

1994 CALIFORNIA WALNUT OBJECTIVE MEASUREMENT SURVEY RESULTS

RELEASED: September 1, 1994
12:00 Noon PDT

CALIFORNIA AGRICULTURAL
STATISTICS SERVICE

WALNUT PRODUCTION FORECAST

The 1994 California walnut production forecast is 220,000 tons, down 15 percent from 1993's record production of 260,000 tons. This is down 15 percent from the July forecast. The July forecast was based on subjective information provided by growers, while the September forecast is based on the Walnut Objective Measurement Survey. The Objective Measurement Survey was conducted July 25 through August 15, 1994.

The 1994 Objective Measurement Survey utilized a total of 619 blocks with two sample trees per block. The survey data indicated an average number of nuts per tree of 1,773, down 14 percent from 1993's average of 2,068. The Hartley nut set was down 28 percent; the Franquette, up 10 percent; and the Serr, down 29 percent. The percent of sound kernels in-shell was 95.6 percent Statewide. The in-shell weight per nut was 22.1 grams, while the average in-shell suture measurement was 32.2 millimeters. The average length in-shell was 39.4 millimeters.

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

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 five to fifteen 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.

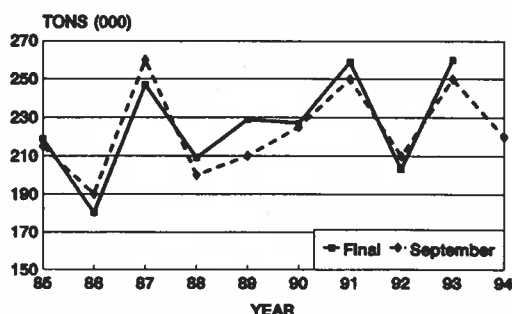
The following measurements are made on nuts selected for sizing:

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.

ACREAGE

Estimated bearing acreage for 1994 is 175,000 acres. The acreage table 2 is a county summary of the data published in the 1993 California Walnut Acreage Survey release.

CALIFORNIA WALNUTS September Forecast vs. Final Production



California Agricultural Statistics Service (CASS)

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

Year	Bearing Acres <u>a/</u>	Total Production	Per Bearing Acre	Price Per Ton	Total Value
		<u>Tons</u>	<u>Tons</u>	<u>Dollars</u>	<u>Dollars</u>
1985	179,000	219,000	1.22	798.00	174,762,000
1986	180,000	180,000	1.00	1,080.00	194,400,000
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	175,000	260,000	1.49	1,400.00 <u>b/</u>	364,000,000 <u>b/</u>
1994	175,000	220,000	1.26	7/95	7/95

a/ Eight years and older for the Blackmer, Carmelo, Concord, Franquette, Grove, Mayette, Placentia, Poe, and Pride of Ventura varieties, 6 years and older for the Amigo, Ashley, Chandler, Gustine, Howard, Lompoc, Midland, Payne, Pedro, Serr, Sunland, Tehama, Trinta, Vina, Westside, and 4946 varieties, 5 years and older for the Chico and Marchetti varieties, and 7 years and older for all other varieties.

b/ Preliminary figures as of July 1, 1994.

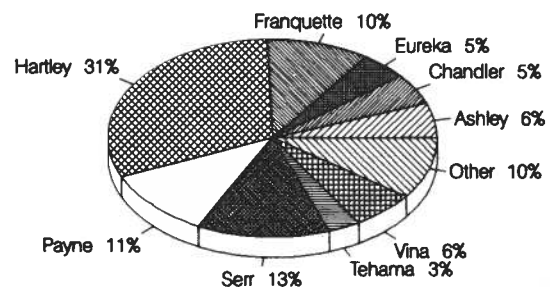
TABLE 2 -- Walnut Acreage By County As Of 1993

County	Bearing	Non-Bearing	Total
Alameda	228	0	228
Amador	583	0	583
Butte	15,651	1,454	17,105
Calaveras	738	45	783
Colusa	4,539	158	4,697
Contra Costa	1,296	146	1,442
El Dorado	278	0	278
Fresno	2,662	444	3,106
Glenn	5,407	655	6,062
Kern	1,610	32	1,642
Kings	5,382	478	5,860
Lake	7,344	94	7,438
Madera	930	31	961
Mendocino	133	0	133
Merced	6,420	699	7,119
Monterey	264	58	322
Napa	306	2	308
Placer	1,069	0	1,069
Sacramento	127	0	127
San Benito	3,903	81	3,984
San Joaquin	27,389	2,533	29,922
San Luis Obispo	2,703	353	3,056
Santa Barbara	817	0	817
Santa Clara	713	38	751
Shasta	1,324	4	1,328
Solano	3,169	885	4,054
Sonoma	302	7	309
Stanislaus	19,135	2,034	21,169
Sutter	13,474	1,536	15,010
Tehama	10,771	809	11,580
Tulare	23,009	1,472	24,481
Ventura	284	0	284
Yolo	7,564	535	8,099
Yuba	5,187	788	5,975
Other Counties	122	0	122
TOTAL	174,833	15,371	190,204

