

1987

PERMANENT
RECORD FILE

*Walnut Objective
Measurement Survey*



September 4, 1987

California Agricultural Statistics Service

P.O. Box 1258 Sacramento, CA 95806

1987 CALIFORNIA WALNUT ESTIMATE

The September 1 California walnut production is estimated at 260,000 tons. This is a 44 percent increase from the 1986 crop of 180,000 tons. The 260,000 ton estimate is up from the July and August estimate of 230,000 tons. The July and August estimates are based on subjective information provided by growers. The September 1 estimate is based on the Objective Measurement Survey along with subjective grower information.

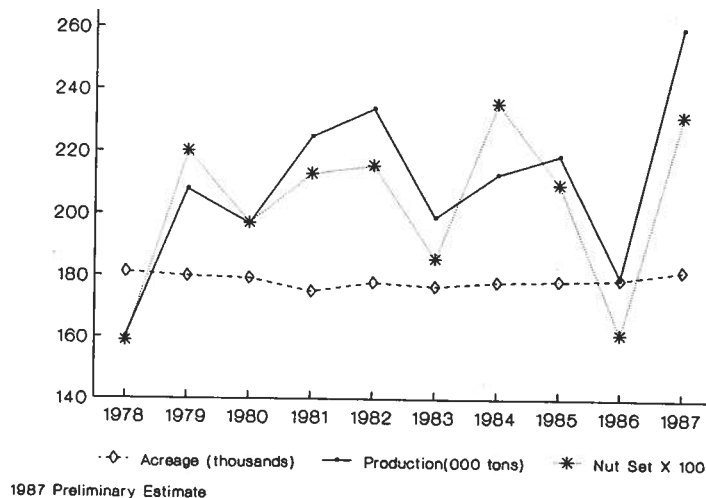
The average nut set was 2,320 nuts per tree, up 44 percent from the 1986 set of 1,613. This year's set was the second highest in the history of the Survey. The percent of sound kernels was 97.3. This is slightly higher than previous years. The in-shell weight per nut was 21.5 grams while the in-shell suture measurement was 32.7 millimeters. These measurements are about average when compared to the last several years.

Estimated nut sets, sizing measurements, average number of trees per acre, and estimated bearing acreage were used in regression formulas utilizing the years 1978-86.

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 bearing acreage. With each succeeding year, additions and deletions have been made in the sample to adjust for acreage removed, new acreage beginning to bear, and refusals.

Acreage And Production



SAMPLING PROCEDURES

Once a block is randomly selected and permission is granted, two trees are randomly selected. An accessible branch is selected which is five to fifteen percent of the total cross-sectional area of the primaries 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 each accessible branch, every fifth nut is picked for use in size and grade determinations. If available, at least ten nuts are harvested from each accessible branch for this purpose.

The following measurements are made on nuts selected for sizing:

1. Width of hull at widest point.
2. Width of hull 90 degrees to widest point (cross-width).
3. Length of hull.
4. Grade in-hull.
5. Weight of nut including hull.
6. Width of shell at suture.
7. Width of shell 90 degrees to suture line (cross-suture).
8. Length of shell.
9. Kernel Grade.
10. Weight of nut.

ACREAGE

The acreage tables (Tables 2 and 7) are the same that appear in the 1986 California Fruit and Nut Acreage publication. These acreage figures are preliminary and may be revised in the 1987 Fruit and Nut Acreage publication to be released in June of 1988.

Jim Tippet
State Statistician

Dave Kleweno
Agricultural Statistician

Holly Hoegh
Mathematical Statistician

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

Year	Bearing Acres a/	Total Production		Per Bearing Acre	Price Per Short Ton	Total Value
		Metric Tons	Short Tons			000 Dollars
1980	179,900	179,000	197,000	1.10	936.00	184,392
1981	175,100	204,000	225,000	1.28	1,014.00	228,150
1982	178,000	212,000	234,000	1.31	1,020.00	238,680
1983	175,700	181,000	199,000	1.13	631.00	125,569
1984	178,200	193,000	213,000	1.20	730.00	155,490
1985	178,600	199,000	219,000	1.23	798.00	174,762
1986	179,300	163,000	180,000	1.00	1,080.00 b/	194,400 b/
1987	182,100	236,000	260,000	1.43		

a/ Eight years and older for the Franquette variety, 6 years and older for Payne variety, and 7 years and older for all other varieties.

b/ Preliminary figures as of July 1, 1987.

