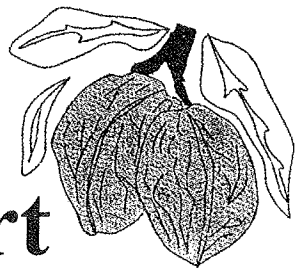
2000 California Walnut Objective Measurement Survey Report



Released: September 1, 2000
12:00 NOON PDT

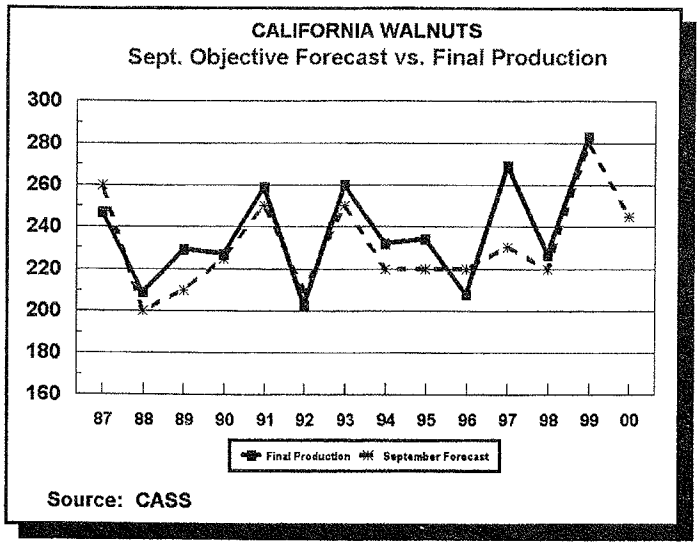
CALIFORNIA AGRICULTURAL STATISTICS SERVICE

WALNUT PRODUCTION FORECAST

The 2000 California walnut production is forecast at 245,000 tons, down 13 percent from 1999's production of 283,000 tons. This forecast is based on the Walnut Objective Measurement Survey. The Objective Measurement Survey was conducted August 1 through August 23, 2000. Hot weather in early August may have lowered quality. Harvest is just beginning in parts of Tulare County.

The 2000 Objective Measurement Survey utilized a total of 663 blocks with two sample trees per block. Survey data indicated an average nut set of 1,483, down 13 percent from 1999's average of 1,709. The Hartley nut set was down 16 percent; Serr, down 10 percent; Franquette, down 33 percent; Chandler, down 21 percent from 1999. Percent of sound kernels in-shell was 96.9 percent Statewide. In-shell weight per nut was 21.2 grams, while the average in-shell suture measurement was 32.2 millimeters. The average length in-shell was 38.2 millimeters.

Estimated nut sets, sizing measurements, average number of trees per acre, and estimated bearing acreage were used in the regression formulas.



Source: CASS

SURVEY HISTORY

The Walnut Objective Measurement Survey began in 1958 to fulfill industry needs for an accurate walnut production forecast prior to harvest. The original sample was chosen proportionally to county and variety of bearing acreage. With each succeeding year, additions and deletions have been made in the sample to adjust for acreage removed, new bearing acreage and refusals.

SAMPLING PROCEDURES

Once a block is randomly selected and permission is granted, two trees are randomly selected. An accessible branch is chosen which is 5 to 15 percent of the total cross-sectional area of the primary limbs and reachable with a twelve-foot ladder. Measurements are made on the trunk, each primary, and each split leading to and including the accessible branch. The sample tree and accessible branch are marked by a single tag.

On the accessible branch, every first of five nuts is picked for use in size and grade determinations. If available, at least ten nuts are harvested from the accessible branch for this purpose.

The following measurements are made on nuts selected for sizing:

1. Weight of nut including hull.
2. Width of shell at suture.
3. Width of shell 90 degrees to suture line (cross-suture).
4. Length of shell.
5. Kernel grade.
6. Weight of nut in-shell.

DATA RELIABILITY

The 80 percent confidence interval is from 224,000 tons to 266,000 tons. This means there is an 80 percent chance the 2000 production will fall within this range.