TABLE 3 -- Walnut Acreage By Variety As Of 1993

County	Bearing	Non-Bearing	Total
Ashley	9,999	60	10,059
Chandler	8,737	7,001	15,738
Eureka	8,280	203	8,483
Franquette	17,460	470	17,930
Hartley	54,209	4,333	58,542
Payne	19,588	302	19,890
Serr	22,397	303	22,700
Tehama	5,542	37	5,579
Vina	11,262	1,340	12,602
All Others	17,359	1,322	18,681
TOTAL	174,833	15,371	190,204

**1993 WALNUT BEARING ACRES
By Variety**



Source: CA Ag. Statistics Service

TABLE 4 -- Walnut Objective Measurement Survey Data, By District

Measurement	Coast <u>b/</u>	Sacramento Valley <u>c/</u>	San Joaquin Valley <u>d/</u>	State <u>a/</u>
In-Shell Weight (gm)				
1985	20.2	21.1	20.6	20.7
1986	22.9	23.7	19.9	22.1
1987	20.7	22.5	20.9	21.5
1988	20.6	22.0	20.5	21.2
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
In-Shell Width (mm)				
1985	31.5	32.0	32.1	32.0
1986	32.8	33.3	32.3	32.9
1987	31.9	33.0	32.6	32.7
1988	31.7	32.6	32.6	32.5
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
In-Shell Cross-Width (mm)				
1985	31.9	32.5	32.3	32.4
1986	32.7	33.5	32.3	33.0
1987	32.2	33.8	32.9	33.2
1988	32.3	32.9	32.4	32.7
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
In-Shell Length (mm)				
1985	38.9	39.4	39.6	39.4
1986	40.4	40.6	39.2	40.0
1987	38.9	40.2	39.5	39.7
1988	39.0	39.4	38.9	39.1
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
Kernel Grade-Percent Sound				
1985	97.2	97.3	94.1	95.8
1986	97.2	98.0	91.3	95.3
1987	99.1	97.9	96.6	97.3
1988	88.7	97.8	95.9	96.2
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
Nuts Set Per Tree				
1985	1,512	2,457	1,982	2,099
1986	1,579	2,008	1,321	1,613
1987	1,883	2,696	2,143	2,320
1988	1,359	2,390	1,837	2,008
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

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

TABLE 5 -- Walnut Objective Measurement Survey Data, By Variety

Measurement	Ashley	Chandler	Eureka	Franquette	Hartley	Payne	Serr	Tehama	Vina	Other
In-Shell Weight (gm)										
1985	19.8	N/A	21.0	17.6	23.5	20.1	20.9	20.5	18.3	20.3
1986	20.4	N/A	18.4	21.0	24.7	18.5	19.9	21.4	20.5	21.4
1987	20.3	N/A	23.1	19.7	23.7	19.3	20.5	22.1	18.8	22.1
1988	18.7	N/A	21.9	19.7	23.4	19.3	20.9	19.0	19.5	21.3
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
In-Shell Width (mm)										
1985	32.5	N/A	31.2	29.7	33.3	32.5	34.1	32.8	30.3	31.3
1986	32.7	N/A	30.4	31.7	34.0	31.9	33.4	33.7	31.6	32.5
1987	32.6	N/A	32.4	31.1	33.6	32.5	34.2	33.8	30.9	32.6
1988	32.0	N/A	31.4	30.9	33.5	32.4	34.1	31.8	31.2	32.2
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
In-Shell Cross-Width (mm)										
1985	32.5	N/A	31.7	30.5	33.5	32.4	33.4	32.6	31.1	32.3
1986	32.7	N/A	30.7	32.0	34.0	31.7	32.8	33.0	32.0	32.7
1987	33.2	N/A	32.7	32.0	34.0	32.7	33.4	34.1	32.7	33.5
1988	32.1	N/A	32.1	31.4	33.4	32.5	33.5	31.6	32.1	32.9
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
In-Shell Length (mm)										
1985	38.4	N/A	43.3	37.3	40.2	38.3	39.8	38.7	38.0	39.8
1986	39.1	N/A	40.7	39.8	40.8	38.4	39.3	38.7	40.2	39.8
1987	38.7	N/A	44.0	38.2	40.3	38.1	39.5	39.4	39.2	41.4
1988	37.3	N/A	43.0	38.6	39.6	37.6	39.1	37.5	39.1	40.5
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
Kernel Grade-Percent Sound										
1985	96.7	N/A	89.0	97.4	96.3	95.2	96.7	96.2	98.3	97.2
1986	95.9	N/A	79.8	96.0	97.0	90.6	96.3	96.8	98.9	96.0
1987	95.1	N/A	98.1	98.1	97.4	96.2	96.7	98.5	97.8	97.6
1988	94.3	N/A	97.9	95.1	98.1	93.2	94.9	95.0	97.6	97.1
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
Nuts Set Per Tree										
1985	1,460	N/A	2,721	2,728	2,135	1,863	1,354	1,997	2,239	2,530
1986	808	N/A	1,076	2,474	2,220	1,062	846	1,290	1,430	1,478
1987	2,029	N/A	2,633	3,267	2,595	1,853	1,204	2,031	2,561	2,424
1988	1,599	N/A	1,789	2,482	2,414	1,885	1,084	2,224	2,006	1,799
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