TABLE 2 — Walnut Acreage by County as of 1986

County	Bearing	Non-Bearing	Total	County	Bearing	Non-Bearing	Total
Alameda	409	9	418	Placer	472	304	776
Amador	663	4	667	Sacramento	205	0	205
Butte	13,595	1,880	15,475	San Benito	3,947	215	4,162
Calaveras	766	2	768	San Joaquin	24,813	3,019	27,832
Colusa	4,543	19	4,562	San Luis Obispo	2,541	287	2,828
Contra Costa	2,621	308	2,929	Santa Barbara	803	227	1,030
El Dorado	383	1	384	Santa Clara	1,637	12	1,649
Fresno	3,071	321	3,392	Shasta	1,495	51	1,546
Glenn	5,745	809	6,554	Solano	2,522	948	3,470
Kern	1,311	536	1,847	Sonoma	499	8	507
Kings	4,651	5	4,656	Stanislaus	23,046	1,895	24,941
Lake	8,789	124	8,913	Sutter	13,089	1,171	14,260
Los Angeles	291	0	291	Tehama	10,484	850	11,334
Madera	1,521	301	1,822	Tulare	24,284	1,401	25,685
Mendocino	238	0	238	Ventura	709	0	709
Merced	7,982	719	8,701	Yolo	6,256	1,073	7,329
Monterey	287	0	287	Yuba	4,656	524	5,180
Napa	720	0	720	Other	229	23	252
				TOTAL	179,273	17,046	196,319

TABLE 3 — Total Nut Set per tree, by District a/

Year	Average Set Per Tree			
	Coast b/	Sacramento Valley c/	San Joaquin Valley d/	State a/
1980	1,214	2,271	1,917	1,972
1981	1,124	2,424	2,244	2,132
1982	1,419	2,674	2,047	2,158
1983	1,178	2,151	1,741	1,787
1984	1,795	2,850	2,114	2,357
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

See Page 4, Table 4 for footnotes.

TABLE 4 — Survey Averages for In-Shell Measurements, by Districts

	Measurement	District Averages e/			
		Coast b/	Sacramento Valley c/	San Joaquin Valley d/	State a/
AUGUST	In-Shell Weight (gm)				
	1981	20.3	23.1	21.2	21.7
	1982	21.9	23.2	22.2	22.4
	1983	23.3	21.9	22.0	22.1
	1984	20.5	21.2	21.1	21.1
	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
OBSJECTIVE	In-Shell Suture (mm)				
	1981	32.0	32.8	32.5	32.5
	1982	32.8	33.3	33.6	33.4
	1983	32.6	32.2	32.1	32.2
	1984	31.7	32.2	32.4	32.2
	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
MEASUREMENT	In-Shell Cross Suture (mm)				
	1981	30.9	32.1	31.6	31.6
	1982	31.6	32.2	32.4	32.2
	1983	32.6	32.0	31.7	31.9
	1984	32.1	32.4	32.2	32.3
	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
SURVEY	In-Shell Length (mm)				
	1981	39.1	40.2	40.0	39.9
	1982	39.9	39.6	40.4	40.0
	1983	41.1	39.1	39.6	39.7
	1984	40.0	39.3	39.3	39.2
	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
SURVEY	Kernel Grade				
	Percent Sound				
	1981	94.2	95.9	93.9	94.6
	1982	92.5	97.3	96.8	96.3
	1983	92.4	97.6	93.5	94.6
	1984	91.4	98.3	94.4	95.9
	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

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, 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.

e/ 1984, 1985, 1986, and 1987 measurements are weighted by nuts set by tree.

