit some early varieties, minor hail damage, and wet, cool conditions that continued throughout the spring. Damage from the leaf-footed bug varied, but should not affect overall production significantly. The popular Nonpareil variety shows a strong set, as do the Butte and Padre varieties. Kernel weight, length, width, and thickness are all down from last year.

The average nut set per tree is 6,723, up 23 percent from 2005. The Nonpareil average nut set of 6,848 represents a 47 percent increase from last year's set. The average kernel weight for all varieties sampled was 1.57 grams, 12 percent below last year. A total 97.4 percent of all nuts sized were sound.

SAMPLING PROCEDURES

To determine tree set, nuts are counted along a path within a randomly selected tree. Work begins at the trunk and progresses to the end of the terminal branch. Using a random number table, one branch is selected at each forking to continue the path. A branch's probability of selection is directly proportional to its cross-sectional area. This methodology is used because of its statistical efficiency. The method also makes it possible to end up at any one of the tree's numerous terminal branches.

Since the selected path has a probability of selection associated with it, this probability is used to expand nut counts arriving at an estimated set for the entire tree.

Along intermediate stages (i.e., the bearing surface between forkings), every fifth nut is picked. All nuts on the terminal branch are picked. These nuts are used to determine size and weight measurements.

FIELD SAMPLING ACTIVITIES

The survey began May 31 and sampling was completed by June 23. There were 1,668 trees sampled for the 2006 survey in 834 orchards. An additional 113 orchards were not sampled for one of the following reasons:

1) Orchard had been sprayed.
2) Orchard had been recently irrigated and was wet.
3) Orchard had been pulled.
4) Owner refused to cooperate or could not be contacted.

The Objective Measurement Survey is funded by the Almond Board of California, in cooperation with the California Department of Food and Agriculture.

DATA RELIABILITY

The 80 percent confidence interval is from 971 million meat pounds to 1,129 million meat pounds. This means that the results of our sampling procedures will encompass the true mean 80 percent of the time.

TABLE 1: COMPARISON OF NUT ESTIMATES AND ORCHARDS SAMPLED BY DISTRICT AND VARIETY, JUNE OBJECTIVE MEASUREMENT SURVEY COUNTS, 2001-2006

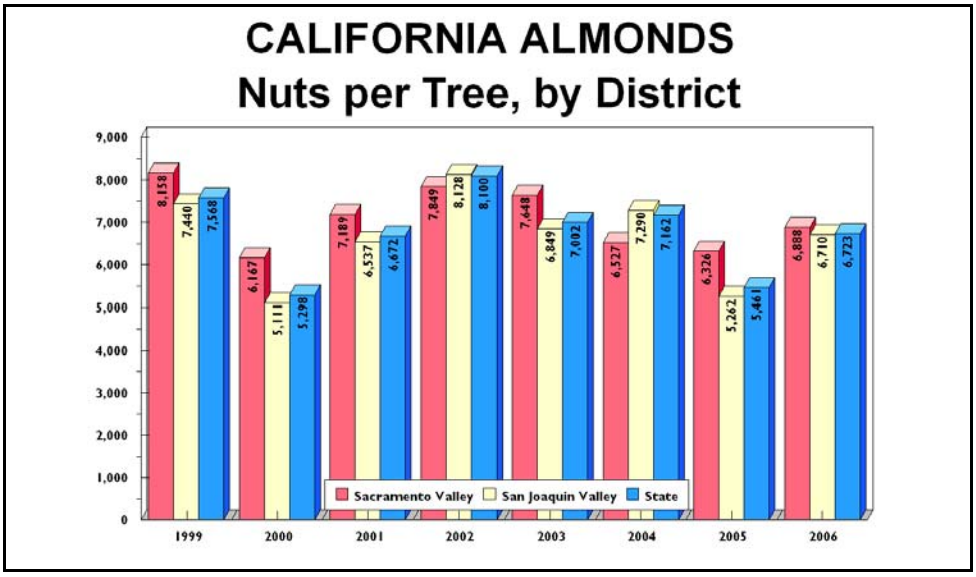
District and Variety	2001		2002		2003		2004		2005		2006	
	Nuts Per Tree	Orchards Sampled	Nuts Per Tree	Orchards Sampled	Nuts Per Tree	Orchards Sampled	Nuts Per Tree	Orchards Sampled	Nuts Per Tree	Orchards Sampled	Nuts Per Tree	Orchards Sampled
ALL DISTRICTS												
(All Varieties)	6,672	798	8,100	786	7,002	777	7,162	749	5,461	838	6,723	834
BY DISTRICTS												
District I												
Sacramento Valley	7,189	165	7,849	141	7,648	149	6,527	131	6,326	142	6,858	151
District II												
San Joaquin Valley	6,537	633	8,128	645	6,849	628	7,290	618	5,262	696	6,710	683
BY VARIETIES												
Butte 1/	---	---	8,741	99	8,904	110	8,788	112	7,471	112	7,624	110
California Types 2/	6,850	167	7,615	177	6,815	183	6,665	172	5,275	262	5,945	268
Carmel 3/	6,832	99	7,146	99	6,727	97	6,380	90	4,698	144	5,415	149
Mission	5,928	41	8,235	29	8,055	28	6,719	26	6,410	19	6,667	21
Nonpareil	6,449	386	8,043	373	6,110	358	6,676	335	4,650	347	6,848	340
Padre 1/	---	---	8,268	48	9,729	57	9,414	54	7,127	52	7,801	52