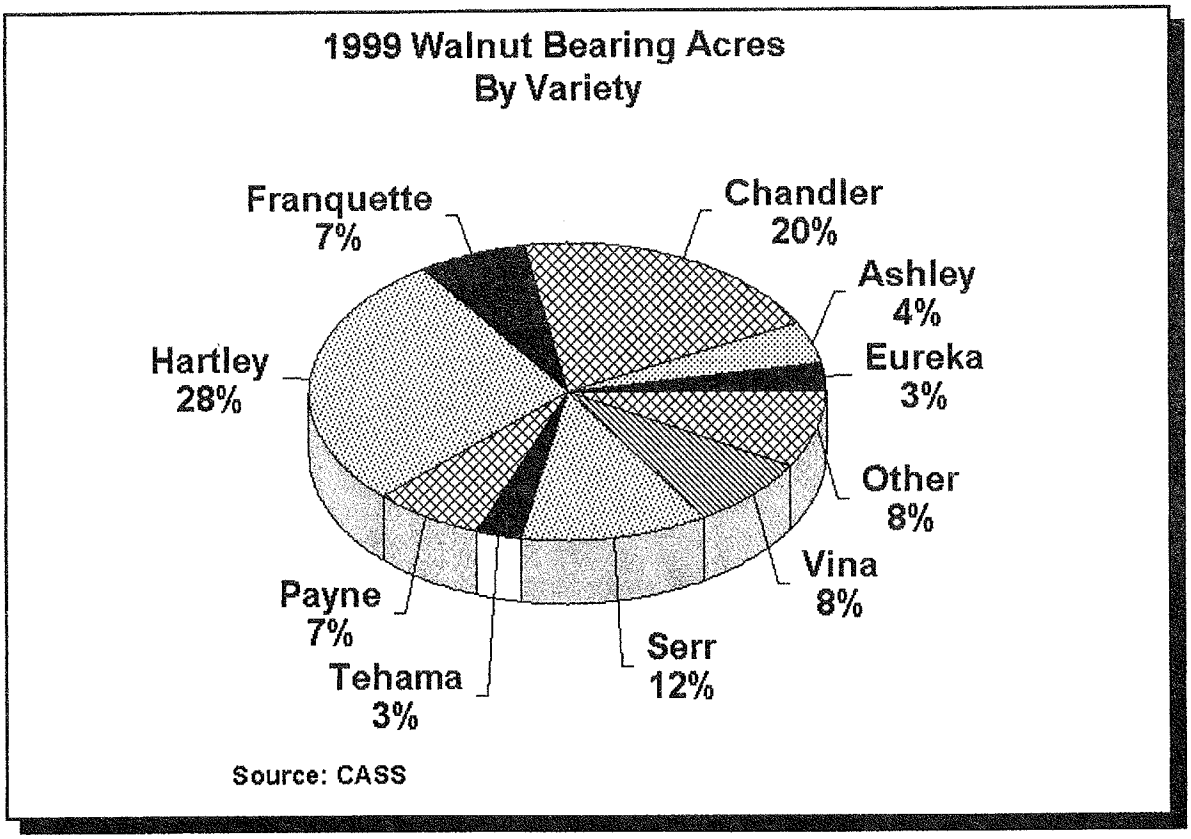
TABLE 1 -- California English Walnut Acreage, Production, Price And Value In-Shell

Year	Bearing Acres a/	Total Production	Per Bearing Acre	Price Per Ton	Total Value
		Tons		Dollars	
1987	176,000	247,000	1.40	984.00	243,048,000
1988	177,000	209,000	1.18	922.00	192,698,000
1989	179,000	229,000	1.28	1,070.00	245,030,000
1990	181,000	227,000	1.25	1,040.00	236,080,000
1991	181,000	259,000	1.43	1,060.00	274,540,000
1992	178,000	203,000	1.14	1,410.00	286,230,000
1993	185,000	260,000	1.41	1,390.00	361,400,000
1994	189,000	232,000	1.23	1,030.00	238,960,000
1995	193,000	234,000	1.21	1,400.00	327,600,000
1996	192,000	208,000	1.08	1,580.00	328,640,000
1997	193,000	269,000	1.39	1,430.00	384,670,000
1998	193,000	227,000	1.18	1,050.00	238,350,000
1999 b/	191,000	283,000	1.48	810.00	229,230,000
2000 c/	193,000	245,000	1.27	---	---

a/ Bearing years include plantings of the following: Chandler, Chico, Howard, Tulare (1995 & Earlier); 50-55, 59-124, 4946, Amigo, Ashley, Bardoni, Cisco, Earhorn, Grove, Gustine, Honeycutt, Houston, Jensen, Lompoc, Marchetti, Nuggett, Payne, Pedro, Serr, Sunland, Tehama, Trinta, UCD 67-13, Vina, Westside (1994 and Earlier); Franquette, Franquette Scharsch, Mayette, Placentia, Poe, Willsons/Willsons Wonder, Woodland (1992 & Earlier); all other varieties not specified (1993 & Earlier).

b/ Price Per Ton and Total Value are July 1, 2000 preliminary data.

c/ Price Per Ton and Total Value preliminary data will be released July 2001.



