



# 2007 California Walnut Objective Measurement Survey Report

Cooperating with the California Department of Food and Agriculture

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## WALNUT PRODUCTION FORECAST DOWN

The 2007 California walnut production is forecast at 320,000 tons, down 8 percent from 2006's production of 346,000 tons. This forecast is based on the 2007 Walnut Objective Measurement (O.M.) Survey, which was officially conducted August 1 through August 25, 2007. There were a few samples completed before August 1 for training and scheduling purposes.

The 2007 Walnut O.M. Survey utilized a total of 665 blocks with two sample trees per block. Survey data indicated an average nut set of 1,357 per tree, down 7 percent from 2006's average of 1,458. The Hartley nut set was down 8 percent; Chandler was down 23 percent; Serr was up 46 percent; Vina was down 7 percent from 2006. Percent of sound kernels in-shell was 98.4 percent Statewide. In-shell weight per nut was 20.3 grams, while the average in-shell suture measurement was 31.9 millimeters. The average length in-shell was 37.6 millimeters.

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

## SURVEY HISTORY

The Walnut O.M. 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 operations that choose not to participate in the survey.

## SAMPLING PROCEDURES

Once a block is randomly selected and permission is granted by the operation for enumerators to enter the block, two trees are randomly selected. An accessible branch is chosen, which is 5-15 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.

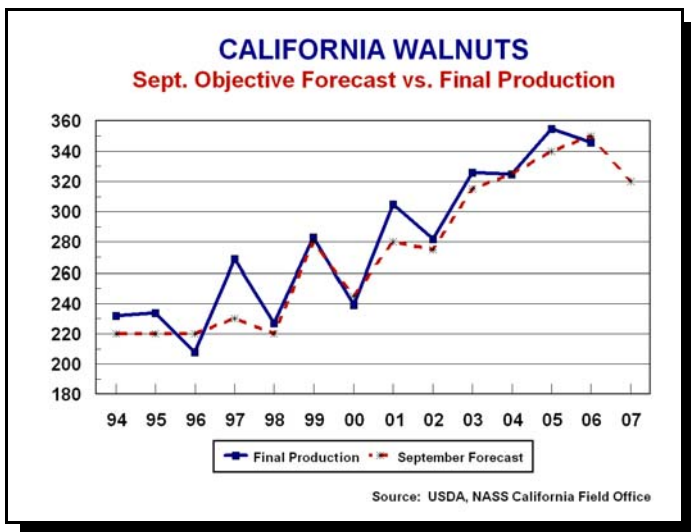
On the accessible branch, every first of five nuts is picked for use in size and grade determinations. If available, at least ten nuts are harvested from the accessible branch for this purpose.

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 298,000 tons to 342,000 tons. This means there is an 80 percent chance the 2007 production will fall within this range.



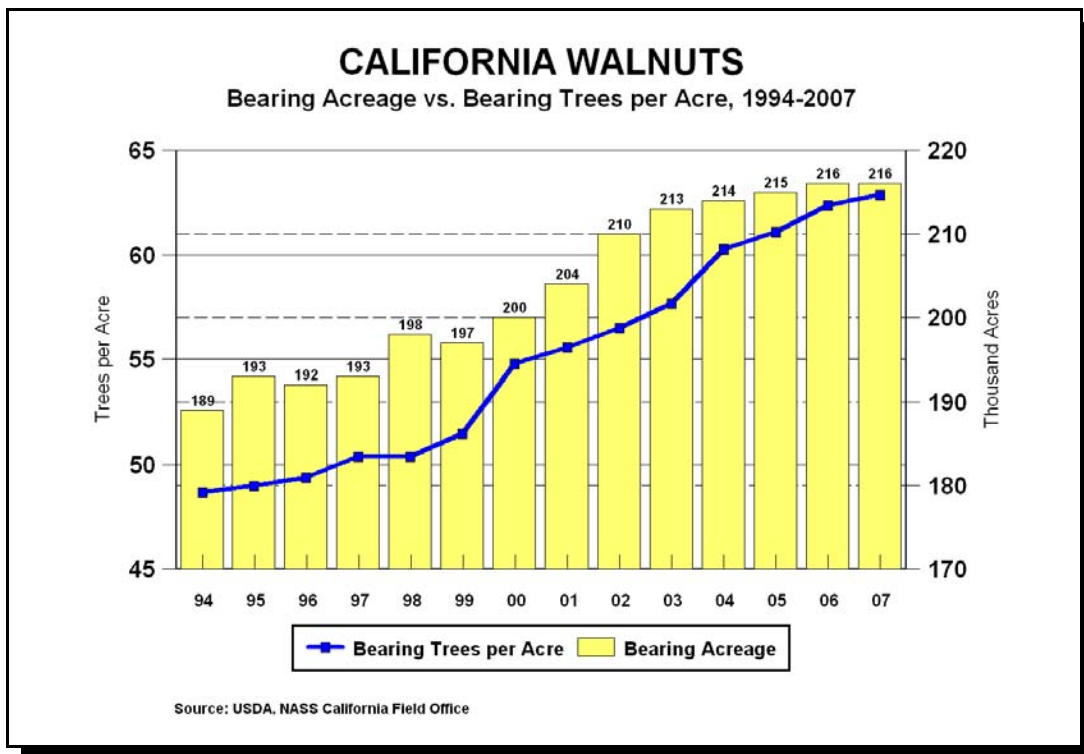
**California English Walnut Acreage, Production, Price And Value In-Shell**