TABLE 5 — Average Survey Measurements by Variety e/

	Measurement	Ashley	Eureka	Franquette	Hartley	Mayette
AUGUST OBJECTIVE MEASUREMENT SURVEY	In-Shell Weight (gm)					
	1981	19.5	21.2	20.3	24.8	21.4
	1982	21.0	23.6	20.8	24.6	21.3
	1983	18.7	19.8	22.4	25.5	23.3
	1984	17.5	21.1	20.2	24.2	20.6
	1985	19.8	21.0	17.6	23.5	19.4
	1986	20.4	18.4	21.0	24.7	22.3
	1987	20.3	23.1	19.7	23.7	19.6
	In-Shell Width (mm)					
	1981	31.7	31.2	31.6	33.5	33.0
	1982	32.6	32.8	32.6	34.2	33.0
	1983	31.2	30.5	31.7	33.5	32.3
	1984	31.2	31.2	31.4	33.5	31.1
	1985	32.5	31.2	29.7	33.3	30.1
	1986	32.7	30.4	31.7	34.0	32.1
	1987	32.6	32.4	31.1	33.6	30.3
	In-Shell Cross-Width (mm)					
	1981	30.9	30.7	30.6	32.7	31.3
	1982	31.5	31.5	31.4	33.2	31.0
	1983	30.9	30.6	31.5	33.3	34.0
	1984	31.2	31.9	31.5	33.3	32.4
	1985	32.5	31.7	30.5	33.5	32.0
	1986	32.7	30.7	32.0	34.0	33.5
	1987	33.2	32.7	32.0	34.0	32.5
	In-Shell Length (mm)					
	1981	38.2	43.6	38.6	41.2	37.9
	1982	38.2	43.7	39.3	40.7	38.0
	1983	37.1	41.4	39.9	41.1	39.0
	1984	36.5	42.5	38.8	40.5	37.2
	1985	38.4	43.3	37.3	40.2	37.1
	1986	39.1	40.7	39.8	40.8	39.1
	1987	38.7	44.0	38.2	40.3	36.5
	Kernel Grade					
	Percent Sound					
	1981	95.9	93.9	94.9	96.6	90.0
	1982	95.9	92.9	94.5	98.5	92.9
	1983	95.6	88.5	95.4	98.3	95.4
	1984	95.0	93.4	95.7	98.1	97.6
	1985	96.7	89.0	97.4	96.3	96.5
	1986	95.9	79.8	96.0	97.0	97.3
	1987	95.1	98.1	98.1	97.4	99.2
	Nuts Set Per Tree					
	1981	1,321	1,321	2,737	2,579	2,930
	1982	1,585	1,986	3,249	2,466	3,870
	1983	1,636	2,057	2,227	2,131	2,276
	1984	2,063	2,297	3,406	2,497	3,402
	1985	1,460	2,721	2,728	2,135	1,950
	1986	808	1,076	2,474	2,220	2,082
	1987	2,029	2,633	3,267	2,595	2,826

TABLE 5 -- Average Survey Measurements by Variety e/ (continued)

	Measurement	Payne	Serr	Tehama	Vina	Other
A U G U S T O B J E C T I V E M E A S U R E M E N T S U R V E Y	In-Shell Weight (gm)					
	1981	19.1	22.5	21.3	19.0	22.2
	1982	21.0	23.5	22.6	21.8	21.0
	1983	20.5	20.5	21.8	20.2	21.4
	1984	18.8	21.5	20.4	18.2	20.4
	1985	20.1	20.9	20.5	18.3	20.3
	1986	18.5	19.9	21.4	20.5	21.4
	1987	19.3	20.5	22.1	18.8	22.1
	In-Shell Width (mm)					
	1981	31.9	34.0	32.9	31.5	33.2
	1982	32.8	34.9	34.1	33.0	33.0
	1983	31.8	32.5	33.0	30.8	31.6
	1984	32.1	34.2	32.8	30.5	31.6
	1985	32.5	34.1	32.8	30.3	31.3
	1986	31.9	33.4	33.7	31.6	32.5
	1987	32.5	34.2	33.8	30.9	32.6
	In-Shell Cross-Width (mm)					
	1981	31.0	32.7	32.0	30.9	31.9
	1982	31.7	33.7	32.9	31.5	31.3
	1983	31.5	31.2	32.3	30.7	31.1
	1984	32.0	33.2	32.6	31.2	32.3
	1985	32.4	33.4	32.6	31.1	32.3
	1986	31.7	32.8	33.0	32.0	32.7
	1987	32.7	33.4	34.1	32.7	33.5
	In-Shell Length (mm)					
	1981	38.2	40.4	38.9	40.0	40.2
	1982	38.6	41.0	39.1	41.2	39.7
	1983	38.3	38.2	38.8	39.4	39.3
	1984	37.7	39.0	37.7	38.6	39.9
	1985	38.3	39.8	38.7	38.0	39.8
	1986	38.4	39.3	38.7	40.2	39.8
	1987	38.1	39.5	39.4	39.2	41.4
	Kernel Grade					
	Percent Sound					
	1981	94.7	93.5	92.6	96.5	89.4
	1982	96.5	97.7	97.6	96.7	95.2
	1983	91.3	95.2	94.8	99.3	93.5
	1984	92.8	95.8	97.4	99.1	96.0
	1985	95.2	96.7	96.2	98.3	97.2
	1986	90.6	96.3	96.8	98.9	96.0
	1987	96.2	96.7	98.5	97.8	97.6
	Nuts Set Per Tree					
	1981	1,956	1,251	1,697	2,339	1,999
	1982	2,230	1,002	1,229	2,289	1,898
	1983	1,574	1,148	1,502	2,103	1,702
	1984	2,335	857	2,282	2,281	2,287
	1985	1,863	1,354	1,997	2,239	2,530
	1986	1,062	846	1,290	1,430	1,478
	1987	1,853	1,204	2,031	2,561	2,424