NOTE: Pie chart percentages are based on the sum of grower acreage reported and do not add to 100 due to rounding.

TABLE 2 -- Walnut Objective Measurement Survey Data, By District

Measurement	Year	Coast 1/	Sacramento Valley 2/	San Joaquin Valley 3/	State 4/
In-Shell Weight (gm)	1989	19.7	22.0	21.4	21.5
	1990	21.3	21.8	21.9	21.8
	1991	20.7	22.1	19.6	20.8
	1992	21.4	23.8	21.6	22.7
	1993	23.5	23.7	21.7	22.9
	1994	20.9	23.6	20.7	22.1
	1995	19.8	21.3	20.3	20.8
	1996	20.0	24.4	19.9	22.1
	1997	20.9	23.7	22.2	22.9
	1998	21.2	22.4	20.3	21.4
	1999	21.0	24.9	19.5	23.0
	2000	19.7	22.4	19.7	21.2
In-Shell Width (mm)	1989	31.2	32.3	32.7	32.3
	1990	31.5	31.9	33.0	32.3
	1991	31.1	31.4	31.7	31.5
	1992	32.1	32.7	32.6	32.6
	1993	32.2	32.4	32.9	32.6
	1994	31.4	32.4	32.2	32.2
	1995	30.6	31.7	32.0	31.7
	1996	31.4	32.5	32.2	32.3
	1997	32.3	33.0	31.1	32.3
	1998	31.4	32.2	31.5	31.9
	1999	31.2	32.6	31.6	32.2
	2000	31.5	32.4	32.1	32.2
In-Shell Cross-Width (mm)	1989	32.0	33.0	32.2	32.6
	1990	31.6	32.3	32.7	32.4
	1991	30.5	31.2	31.2	31.1
	1992	32.5	33.1	32.8	32.9
	1993	32.0	32.3	32.9	32.5
	1994	31.3	32.4	32.3	32.2
	1995	30.2	31.3	31.7	31.3
	1996	31.4	32.6	32.5	32.5
	1997	32.3	33.2	31.9	32.6
	1998	31.2	32.1	31.5	31.8
	1999	31.6	33.3	31.8	32.7
	2000	31.3	33.0	32.6	32.8
In-Shell Length (mm)	1989	38.2	39.1	39.3	39.1
	1990	38.5	38.3	39.5	38.8
	1991	38.9	39.0	39.1	39.0
	1992	39.0	39.7	39.5	39.5
	1993	39.9	40.1	39.8	40.0
	1994	38.7	39.7	39.3	39.4
	1995	39.2	39.0	39.5	39.2
	1996	38.4	39.4	38.7	39.0
	1997	38.2	39.4	37.6	38.6
	1998	39.1	40.0	39.0	39.5
	1999	38.3	39.7	38.9	39.4
	2000	37.4	38.2	38.4	38.2
Kernel Grade – Percent Sound	1989	94.4	97.8	96.8	97.0
	1990	96.1	97.1	95.4	96.3
	1991	97.3	96.6	94.1	95.5
	1992	93.6	96.9	97.6	96.9
	1993	93.2	95.2	97.2	95.8
	1994	92.6	94.7	97.5	95.6
	1995	89.2	91.4	96.1	93.1
	1996	92.6	93.8	95.3	94.4
	1997	97.8	97.4	97.3	97.3
	1998	79.9	93.2	98.3	94.4
	1999	96.8	98.2	97.4	97.9
	2000	98.0	96.7	97.0	96.9
Nuts Set Per Tree	1989	1,427	2,182	1,537	1,785
	1990	1,637	2,380	1,835	2,028
	1991	1,955	2,620	2,210	2,340
	1992	1,567	1,902	1,380	1,604
	1993	1,530	2,703	1,596	2,068
	1994	1,813	1,961	1,602	1,773
	1995	1,420	2,253	1,451	1,777
	1996	1,362	1,836	1,497	1,630
	1997	1,128	2,233	1,439	1,753
	1998	1,070	1,654	1,253	1,407
	1999	1,355	2,180	1,250	1,709
	2000	1,195	1,812	1,204	1,483

1/ Coast includes: Contra Costa, Lake, Monterey, Napa, San Benito, San Luis Obispo, Santa Clara, and Sonoma counties.
2/ Sacramento Valley includes: Butte, Colusa, El Dorado, Glenn, Sacramento, Solano, Sutter, Tehama, Yolo, and Yuba counties.
3/ San Joaquin Valley includes: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties.
4/ District and State averages are derived by weighting county averages by county bearing acreage figures.

