

1999 California Almond Objective Measurement Report



Released: July 8, 1999
12:00 NOON PDT



CALIFORNIA AGRICULTURAL
STATISTICS SERVICE

1999 CALIFORNIA ALMOND FORECAST

California's 1999 almond production is forecast at a record 830 million meat pounds, up 9 percent from May's subjective forecast and up 60 percent from last year's crop. The forecast is based on 480,000 bearing acres. Production for the Nonpareil variety is forecast at 365 million meat pounds, up 73 percent from last season. The Nonpareil variety represents 44 percent of California's total almond production.

Statewide bloom reports ranged from good to excellent with ideal weather for pollination. Frost during the first two weeks of April caused moderate to heavy damage in a few locations, while other areas were unaffected. Cool, late spring weather delayed crop development by about two weeks. The average nut set per tree is 7,568, up 42 percent from 1998. The Nonpareil average nut set of 8,054 represents a 57 percent increase from last year's set. The average kernel weight for all varieties sampled was 1.47 grams, down 16 percent from last year. A total 99.1 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 June 1 and sampling was completed by June 30. There were 1,676 trees sampled for the 1999 survey in 838 orchards. An additional 64 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 monies provided 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 775 million meat pounds to 885 million meat pounds. This means there is an 80 percent chance the 1999 production will fall within that range.

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

District and Variety	1994		1995		1996		1997		1998		1999	
	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)	8,183	766	3,792	798	5,482	872	7,567	887	5,314	979	7,568	838
BY DISTRICTS												
<u>District I</u>												
Sacramento Valley	9,498	176	4,926	176	6,739	175	8,544	190	6,257	200	8,158	188
<u>District II</u>												
San Joaquin Valley	7,830	586	3,471	622	5,194	693	7,347	691	5,116	772	7,440	645
BY VARIETIES												
California Types <u>1/</u>	9,081	134	3,635	151	6,510	174	7,597	171	5,497	201	7,602	167
Carmel <u>2/</u>	8,749	86	3,384	99	5,993	116	7,862	107	5,645	118	6,716	99
Merced	8,848	32	2,841	32	4,450	31	6,020	20	4,664	24	6,818	16
Mission	6,909	69	4,534	72	6,320	78	6,831	78	5,722	79	6,844	58
Ne Plus Ultra	9,785	26	2,557	29	3,486	28	7,215	30	2,116	27	4,992	24
Nonpareil	7,869	431	3,851	430	4,963	464	7,714	485	5,129	491	8,054	403

1/ 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.

2/ Carmel breakdown was first provided in 1988. Carmel variety is also included in California Types.