1/ Butte and Padre variety breakdowns were initiated in 2002.
2/ For survey purposes, the California classification includes the following varieties: Aldrich, Ballico, Carmel, Davey, Fritz, Harvey, Le Grand, Mono, Monterey, Norman, Price Cluster, Ruby, Tokoyo and Yosemite.
3/ Carmel variety is also included in California Types.

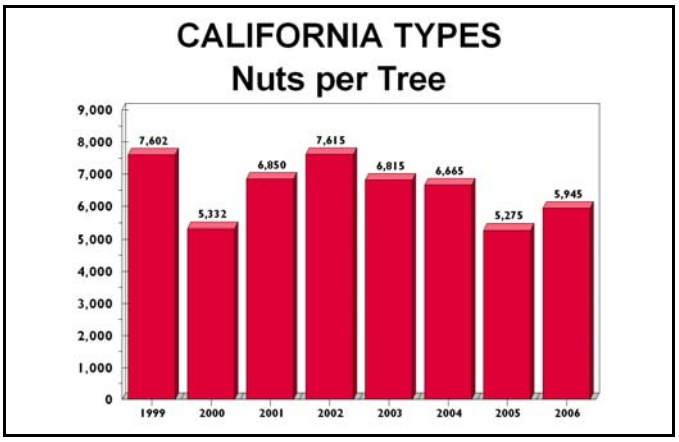
TABLE 2: WEIGHT, SIZE AND GRADE OF AVERAGE ALMOND SAMPLE, 2001-2006

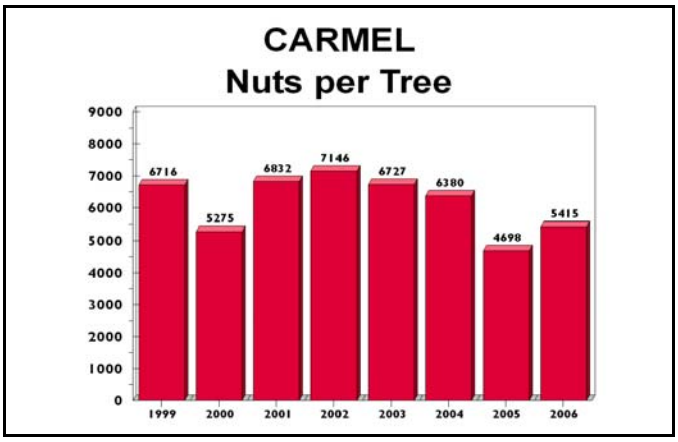
District and Variety	Kernel Weight (Grams)	Kernel Size (Millimeters)			Grade (Percent of Nuts) a/						
					Edible Nuts		Insect Damage	Shrivel	Natural Gum	Blank	Other
		Length	Width	Thickness	Singles	Doubles					
ALL DISTRICTS											
2001	1.60	23.90	12.87	9.89	95.0	3.1	b/	1.4	0.1	b/	0.2
2002	1.41	21.54	12.52	9.86	96.8	2.1	b/	0.7	b/	b/	0.2
2003	1.67	22.24	13.30	10.47	94.6	3.0	b/	1.8	0.2	b/	0.4
2004	1.45	22.44	12.34	9.72	95.2	3.2	b/	1.3	0.1	b/	0.1
2005	1.79	23.73	13.35	10.45	95.0	2.7	b/	1.9	0.1	b/	0.3
2006	1.57	21.64	12.91	10.31	92.0	5.3	b/	1.9	0.1	b/	0.5
BY DISTRICT											
Sacramento Valley c/											
2001	1.61	24.37	13.05	9.68	94.4	3.4	b/	1.1	0.1	b/	1.0
2002	1.47	22.65	12.77	9.90	96.0	2.2	b/	0.9	b/	b/	0.8
2003	1.76	23.21	13.85	10.77	93.2	3.0	b/	2.1	0.3	b/	1.3
2004	1.52	23.62	12.42	9.66	94.3	3.8	b/	1.1	0.1	b/	0.7
2005	1.82	24.63	13.75	10.73	94.5	2.7	b/	1.5	b/	b/	1.1
2006	1.55	22.30	13.24	10.39	87.1	8.0	b/	1.9	0.2	b/	2.8
San Joaquin Valley d/											
2001	1.60	23.75	12.82	9.96	95.2	3.0	b/	1.5	0.1	b/	b/
2002	1.39	21.22	12.45	9.84	97.0	2.1	b/	0.7	b/	b/	0.1
2003	1.64	21.92	13.12	10.37	95.1	3.0	b/	1.7	0.1	b/	b/
2004	1.44	22.17	12.32	9.74	95.4	3.0	b/	1.3	0.1	b/	b/
2005	1.78	23.46	13.23	10.37	95.1	2.6	b/	2.1	0.1	b/	b/
2006	1.58	21.49	12.84	10.29	98.1	4.8	b/	1.9	0.1	b/	b/
BY VARIETY											
Butte e/											
2002	1.23	18.99	12.14	10.03	95.8	2.9	b/	0.7	b/	b/	0.4
