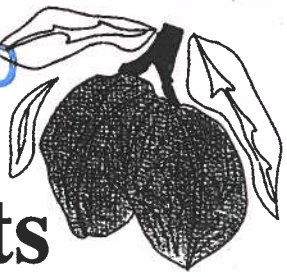
1996 California Walnut Objective Measurement Survey Results



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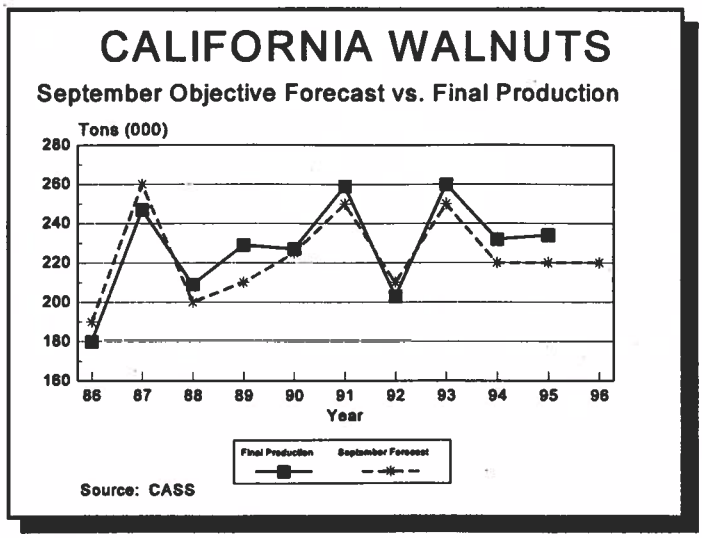
CALIFORNIA AGRICULTURAL STATISTICS SERVICE

WALNUT PRODUCTION FORECAST

The 1996 California walnut production forecast is 220,000 tons, down 6 percent from 1995's production of 234,000 tons. This is down 6 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 (OM) Survey. The objective measurement survey was conducted July 22 through August 18, 1996. Heavy drop was reported as a result of last winter's low chilling hours and the rain received during May. Temperatures were very high from late July through mid-August, and there have been reports of heavy sunburn damage. The OM samples do not show abnormal sunburn damage, but some damage may have occurred after the samples were taken.

The 1996 objective measurement survey utilized a total of 678 blocks with two sample trees per block. Survey data indicated an average nut set of 1,630, down 8 percent from 1995's average of 1,777. The Hartley nut set was down 19 percent; Serr, up 44 percent; and Franquette, virtually unchanged from 1995. Percent of sound kernels in-shell was 94.4 percent Statewide. In-shell weight per nut was 22.1 grams, while the average in-shell suture measurement was 32.3 millimeters. The average length in-shell was 39.0 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 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.

ACREAGE

Estimated bearing acreage for 1996 is 169,000 acres. The acreage table 2 is a county summary of the data published in the "1995 California Walnut Acreage Survey" release.

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 - -	
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	176,000	260,000	1.48	1,390.00	361,400,000
1994	171,000	232,000	1.36	1,000.00	232,000,000
1995 b/	169,000	234,000	1.38	1,340.00	313,560,000
1996	169,000	220,000	1.30	7/97	7/97

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/ Price Per Ton and Total Value are July 1, 1996 preliminary figures.

TABLE 2 -- Walnut Acreage By County As Of 1995

County	Bearing	Non-Bearing	Total
Alameda	150	1	151
Amador	457	50	507
Butte	15,609	2,250	17,859
Calaveras	867	53	920
Colusa	4,386	255	4,641
Contra Costa	1,066	83	1,149
El Dorado	264	0	264
Fresno	3,019	552	3,571
Glenn	5,530	1,419	6,949
Kern	1,505	44	1,549
Kings	5,091	1,406	6,497
Lake	6,511	148	6,659
Madera	885	178	1,063
Mendocino	84	2	86
Merced	5,256	1,311	6,567
Monterey	332	45	377
Napa	223	2	225
Placer	1,434	0	1,434
Sacramento	114	2	116
San Benito	3,316	177	3,493
San Joaquin	25,982	4,389	30,371
San Luis Obispo	2,736	249	2,985
Santa Barbara	723	30	753
Santa Clara	534	47	581
Shasta	1,260	38	1,298
Solano	3,381	1,323	4,704
Sonoma	238	2	240
Stanislaus	18,077	3,642	21,719
Sutter	13,111	2,431	15,542
Tehama	10,648	1,214	11,862
Tulare	21,224	2,998	24,222
Ventura	282	0	282
Yolo	7,600	1,475	9,171

TABLE 3 -- Walnut Acreage By Variety As Of 1995

County	Bearing	Non-Bearing	Total
Ashley	9,306	82	9,388
Chandler	13,212	15,257	28,469
Eureka	7,031	209	7,240
Franquette	14,521	616	15,137
Hartley	52,749	4,062	56,811
Payne	15,863	775	16,638
Serr	22,424	976	23,400
Tehama	5,611	107	5,718
Vina	11,909	1,997	13,906
All Others	15,917	2,484	18,401
TOTAL	168,543	26,565	195,108