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

District and Variety	Kernel Weight (Grams)	Kernel Size (Millimeters)			Grade (Percent of Nuts) ^{a/}							
		Length	Width	Thickness	Edible Nuts		Insect Damage	Shrivel	Natural Gum	Blank	Other	
					Singles	Doubles						
ALL DISTRICTS												
1994	1.63	23.56	12.99	10.12	95.0	2.4	b/	1.7	0.3	b/	0.6	
1995	1.91	24.56	14.09	10.30	91.9	3.5	0.1	3.0	0.5	0.1	0.9	
1996	1.85	23.09	13.54	10.21	93.4	3.6	b/	2.2	0.2	0.1	0.4	
1997	1.59	20.34	11.95	9.22	92.3	5.6	b/	1.8	0.1	0.1	0.2	
1998	1.76	23.51	13.64	10.42	95.8	4.0	b/	b/	0.1	b/	b/	
1999	1.47	23.21	13.57	10.64	93.4	5.7	b/	0.8	b/	b/	0.1	
BY DISTRICT												
Sacramento Valley ^{c/}												
1994	1.61	23.52	13.06	9.87	94.3	3.1	b/	1.0	0.2	0.1	1.3	
1995	1.82	23.72	13.70	9.88	91.4	5.4	b/	1.2	0.5	b/	1.5	
1996	1.68	22.99	13.70	10.11	92.9	4.7	b/	1.4	0.2	b/	0.9	
1997	1.59	22.54	13.17	9.92	91.5	6.2	b/	1.2	0.1	0.2	0.7	
1998	1.71	23.48	13.54	10.25	93.5	6.2	b/	b/	0.3	b/	b/	
1999	1.42	22.82	12.55	9.33	93.6	5.5	b/	0.7	b/	b/	0.3	
San Joaquin Valley ^{d/}												
1994	1.64	23.57	12.96	10.21	95.2	2.1	b/	2.0	0.4	b/	0.3	
1995	1.95	24.95	14.27	10.51	92.2	2.6	0.2	3.8	0.5	0.2	0.6	
1996	1.91	23.13	13.49	10.25	93.6	3.2	b/	2.5	0.2	0.1	0.3	
1997	1.59	19.61	11.55	8.99	92.5	5.4	b/	2.0	0.1	b/	b/	
1998	1.78	23.52	13.67	10.47	96.6	3.3	b/	b/	b/	b/	b/	
1999	1.49	23.34	13.90	11.06	93.3	5.8	b/	0.8	b/	b/	b/	
BY VARIETY												
California Types ^{e/}												
1994	1.49	23.00	12.14	10.05	94.9	2.5	b/	2.0	0.1	b/	0.5	
1995	1.81	25.23	13.18	10.25	88.7	5.3	0.1	4.4	0.5	0.1	0.9	
1996	1.68	23.14	12.68	10.12	92.3	4.8	b/	2.1	0.1	0.1	0.7	
1997	1.53	19.90	11.23	9.23	89.3	8.6	b/	1.8	0.1	b/	0.1	
1998	1.70	23.76	12.93	10.33	94.9	9.9	b/	b/	b/	b/	b/	
1999	1.41	22.68	12.75	10.58	89.3	9.8	b/	0.6	b/	b/	b/	
Carmel ^{f/}												
1994	1.51	23.42	12.13	10.06	95.7	1.9	b/	1.5	b/	b/	0.7	
1995	1.83	25.97	13.13	10.19	91.7	4.3	0.1	2.5	0.8	0.2	0.4	
1996	1.77	23.90	12.78	10.14	94.0	4.2	b/	1.5	0.1	b/	0.2	
1997	1.52	20.13	11.28	9.31	89.4	8.6	b/	1.6	0.2	b/	b/	
1998	1.71	24.30	12.85	10.31	96.0	3.8	b/	b/	b/	b/	b/	
1999	1.53	24.70	13.95	11.59	90.6	9.0	b/	0.2	b/	b/	0.2	
Merced												
1994	1.60	22.20	12.69	10.65	92.5	4.4	b/	2.3	0.6	b/	0.2	
1995	1.86	23.91	13.90	10.67	87.8	4.3	b/	4.1	2.7	b/	1.2	
1996	1.58	21.22	13.14	10.36	91.8	4.2	b/	1.9	1.9	b/	0.1	
1997	1.54	20.82	12.66	10.01	93.0	5.8	b/	1.1	0.1	b/	b/	
1998	1.84	22.27	13.55	10.61	94.7	5.2	b/	b/	0.1	b/	b/	
1999	1.50	24.40	15.61	12.84	94.1	5.0	b/	0.7	b/	b/	0.3	
Mission												
1994	1.39	19.97	12.36	10.73	94.7	2.5	b/	1.0	1.3	b/	0.4	
1995	1.66	21.39	13.47	10.89	91.1	5.2	b/	1.8	0.7	b/	1.3	
1996	1.56	19.46	12.61	10.37	91.9	4.9	b/	2.7	0.1	0.2	0.2	
1997	1.37	17.28	11.31	9.49	91.6	6.8	b/	1.3	b/	b/	0.4	
1998	1.59	20.51	13.20	11.35	88.6	11.4	b/	b/	b/	b/	b/	
1999	1.34	20.04	12.82	10.71	91.6	7.7	b/	0.7	b/	b/	b/	
Ne Plus Ultra												
1994	1.88	26.78	13.14	10.36	81.8	11.4	b/	4.7	0.2	b/	1.6	
1995	2.17	26.59	14.32	10.32	76.5	13.2	b/	4.8	2.3	b/	3.2	
1996	2.20	27.53	14.65	10.39	87.1	7.1	b/	3.7	0.9	b/	1.2	
1997	1.85	21.74	11.44	8.78	82.3	15.0	b/	2.7	b/	b/	b/	
1998	2.03	27.20	14.58	9.89	90.1	9.3	b/	b/	0.6	b/	b/	
1999	1.76	26.27	13.85	10.64	83.5	15.7	b/	0.7	b/	b/	0.1	
Nonpareil												
1994	1.72	24.36	13.44	10.00	96.8	1.1	b/	1.4	0.2	b/	0.5	
1995	2.01	25.24	14.58	10.19	93.7	2.1	0.1	2.9	0.3	0.1	0.7	
1996	2.06	24.27	14.26	10.22	94.7	2.6	b/	2.2	0.2	b/	0.3	
1997	1.67	21.05	12.29	9.09	94.3	3.4	b/	1.9	b/	0.1	0.2	
1998	1.90	24.61	14.22	10.30	97.8	2.1	b/	b/	b/	b/	b/	
1999	1.51	23.85	13.77	10.39	95.6	3.3	b/	1.0	b/	b/	0.1	