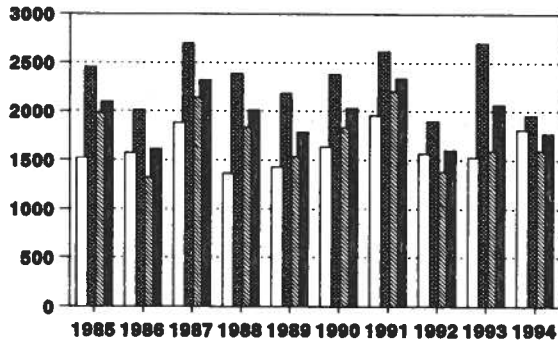
TABLE 6 -- Percentage Distribution Of Walnut Shell Suture Sizes, By District And Variety

District And Variety	U.S. Standards Size Intervals a/																														
	1990					1991					1992					1993					1994										
	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 b/ -----																														
DISTRICTS:																															
	Coast	1	48	15	19	17	1	0	42	14	20	23	1	0	58	13	15	11	2	4	49	18	16	12	1	1	47	16	15	19	1
	Sacramento Valley	2	55	12	17	13	1	0	48	17	19	15	1	1	65	13	12	8	0	1	65	13	11	10	1	0	64	12	12	10	1
San Joaquin Valley	2	71	12	8	5	1	0	51	21	16	11	0	1	64	15	12	8	0	1	72	12	10	6	0	0	60	18	13	9	0	
VARIETIES:	Ashley	1	65	10	14	10	1	0	47	20	18	14	0	0	58	14	15	13	0	0	63	16	12	9	0	0	54	18	16	12	0
	Chandler	3	66	11	19	1	0	0	56	24	14	5	0	1	75	13	6	4	0	0	64	17	11	7	0	0	69	17	9	5	0
	Eureka	0	47	28	15	7	1	0	21	36	24	18	1	1	50	29	12	9	0	0	39	28	15	18	0	0	28	38	20	13	0
	Franquette	0	36	17	24	22	2	0	23	20	27	29	1	0	36	21	25	17	1	0	46	17	21	14	2	0	39	21	18	21	1
	Hartley	2	73	10	9	6	0	0	66	15	12	7	0	1	79	10	6	4	0	1	77	10	7	5	0	0	78	10	7	4	0
	Payne	1	72	12	9	5	1	0	49	21	17	11	1	1	59	15	15	10	0	4	70	12	8	7	0	1	56	17	15	9	1
	Serr	5	79	8	5	3	0	1	65	16	12	4	1	2	83	7	6	2	0	2	79	7	8	4	0	1	78	9	7	5	0
	Tehama	0	46	13	25	14	0	0	61	16	14	10	0	1	75	11	8	6	0	0	51	20	16	13	1	0	66	12	11	10	0
	Vina	0	37	13	24	17	4	0	20	17	30	31	1	0	46	20	18	15	1	0	36	17	19	24	3	0	30	22	26	21	1
	Other	1	45	17	21	15	1	0	30	17	26	26	1	1	36	18	26	19	1	0	50	17	18	14	1	0	38	15	24	21	1
	STATE	1	62	12	13	10	1	0	48	19	18	14	1	1	64	14	13	9	0	1	66	13	11	9	1	0	60	15	13	10	1
	Number of Shells Measured		11,986						11,611						11,563						11,605						12,215				

a/ 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".

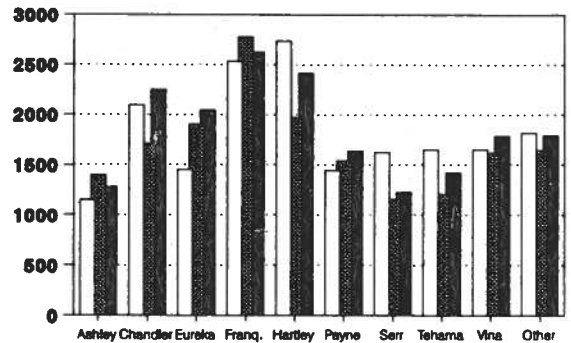
b/ Percentage distributions based upon nut samples taken in the field, may not equal 100 percent due to rounding.

Walnut Objective Measurement Survey Nuts Set per Tree, By District



Coast Sacramento Valley San Joaquin State
SOURCE: CA Ag. Statistics Service

Walnut Objective Measurement Survey Nuts per Tree, By Variety



Nut Set 1993 Nut Set 1994 Five Year Average
Source: CA Ag. Statistics Service

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

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