2003	1.41	19.67	12.55	10.49	93.5	3.5	b/	2.5	0.2	b/	0.3
2004	1.22	19.98	11.66	9.76	100.0	b/	b/	b/	b/	b/	b/
2005	1.47	20.79	12.62	10.45	95.6	2.5	b/	1.7	b/	b/	0.2
2006	1.32	19.08	12.37	10.26	93.9	4.9	b/	0.9	b/	b/	0.2
California Types f/											
2001	1.57	24.45	12.24	9.97	92.6	5.3	b/	1.6	b/	b/	0.3
2002	1.41	21.88	12.08	9.82	94.8	3.7	b/	0.9	0.1	b/	0.4
2003	1.62	22.71	12.68	10.21	94.2	4.1	b/	1.4	0.2	b/	0.1
2004	1.50	23.15	12.20	9.74	95.9	2.3	b/	1.5	0.2	b/	b/
2005	1.77	23.90	13.07	10.45	92.9	5.6	b/	1.4	b/	b/	b/
2006	1.60	21.75	12.74	10.42	87.6	9.9	b/	2.0	b/	b/	0.5
Carmel g/											
2001	1.53	24.74	12.03	9.83	94.8	3.7	b/	1.2	b/	b/	0.2
2002	1.39	22.20	11.96	9.64	96.6	2.6	b/	0.5	0.1	0.1	0.1
2003	1.59	23.00	12.46	9.97	95.8	3.3	b/	0.9	b/	b/	b/
2004	1.49	24.01	11.83	9.62	95.6	3.2	0.2	0.9	b/	b/	0.1
2005	1.83	25.65	12.74	10.19	94.0	3.9	b/	1.6	0.4	b/	0.1
2006	1.59	23.12	12.38	10.06	90.6	7.0	b/	1.8	0.3	b/	0.3
Mission											
2001	1.43	21.84	12.42	10.27	92.6	5.3	b/	1.4	0.3	b/	0.3
2002	1.18	18.72	12.08	9.95	98.1	0.5	b/	0.5	0.1	b/	0.8
2003	1.64	20.39	13.42	10.97	93.4	5.1	b/	0.3	0.4	b/	0.9
2004	1.42	19.97	12.26	10.48	90.4	7.8	b/	0.9	0.5	b/	0.3
2005	1.63	20.78	13.29	11.16	94.0	2.2	b/	3.2	0.2	b/	0.4
2006	1.53	19.30	13.56	11.23	92.9	5.4	b/	1.7	b/	b/	b/
Nonpareil											
2001	1.73	24.97	13.52	9.82	96.9	1.3	b/	1.3	0.1	0.1	0.2
2002	1.50	22.59	12.91	9.79	97.9	1.3	b/	0.5	b/	b/	0.1
2003	1.85	23.90	14.09	10.42	96.1	1.6	b/	1.7	0.2	b/	0.4
2004	1.58	23.70	12.95	9.66	96.2	2.2	b/	1.3	0.1	b/	0.2
2005	1.99	25.23	14.13	10.43	95.5	1.5	b/	2.4	b/	b/	0.5
2006	1.68	22.45	13.39	10.30	92.8	3.8	b/	2.5	0.1	b/	0.8
Padre e/											
2002	1.25	18.70	12.15	10.34	97.2	1.5	b/	1.1	b/	0.1	0.1
2003	1.47	19.26	12.65	11.00	93.8	3.0	b/	3.1	0.1	b/	0.1
2004	1.20	19.38	11.65	9.92	96.4	2.0	b/	1.3	0.3	b/	0.1
2005	1.60	20.96	13.10	10.92	96.5	1.3	b/	2.0	b/	b/	b/
2006	1.34	18.82	12.37	10.49	95.1	2.8	b/	1.6	0.3	0.1	b/