^{a/} Percentages may not add to 100 due to rounding.

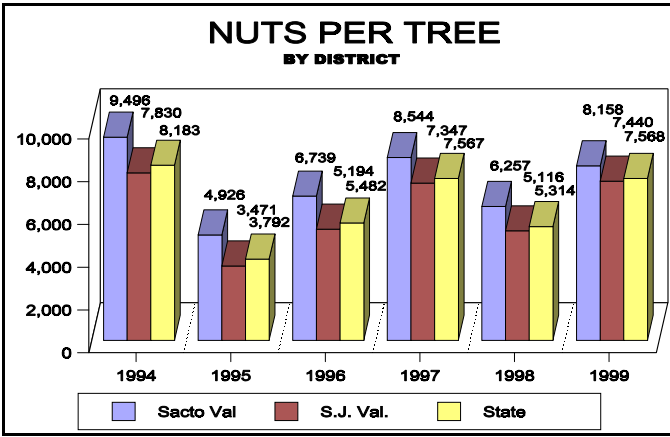
^{b/} Not shown if less than 0.07 percent.

^{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/} 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.

^{f/} Carmel breakdown was available for the first time in 1988. Carmel variety is also included in California Types.



NUTS PER TREE

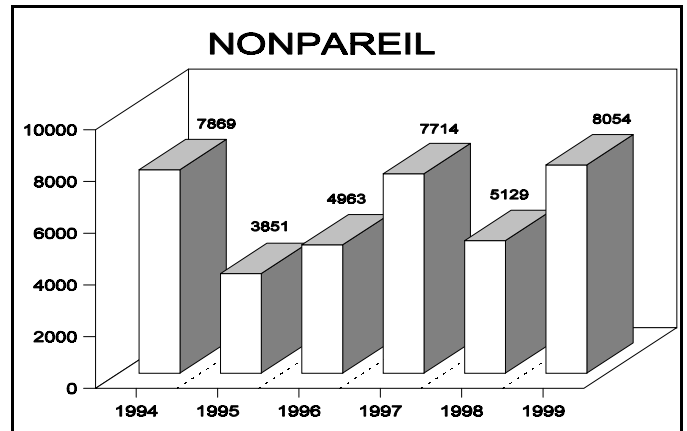
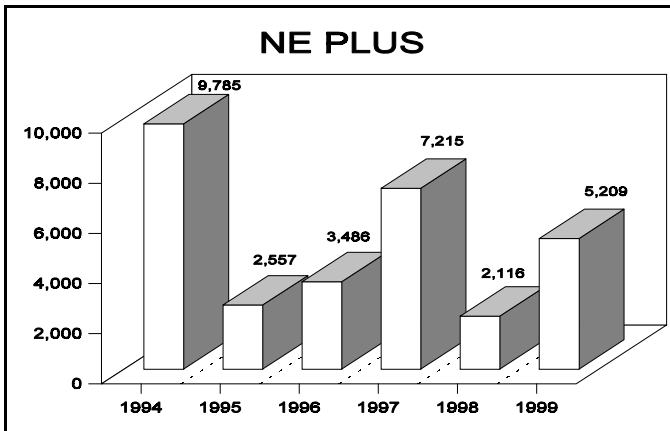
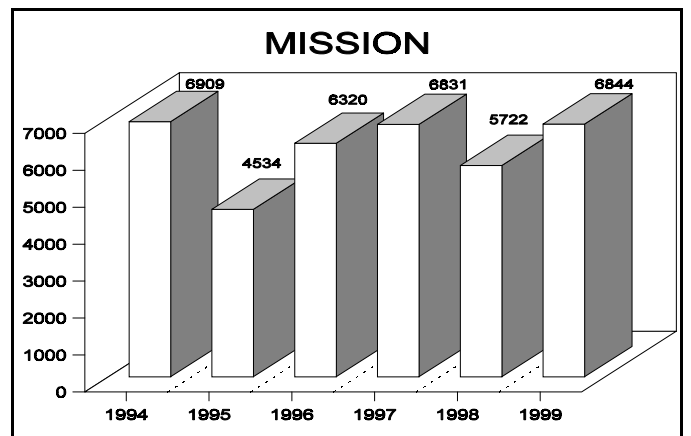
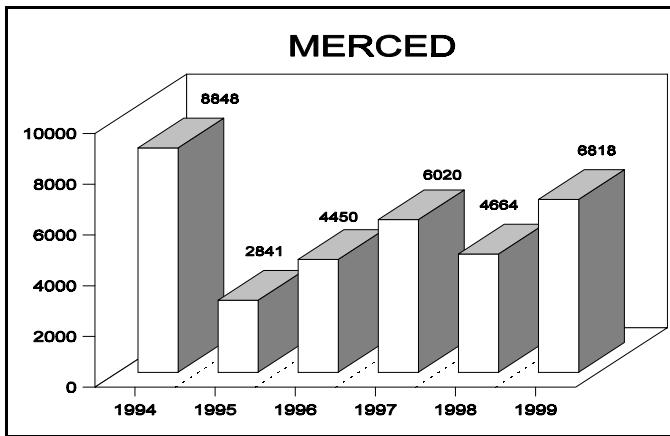
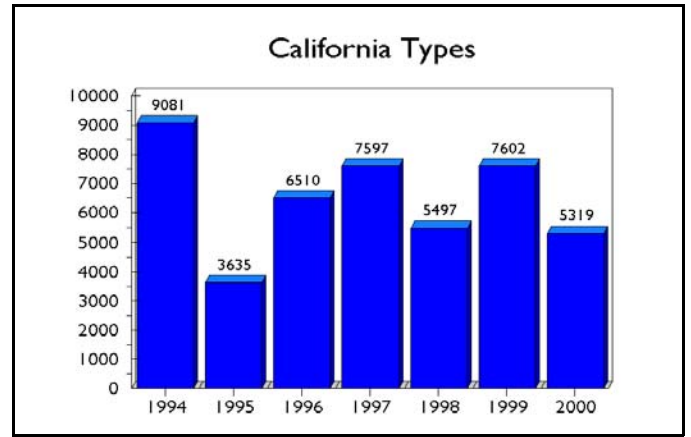