TABLE 3 -- Walnut Objective Measurement Survey Data, By Variety

Measurement	Year	Ashley	Chandler	Eureka	Franquette	Hartley	Payne	Serr	Tehama	Vina	Other
In-Shell Weight (gm)	1989	19.1	24.8	21.0	20.4	24.7	20.4	19.6	21.5	20.1	20.2
	1990	19.5	23.2	22.1	19.9	23.7	20.5	20.9	19.8	19.4	20.7
	1991	18.7	22.8	20.1	19.2	23.4	18.2	18.7	20.3	18.8	19.9
	1992	19.1	24.9	22.3	20.7	25.5	19.4	21.4	21.8	20.5	19.9
	1993	19.8	23.5	21.7	21.2	25.2	20.8	20.8	20.3	20.2	21.7
	1994	19.3	24.3	20.9	20.3	24.7	19.7	20.0	21.1	19.7	21.0
	1995	18.0	20.7	19.1	18.6	23.1	19.5	18.6	18.7	18.4	19.3
	1996	20.0	23.3	20.6	20.1	24.8	18.1	19.8	21.2	20.1	21.1
	1997	19.8	24.4	23.2	21.1	24.8	20.4	21.3	20.5	20.5	22.2
	1998	19.2	21.9	20.8	20.2	24.0	19.6	19.5	19.5	19.2	19.9
	1999	20.3	24.9	22.1	20.0	24.6	19.0	20.3	19.1	20.7	20.9
	2000	17.5	22.9	21.7	18.3	22.8	18.8	19.3	19.8	19.3	19.9
In-Shell Width (mm)	1989	31.9	33.1	31.2	31.0	33.7	32.1	33.0	32.8	31.3	31.5
	1990	32.3	32.8	31.1	30.7	33.1	33.0	34.2	31.4	30.0	31.4
	1991	31.4	31.9	30.4	30.0	32.4	31.6	32.7	32.0	29.8	30.3
	1992	32.0	33.3	31.6	30.9	33.6	32.3	34.1	33.1	31.3	31.0
	1993	32.3	32.5	30.9	31.3	33.2	33.3	33.6	31.5	30.5	31.6
	1994	31.8	32.7	30.9	30.8	33.2	32.1	33.3	32.4	30.5	30.8
	1995	31.0	31.7	30.6	30.1	32.6	31.9	32.4	31.6	29.7	30.6
	1996	31.7	32.4	31.6	31.1	33.0	32.2	33.0	32.3	30.9	31.2
	1997	31.8	32.3	30.7	30.6	33.3	31.5	33.3	32.0	31.0	30.8
	1998	31.2	31.8	30.2	30.7	33.0	31.4	32.1	31.2	30.6	31.1
	1999	30.7	32.8	30.4	31.0	32.8	31.5	32.6	30.9	30.4	31.2
	2000	31.0	32.8	31.3	30.6	32.8	32.3	33.1	31.1	30.9	31.0
In-Shell Cross-Width (mm)	1989	31.8	33.9	31.0	31.8	34.1	31.8	32.4	32.6	32.2	32.4
	1990	32.3	32.8	31.2	31.1	33.1	32.8	33.4	31.5	31.1	32.3
	1991	30.7	32.3	30.5	30.1	32.1	30.7	30.7	31.0	30.2	30.5
	1992	32.0	34.3	32.4	31.6	33.9	32.1	33.0	33.0	32.6	32.1
	1993	32.2	32.9	31.7	31.4	33.0	33.0	32.7	31.3	30.8	32.1
	1994	31.6	33.2	31.4	31.3	33.0	31.9	32.3	31.9	31.6	31.9
	1995	30.6	31.7	30.5	30.1	32.1	31.3	30.9	30.7	30.1	31.0
	1996	31.7	33.1	32.1	31.5	32.9	32.2	32.1	32.5	32.1	32.3
	1997	31.9	33.0	32.2	31.3	33.2	32.0	33.0	32.1	32.1	32.0
	1998	31.2	30.9	30.5	31.2	32.5	31.4	31.6	30.8	30.8	31.7
	1999	30.8	34.0	31.0	31.2	33.2	31.4	31.9	30.8	31.5	32.0
	2000	31.2	33.9	32.0	30.5	33.2	32.7	32.6	31.6	32.0	32.3