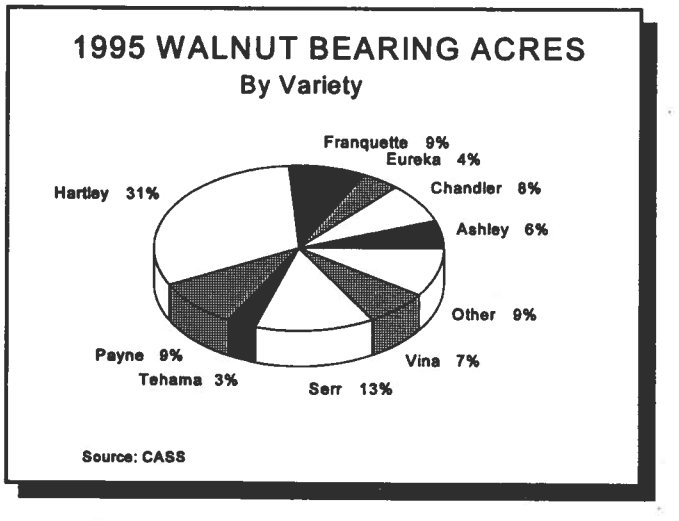


TABLE 4 -- Walnut Objective Measurement Survey Data, By District

Measurement	Year	Coast 1/	Sacramento Valley 2/	San Joaquin Valley 3/	State 4/
In-Shell Weight (gm)	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
	1995	19.8	21.3	20.3	20.8
	1996	20.0	24.4	19.9	22.1
In-Shell Width (mm)	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
	1995	30.6	31.7	32.0	31.7
	1996	31.4	32.5	32.2	32.3
In-Shell Cross-Width (mm)	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
	1995	30.2	31.3	31.7	31.3
	1996	31.4	32.6	32.5	32.5
In-Shell Length (mm)	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
	1995	39.2	39.0	39.5	39.2
	1996	38.4	39.4	38.7	39.0
Kernel Grade -- Percent Sound	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
	1995	89.2	91.4	96.1	93.1
	1996	92.6	93.8	95.3	94.4
Nuts Set Per Tree	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
	1995	1,420	2,253	1,451	1,777
	1996	1,362	1,836	1,497	1,630

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 5 -- Walnut Objective Measurement Survey Data, By Variety

Measurement	Year	Ashley	Chandler	Eureka	Franquette	Hartley	Payne	Serr	Tehama	Vina	Other
In-Shell Weight (gm)	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
	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
In-Shell Width (mm)	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
	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
In-Shell Cross-Width (mm)	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
	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
In-Shell Length (mm)	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
	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
Kernel Grade -- Percent Sound	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
	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
Nuts Set Per Tree	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
	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

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

District And Variety	U.S. Standards Size Intervals 1/																											
	1992						1993						1994						1995						1996					
	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	58	13	15	11	2	4	49	18	16	12	1	1	47	16	15	19	1	0	36	16	20	26	1	0	47	20	15	17	1
Sacramento Valley	1	65	13	12	8	0	1	65	13	11	10	1	0	64	12	12	10	1	0	53	16	14	15	1	0	65	14	11	9	0
San Joaquin Valley	1	64	15	12	8	0	1	72	12	10	6	0	0	60	18	13	9	0	0	59	17	13	10	1	0	61	18	12	8	0
VARIETIES:																												
Ashley	0	58	14	15	13	0	0	63	16	12	9	0	0	54	18	16	12	0	0	42	22	18	18	1	0	54	17	13	15	1
Chandler	1	75	13	6	4	0	0	64	17	11	7	0	0	69	17	9	5	0	1	52	19	19	10	0	1	67	16	9	7	0
Eureka	1	50	29	12	9	0	0	39	28	15	18	0	0	28	38	20	13	0	0	29	30	22	17	1	0	49	29	12	10	0
Franquette	0	36	21	25	17	1	0	46	17	21	14	2	0	39	21	18	21	1	0	24	21	24	28	2	0	41	25	17	16	1
Hartley	1	79	10	6	4	0	1	77	10	7	5	0	0	78	10	7	4	0	0	69	13	9	8	0	0	74	12	9	5	0
Payne	1	59	15	15	10	0	4	70	12	8	7	0	1	56	17	15	9	1	0	59	15	15	11	1	0	62	16	11	10	1
Serr	2	83	7	6	2	0	2	79	7	8	4	0	1	78	9	7	5	0	0	66	16	10	6	1	1	75	11	7	5	0
Tehama	1	75	11	8	6	0	0	51	20	16	13	1	0	66	12	11	10	0	1	53	15	15	16	1	0	59	22	11	7	0
Vina	0	46	20	18	15	1	0	36	17	19	24	3	0	30	22	26	21	1	1	25	16	22	31	5	0	38	19	22	20	1
Other	1	36	18	26	19	1	0	50	17	18	14	1	0	38	15	24	21	1	0	40	14	18	27	1	1	46	16	18	18	1
STATE	1	64	14	13	9	0	1	66	13	11	9	1	0	60	15	13	10	1	0	54	16	14	14	1	0	62	16	11	9	0
Number of Shells Measured	11,563						11,605						12,215						12,558						13,242					

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!

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Agricultural Statistician

JENNIFER VAN COURT
Agricultural Statistician

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

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