See page 4, Table 4 for footnotes.

1987 CALIFORNIA WALNUT SURVEY

TABLE 6 — Percentage Distribution of Walnut Shell Suture Sizes, by District and Variety

District & Variety	U.S. Standards Size Intervals a/											
	1983				1984				1985			
	Mth	Jmb	Lge	Med	Bby	Oth	Mth	Jmb	Lge	Med	Bby	Oth
	Percent of Total b/											
DISTRICTS:												
Coast	1	70	12	9	8	0	2	47	18	20	13	0
							1	47	19	20	13	1
							3	66	14	9	8	0
							0	55	19	17	8	0
Sacramento Valley	0	61	15	14	10	0	0	62	14	14	10	1
							1	57	16	14	12	1
							2	71	12	9	6	0
							0	70	13	10	6	0
San Joaquin Valley	1	58	17	13	10	1	1	61	19	13	7	0
							1	57	17	14	10	0
							1	60	15	12	11	1
							1	65	17	11	6	0
VARIETIES:												
Ashley	0	44	18	21	17	0	0	49	14	18	17	2
							0	63	16	12	9	0
							0	69	11	14	5	1
							0	63	12	16	8	0
Eureka	0	27	33	18	20	1	1	38	35	16	8	0
							0	40	35	16	9	0
							0	32	23	18	25	2
							1	65	25	6	1	0
Franquette	0	52	19	18	11	0	0	46	19	23	10	0
							0	18	16	31	32	0
							1	50	22	14	12	1
							0	41	24	20	14	0
Hartley	1	81	9	5	4	0	1	81	8	5	4	0
							1	77	11	7	4	0
							3	81	8	5	3	0
							0	82	8	6	3	0
Mayette	0	68	21	7	2	2	1	30	29	22	18	0
							0	24	19	31	26	0
							4	47	21	21	7	0
							0	26	22	28	25	0
Payne	0	59	15	14	11	1	1	57	21	14	8	0
							0	65	15	12	7	0
							0	55	18	14	12	1
							0	67	18	10	5	0
Serr	0	65	16	11	8	0	3	86	6	3	2	0
							4	81	6	5	3	0
							3	74	10	7	6	0
							2	85	7	5	1	0
Tehama	0	77	8	10	5	0	0	75	10	8	5	1
							0	74	10	6	9	0
							1	81	9	6	3	0
							0	83	12	4	1	0
Vine	1	34	18	26	20	1	1	31	22	23	22	2
							0	27	19	24	3	1
							1	52	19	17	10	1
							0	35	22	26	15	1
Other	2	48	18	16	14	2	0	52	15	18	13	2
							0	44	19	22	14	1
							2	60	13	13	11	1
							1	60	15	19	5	0
State	0	60	16	13	10	1	1	60	16	14	9	1
							1	56	16	15	11	1
							2	66	14	10	8	0
							1	66	15	12	6	0
Number of Shells Measured	5,292				5,671				11,348			
									11,558			
									10,174			

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.