Year	Bearing Acres	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	198,000	227,000	1.15	1,050.00	238,350,000
1999	197,000	283,000	1.44	886.00	250,738,000
2000	200,000	239,000	1.20	1,240.00	296,360,000
2001	204,000	305,000	1.50	1,120.00	341,600,000
2002	210,000	282,000	1.34	1,170.00	329,940,000
2003	213,000	326,000	1.53	1,160.00	378,160,000
2004	214,000	325,000	1.52	1,390.00	451,750,000
2005	215,000	355,000	1.65	1,570.00	557,350,000
2006 <u>a/</u>	216,000	346,000	1.60	1,600.00	553,600,000
2007 <u>b/ c/</u>	216,000	320,000	1.48	---	---

a/ Price Per Ton and Total Value are July 2007 preliminary data.

b/ Bearing years include plantings of the following: Chandler, Chico, Howard, Tulare (2003 & Earlier); 50-55, 59-124, 4946, Amigo, Ashley, Bardon, Cisco, Earhorn, Grove, Gustine, Honeycutt, Houston, Jensen, Lompoc, Marchetti, Nuggett, Payne, Pedro, Serr, Sunland, Tehama, Trinta, UCD 67-13, Vina, Westside (2002 and Earlier); Franquette, Franquette Scharsch, Mayette, Placentia, Poe, Willsons/Willsons Wonder, Woodland (2000 & Earlier); all other varieties not specified (2001 & Earlier).

c/ Price Per Ton and Total Value preliminary data will be released July 2008.



**Walnut Objective Measurement Survey Data, By District**

Measurement	Year	Coast <sup>1/</sup>	Sacramento Valley <sup>2/</sup>	San Joaquin Valley <sup>3/</sup>	State <sup>4/</sup>
In-Shell Weight (gm)	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
	2001	21.9	23.7	18.1	21.5
	2002	19.1	22.9	20.5	22.0
	2003	23.0	24.6	19.2	22.4
	2004	22.0	24.1	19.7	22.5
	2005	23.1	21.3	18.1	20.0
	2006	19.8	24.1	21.0	22.7
	2007	19.1	21.4	18.7	20.3
In-Shell Width (mm)	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
	2001	31.7	31.8	31.6	31.7
	2002	31.4	32.2	32.7	32.4
	2003	32.1	32.8	32.0	32.5
	2004	31.4	32.5	32.7	32.6
	2005	32.9	31.4	32.1	31.7
	2006	29.5	30.3	32.9	31.4
	2007	31.6	31.5	32.4	31.9
In-Shell Cross-Width (mm)	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
	2001	31.1	31.7	31.5	31.6
	2002	31.0	32.6	33.1	32.7
	2003	31.7	32.7	32.0	32.4
	2004	31.5	32.2	33.1	32.5
	2005	32.2	31.3	32.0	31.6
	2006	32.3	34.0	33.2	33.6
	2007	31.6	32.5	32.9	32.6
In-Shell Length (mm)	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
	2001	38.6	38.5	37.9	38.3
	2002	37.5	38.4	38.8	38.5
	2003	38.8	39.7	38.3	39.1
	2004	37.7	39.1	38.7	39.0
	2005	42.0	38.4	38.7	38.6
	2006	38.6	39.6	39.5	39.5
	2007	37.4	37.3	38.1	37.6
Kernel Grade – Percent Sound	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
	2001	98.3	97.5	98.1	97.8
	2002	96.0	95.3	98.7	96.3
	2003	95.5	95.4	99.3	97.0
	2004	97.6	97.7	99.2	98.2
	2005	97.4	96.5	98.8	97.5
	2006	98.1	98.5	97.2	98.0
	2007	97.8	97.9	99.2	98.4
Nuts Set Per Tree	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
	2001	937	2,020	1,478	1,719
	2002	1,254	1,982	1,142	1,572
	2003	640	1,846	1,429	1,599
	2004	924	1,943	1,168	1,526
	2005	818	1,854	1,372	1,575
	2006	1,316	1,660	1,267	1,458
	2007	1,221	1,548	1,162	1,357