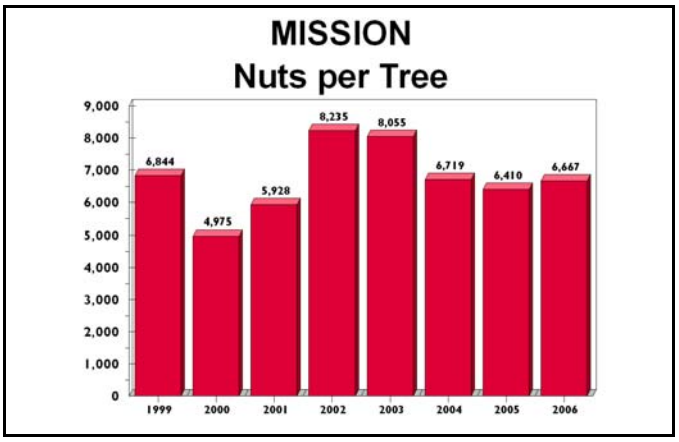
a/ Percentages may not add to 100 due to rounding.
b/ Not shown if less than 0.07 percent.
c/ Sacramento Valley includes these counties: Butte, Colusa, Glenn, Solano, Sutter, Tehama, Yolo and Yuba.
d/ San Joaquin Valley includes these counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare.
e/ Butte and Padre variety breakdowns were initiated in 2002.
f/ For survey purposes, the California classification includes the following varieties: Aldrich, Ballico, Carmel, Davey, Fritz, Harvey, Le Grand, Mono, Monterey, Norman, Price Cluster, Ruby, Tokoyo and Yosemite.
g/ Carmel variety is also included in California Types.



ALMONDS BY VARIETY







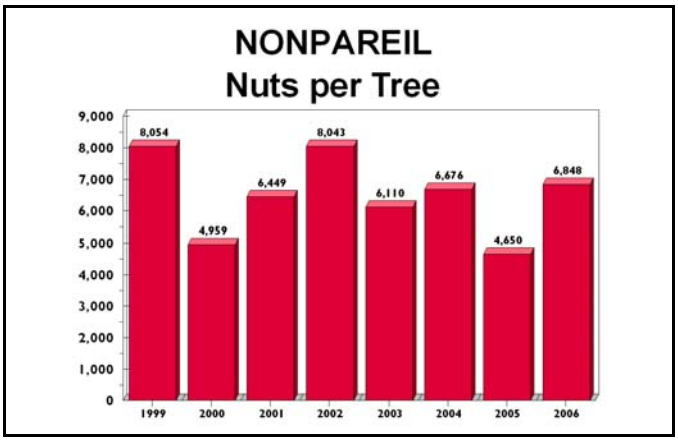


TABLE 3: CALIFORNIA ALMOND ACREAGE, PRODUCTION AND TREES PER ACRE, 1980-2006

Year	Bearing Acres 1/	Total Meat Production			Average Trees Per Acre
		Metric Tons 2/	Million Lbs.	Lbs. Per Acre	
1980	327,000	146,000	322	985	N/A
1981	326,000	185,000	408	1,250	N/A
1982	339,000	157,000	347	1,020	N/A
1983	360,000	110,000	242	673	N/A
1984	381,000	268,000	590	1,550	N/A
1985	409,000	211,000	465	1,140	N/A
1986	416,000	113,000	250	601	84.5
1987	417,000	299,000	660	1,580	84.0
1988	419,000	268,000	590	1,410	86.3
1989	411,000	222,000	490	1,190	87.3
1990	411,000	299,000	660	1,610	88.4
1991	405,000	222,000	490	1,210	89.6
1992	401,000	249,000	548	1,370	90.5
1993	413,000	222,000	490	1,190	92.0
1994	433,000	333,000	735	1,700	92.6
1995	418,000	168,000	370	885	93.7
1996	428,000	231,000	510	1,190	94.4
1997	442,000	344,000	759	1,720	95.5
1998	460,000	236,000	520	1,130	96.3
1999	485,000	378,000	833	1,720	97.3
2000	510,000	319,000	703	1,380	99.0
2001	530,000	376,000	830	1,570	101.0
2002	545,000	494,000	1,090	2,000	101.0
2003	550,000	472,000	1,040	1,890	103.0
2004	570,000	456,000	1,005	1,760	103.0
2005	580,000	415,000	915	1,580	104.0
2006	580,000	476,000	1,050	1,810	105.0

1/ Bearing acreage is defined as plantings four years and older.
2/ Rounded to nearest thousand, metric ton = 2,204.62 pounds.

VIC TOLOMEO
Director

JACK RUTZ - SARAH HOFFMAN
Deputy Directors

USDA, NASS, CALIFORNIA FIELD OFFICE
P.O. BOX 1258
SACRAMENTO, CA 95812
(916) 498-5161
Fax: (916) 498-5186

DOUG FLOHR
Statistician

JENNIE PETERSON
Statistician

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