TABLE 7: WALNUT ACREAGE, BY VARIETY AND YEAR OF PLANTING

CROP AND VARIETY	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	ACRES STANDING IN 1986:
	AND													BEARING: BEARING: TOTAL:
	EARLIER													NON- BEARING: BEARING: TOTAL:
WALNUTS - ENGLISH														
AMIGO	495	0	2	7	0	3	0	0	0	0	0	0	0	507
ANTENELLE	33	0	0	20	0	0	0	0	0	0	0	0	0	53
ASHLEY	11,916	175	79	25	59	165	191	71	105	102	72	7	0	12,419
BLACKBURN	114	1	0	0	1	0	0	0	0	0	0	0	0	540
BLACKMER/MAUTNER/VRAUGHN	1,634	7	1	0	0	0	17	0	0	0	37	0	0	116
CARMELO	17	0	0	0	0	0	0	0	0	20	0	0	0	1,642
CHANDLER	37	85	0	0	0	0	0	0	0	0	0	0	35	17
CHICO	1,258	83	175	28	43	267	351	238	466	343	409	211	139	460
CONCORD	281	0	0	25	123	279	624	317	80	36	89	5	0	1,943
EUREKA	12,958	47	53	13	32	12	43	23	26	10	18	28	0	281
FRANQUETTE	24,633	56	41	52	45	51	78	37	241	54	28	6	10	13,115
GROVE	50	0	0	0	0	0	0	0	0	0	0	0	13	24,792
GUSTINE	822	19	0	1	0	0	0	0	0	0	0	0	0	50
HARTLEY	47,303	983	735	1,220	1,019	1,472	1,252	1,139	605	556	788	467	314	842
HOUSTON	96	0	0	0	0	3	5	4	5	0	0	0	0	52,732
HOWARD	3	0	0	0	4	86	0	0	16	2	32	0	0	99
HYBRID	90	2	0	0	0	15	3	0	0	31	0	0	0	93
LOMPOC	129	0	0	0	0	0	0	0	0	0	0	0	0	107
MARCHETTI	721	9	2	21	0	10	72	0	0	0	0	0	0	129
MAYETTE	2,168	2	0	3	16	0	0	1	0	0	3	0	0	763
MIDLAND	299	1	0	0	0	2	2	0	0	0	5	3	0	2,189
NUGGETT	1,261	15	0	0	2	19	0	0	0	0	0	0	0	302
PAYNE	24,396	279	78	69	132	162	566	314	364	287	88	56	2	1,297
PEDRO	437	0	0	0	2	0	0	0	0	0	0	0	2	25,682
PIONEER	90	0	0	0	0	0	0	0	0	0	0	0	0	439
PLACENTIA	171	7	0	0	0	0	0	0	0	0	0	0	0	90
POE	980	0	0	0	0	3	10	0	0	0	0	0	0	178
PRIDE OF VENTURA	145	0	0	0	0	0	0	0	0	0	0	0	0	983
SERR	16,030	1,459	1,064	835	1,146	1,500	498	265	140	78	45	14	3	145
SIERRA GOLD	35	18	0	0	0	0	0	0	0	0	0	0	0	22,034
SUNLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	1,043
TEHAMA	5,534	63	165	8	42	70	40	76	108	31	4	21	1	53
TRINTA	1,614	1	0	0	0	42	9	127	63	11	77	4	0	70
VINA	3,212	330	350	193	413	399	970	623	15	0	0	0	0	351
WATERLOO	1,129	0	3	1	0	0	0	28	347	377	507	108	35	5,854
WESTSIDE	47	2	18	0	0	2	14	1	0	0	0	0	0	291
WOODLAND	360	0	0	0	0	0	0	0	0	6	0	0	0	1,615
4946	96	0	0	0	0	0	0	0	0	0	0	0	0	4,897
OTHER	1,082	103	122	37	76	203	90	169	157	447	319	59	14	1,137
CROP TOTAL	161,676	3,747	2,888	2,558	3,155	4,769	4,847	3,433	2,770	2,392	2,529	989	566	17,046
														196,319