<sup>1/</sup> Coast includes: Contra Costa, Lake, Monterey, Napa, San Benito, San Luis Obispo, Santa Clara, and Sonoma counties.

<sup>2/</sup> Sacramento Valley includes: Butte, Colusa, El Dorado, Glenn, Sacramento, Solano, Sutter, Tehama, Yolo, and Yuba counties.

<sup>3/</sup> San Joaquin Valley includes: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties.

<sup>4/</sup> District and State averages are derived by weighting county averages by county bearing acreage figures.

Walnut Objective Measurement Survey Data, By Variety

Measurement	Year	Ashley	Chandler	Eureka	Franquette	Hartley	Howard	Payne	Serr	Tehama	Tulare	Vina	Other 1/
In-Shell Weight (gm)	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
	2001	17.8	22.7	20.0	21.2	23.2	---	16.9	17.8	21.7	---	19.9	19.3
	2002	18.0	24.1	20.8	18.3	23.6	---	19.3	19.4	19.6	---	20.0	21.0
	2003	17.1	23.6	21.0	23.7	25.2	---	16.6	17.2	20.8	---	19.8	22.1
	2004	18.4	23.4	20.4	22.1	24.5	---	17.7	18.5	20.3	---	19.1	22.2
	2005	16.3	19.8	18.9	20.3	22.9	---	16.4	16.7	16.6	---	18.1	20.0
2006	18.1	23.0	22.3	19.2	24.8	---	19.0	20.4	21.8	---	21.3	22.6	
2007	15.8	21.5	21.0	18.6	22.2	22.5	17.2	15.7	16.8	22.2	18.2	17.5	
In-Shell Width (mm)	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
	2001	30.3	32.0	32.0	30.5	32.3	---	31.2	31.8	31.3	---	30.3	30.7
	2002	31.7	32.9	31.8	29.8	32.8	---	33.0	32.9	31.7	---	31.0	31.7
	2003	31.0	32.9	32.1	32.4	33.2	---	31.7	31.5	31.6	---	30.8	32.3
	2004	32.1	32.5	31.5	31.8	32.8	---	32.9	33.4	31.5	---	30.8	33.4
	2005	31.4	31.1	30.7	31.6	32.5	---	31.7	32.2	31.0	---	31.4	32.4
2006	31.0	31.1	31.9	28.8	31.4	---	32.7	32.9	31.4	---	30.5	32.1	
2007	31.0	31.7	31.1	29.9	32.3	32.0	32.1	32.5	31.0	34.5	30.3	30.3	
In-Shell Cross-Width (mm)	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
	2001	30.1	32.0	31.1	30.6	32.2	---	31.0	31.2	30.9	---	30.6	30.8
	2002	31.8	33.7	32.7	30.1	32.9	---	33.1	32.6	31.8	---	31.8	32.4
	2003	30.6	33.1	32.2	32.3	33.1	---	31.2	30.6	31.6	---	31.3	32.2
	2004	32.0	32.6	32.3	31.3	32.8	---	33.1	33.4	31.0	---	30.9	33.1
	2005	30.9	31.1	31.7	31.4	32.1	---	31.4	31.5	30.1	---	31.6	32.6
2006	32.1	33.9	32.9	32.2	34.0	---	32.6	33.0	32.9	---	33.1	34.0	
2007	31.6	32.7	32.0	30.9	32.8	34.1	32.4	32.3	31.4	34.8	31.7	31.9	
In-Shell Length (mm)	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
	2001	35.2	38.7	41.6	38.4	38.9	---	37.0	36.4	37.2	---	37.4	38.3
	2002	36.1	39.7	41.4	37.0	38.7	---	38.2	37.5	36.8	---	37.6	38.5
	2003	35.7	39.7	41.7	40.9	40.4	---	36.5	36.0	37.6	---	38.0	39.1
	2004	36.4	39.6	41.3	39.3	39.7	---	37.0	37.1	36.4	---	37.4	38.8
	2005	36.3	38.4	41.6	40.3	39.8	---	37.2	37.0	36.0	---	38.0	38.4
2006	37.4	39.5	44.2	38.5	40.4	---	38.1	39.2	37.8	---	39.3	38.7	
2007	35.7	38.1	43.3	36.8	37.9	37.4	37.3	36.4	36.7	38.9	36.8	37.7	
Kernel Grade – Percent Sound	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
	2001	94.3	98.8	98.9	98.8	97.4	---	97.3	96.3	98.0	---	98.7	97.5
	2002	96.4	96.8	98.6	97.2	96.1	---	96.8	93.3	98.3	---	97.0	96.8
	2003	97.5	97.4	98.8	97.0	97.2	---	99.2	96.1	91.8	---	96.9	95.1
	2004	97.9	99.0	98.4	95.6	98.2	---	99.4	98.3	99.1	---	98.0	96.7
	2005	96.7	96.9	99.8	95.7	97.0	---	98.4	99.5	97.0	---	99.1	97.9
2006	98.4	99.2	95.1	99.6	97.7	---	91.8	96.0	99.1	---	98.2	97.7	
2007	96.5	99.4	99.5	96.0	98.5	98.5	99.3	98.5	93.5	99.0	97.7	95.9	
Nuts Set Per Tree	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
	2001	1,510	1,741	1,718	1,819	2,049	---	1,443	1,342	1,560	---	1,488	1,533
	2002	1,534	1,315	1,246	2,072	1,961	---	1,246	1,259	1,446	---	1,611	1,642
	2003	1,421	1,594	1,858	1,195	1,735	---	1,995	1,679	1,021	---	1,544	1,377
	2004	1,504	1,381	1,223	2,108	2,046	---	1,152	1,172	1,488	---	1,471	1,167
	2005	1,323	1,783	1,639	1,267	1,729	---	1,443	1,429	1,067	---	1,251	1,256
2006	1,129	1,386	1,687	2,004	1,883	---	1,345	1,172	462	---	1,266	1,319	
2007	1,875	1,069	1,731	1,569	1,738	1,197	1,202	1,710	2,058	963	1,183	1,640	