In-Shell Length (mm)	1989	37.3	40.8	42.5	38.4	40.1	37.6	38.1	38.8	39.3	39.3
	1990	36.9	39.7	42.6	37.5	39.7	38.1	38.9	37.1	37.3	38.4
	1991	36.7	39.9	43.3	38.2	39.8	37.2	37.4	36.8	38.6	39.2
	1992	37.2	40.5	42.8	37.9	40.6	38.0	38.8	38.3	39.3	38.7
	1993	37.5	40.2	42.5	39.6	41.1	39.2	37.7	37.0	38.9	39.8
	1994	37.1	40.9	43.0	38.7	40.3	37.9	37.9	38.0	38.6	39.2
	1995	36.8	39.6	41.2	38.8	40.1	38.4	37.5	37.8	38.6	38.6
	1996	37.0	39.4	41.4	38.6	40.0	37.8	37.3	37.6	38.8	39.2
	1997	36.2	39.2	41.0	37.8	39.5	36.6	37.4	37.2	38.1	38.5
	1998	37.2	40.0	40.8	39.6	40.9	38.0	37.7	37.7	38.4	39.6
	1999	36.9	40.4	42.6	38.2	39.6	38.1	38.5	37.3	38.7	39.5
	2000	35.8	39.4	43.0	37.4	38.2	38.2	37.6	36.9	37.3	38.3
Kernel Grade – Percent Sound	1989	97.3	98.3	93.9	97.8	97.5	95.2	97.0	97.2	98.7	96.8
	1990	96.6	99.5	94.2	96.7	97.7	94.5	91.0	98.5	94.1	96.8
	1991	91.0	99.9	87.1	97.2	96.1	94.7	94.2	96.7	98.1	98.5
	1992	94.7	99.2	96.1	96.7	97.2	95.4	96.5	99.1	98.0	96.9
	1993	89.8	99.0	92.5	93.9	97.4	94.0	95.3	94.5	94.9	94.8
	1994	91.3	96.6	95.7	95.7	95.3	96.9	96.9	96.4	94.0	97.3
	1995	91.6	93.6	93.4	89.8	93.8	95.2	95.6	88.7	92.4	93.5
	1996	92.3	95.1	93.4	89.8	95.1	95.4	96.6	92.7	95.8	94.2
	1997	96.2	97.8	94.9	96.6	98.1	96.5	97.0	96.7	97.5	96.6
	1998	94.4	91.4	99.8	89.5	94.4	96.3	97.9	94.3	95.2	95.2
	1999	96.1	98.1	97.1	98.3	98.1	95.0	98.3	96.4	98.2	97.3
	2000	95.6	96.7	93.1	97.8	96.4	97.3	97.7	96.4	98.2	97.3
Nuts Set Per Tree	1989	1,338	2,761	2,051	2,411	1,767	1,543	1,603	1,461	1,645	1,877
	1990	1,399	2,716	2,058	2,706	2,662	1,648	884	1,683	2,216	1,708
	1991	1,372	3,092	3,212	3,116	2,712	2,067	1,553	1,487	2,055	2,161
	1992	1,072	1,645	1,585	2,012	2,008	1,487	915	1,082	1,385	1,626
	1993	1,147	2,099	1,452	2,532	2,742	1,444	1,626	1,653	1,654	1,818
	1994	1,391	1,711	1,905	2,781	1,974	1,540	1,154	1,207	1,619	1,643
	1995	1,392	1,912	1,590	2,348	2,284	1,404	984	1,961	1,260	1,157
	1996	1,353	1,659	1,296	2,356	1,853	1,285	1,417	958	1,355	1,472
	1997	1,406	1,570	1,414	2,162	2,228	1,304	796	1,703	1,894	1,839
	1998	1,221	1,306	1,380	1,512	1,457	1,170	1,622	1,347	1,504	1,290
	1999	1,073	1,540	1,369	2,818	2,241	1,076	989	1,210	1,374	1,536
	2000	1,633	1,212	1,325	1,899	1,878	1,696	886	1,167	1,566	1,379

TABLE 4 -- Percentage Distribution Of Walnut Shell Suture Sizes, By District And Variety