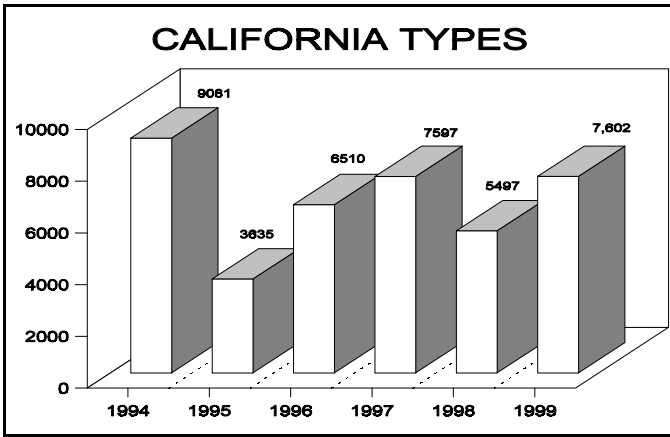


TABLE 3: CALIFORNIA ALMOND ACREAGE, PRODUCTION AND TREES/ACRE, 1980-99

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	480,000	376,000	830	1,730	97.3

^{1/} Bearing acreage is defined as plantings four years and older.

^{2/} Rounded to nearest thousand, metric ton = 2,204.62 pounds.

JIM TIPPETT
State Statistician

CALIFORNIA AGRICULTURAL STATISTICS SERVICE

P.O. BOX 1258
SACRAMENTO, CA 95812
(916) 498-5177
FAX: (916) 498-5186

GARY NELSON
Agricultural Statistician

DWAINE NELSON
Deputy State Statistician

MARTY LEIGHTON
Agricultural Statistician