District And Variety	U.S. Standards Size Intervals 1/																											
	1996						1997						1998						1999						2000					
	Mth	Jmb	Lge	Med	Bby	Oth	Mth	Jmb	Lge	Med	Bby	Oth	Mth	Jmb	Lge	Med	Bby	Oth	Mth	Jmb	Lge	Med	Bby	Oth	Mth	Jmb	Lge	Med	Bby	Oth
	---------- Percent of Total 2/ ----------																											
DISTRICTS:																												
Coast	0	47	20	15	17	1	1	62	16	9	12	0	0	46	15	15	21	2	0	39	17	24	17	0	0	49	10	18	20	1
Sacramento Valley	0	65	14	11	9	0	0	73	11	9	6	0	0	62	15	12	10	1	1	65	14	10	8	0	1	58	14	13	11	1
San Joaquin Valley	0	61	18	12	8	0	0	51	14	12	19	4	0	49	19	16	14	1	0	48	19	16	13	3	0	56	19	13	8	0
VARIETIES:																												
Ashley	0	54	17	13	15	1	0	62	15	9	10	4	0	48	19	12	19	1	0	33	23	20	18	2	0	41	21	13	18	2
Chandler	1	67	16	9	7	0	1	67	11	10	10	1	1	53	20	15	11	0	1	66	15	10	5	0	2	64	14	9	7	0
Eureka	0	49	29	12	10	0	0	36	29	12	20	2	1	23	24	19	32	1	0	19	37	24	17	0	0	38	28	18	9	0
Franquette	0	41	25	17	16	1	0	35	19	21	23	1	0	35	20	24	20	1	0	38	20	23	16	0	0	28	21	28	20	1
Hartley	0	74	12	9	5	0	0	79	9	5	5	1	1	73	12	8	5	1	1	70	12	9	7	0	1	68	11	9	8	0
Payne	0	62	16	11	10	1	0	55	13	12	19	2	0	48	18	17	16	1	0	47	20	14	13	1	0	59	21	10	7	0
Serr	1	75	11	7	5	0	1	75	8	8	7	1	0	62	17	12	8	1	0	68	14	9	7	0	0	73	12	8	5	0
Tehama	0	59	22	11	7	0	0	61	15	11	14	0	0	46	21	13	20	1	0	46	15	10	26	0	0	43	22	14	16	1
Vina	0	38	19	22	20	1	0	45	18	18	15	3	0	32	19	25	23	1	0	26	24	24	22	1	0	33	23	26	15	1
Other	1	46	16	18	18	1	1	43	17	15	18	7	0	39	19	17	24	1	1	41	19	17	20	0	1	35	19	20	21	1
STATE	0	62	16	11	9	0	0	64	13	10	11	2	0	55	17	14	13	1	1	58	16	13	10	0	1	57	16	13	10	1
Number of Shells Measured	13,242						13,220						14,231						12,753						12,930					

1/ Sizes used are as follows: Mammoth -- Larger than 96/64" in diameter; Jumbo -- 80/64" to 96/64"; Large -- 76/64" to 80/64" for Eureka variety, 77/64" to 80/64" for all other varieties; Medium -- 73/64" to 76/64" for Eureka, 73/64" to 77/64" for all others; Baby -- 60/64" to 73/64"; and Others -- below 60/64".

2/ Percentage distributions based upon nut samples taken in the field, may not equal 100 percent due to rounding.

The California Walnut Industry has been very supportive. We appreciate your continued cooperation!

CALIFORNIA AGRICULTURAL STATISTICS SERVICE
P.O. BOX 1258
SACRAMENTO, CA 95812-1258
(916) 498-5161
FAX: (916) 498-5186

JIM TIPPETT
State Statistician

DWAINE NELSON
Deputy State Statistician

GARY NELSON -- DOUG FLOHR -- JENNIFER VAN COURT
Agricultural Statisticians -- Estimates Group

California Agricultural Statistics Service publications are available on the Internet at:
http://www.nass.usda.gov/ca

UNITED STATES DEPARTMENT OF AGRICULTURE
CALIFORNIA AGRICULTURAL STATISTICS SERVICE
AGRICULTURAL STATISTICIAN
POST OFFICE BOX 1258
SACRAMENTO, CALIFORNIA 95812

OFFICIAL BUSINESS

ADDRESS SERVICE REQUESTED

CALIFORNIA WALNUT O.M. REPORT
September 1, 2000

PRESORTED
FIRST-CLASS MAIL
POSTAGE & FEES PAID
USDA
PERMIT NO. G-38