1/ Beginning in 2007, the Howard and Tulare varieties were taken out of "Other" and published separately.

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

District and Variety	U.S. Standards Size Intervals 1/																													
	2003				2004				2005				2006				2007 2/													
	Mth	Jmb	Lge	Med	Bby	Oth	Mth	Jmb	Lge	Med	Bby	Oth	Mth	Jmb	Lge	Med	Bby	Oth	Mth	Jmb	Lge	Med	Bby	Oth						
<b>DISTRICTS:</b>	----- Percent of Total 3/ -----																													
Coast	1	56	14	16	13	0	0	50	12	20	16	1	1	71	15	9	4	0	0	30	15	18	26	11	9	30	17	24	20	0
Sacramento Vly.	1	70	13	10	6	0	2	62	15	11	10	1	1	47	19	15	12	3	0	38	11	16	28	5	1	50	16	17	15	1
San Joaquin Vly.	0	56	19	16	8	0	2	65	15	11	7	0	1	56	20	17	6	0	2	68	16	9	5	0	1	63	16	11	8	0
<b>VARIETIES:</b>																														
Ashley	1	34	19	26	19	0	1	56	16	12	16	1	1	47	17	17	16	1	0	46	19	15	18	2	5	31	16	23	21	3
Chandler	0	74	14	8	4	0	1	63	16	11	8	0	0	42	23	21	10	3	1	48	15	14	19	3	1	54	17	15	13	1
Eureka	0	63	26	6	4	0	1	47	30	10	12	0	0	29	37	21	11	1	1	56	34	4	5	0	0	48	28	9	16	0
Franquette	0	65	15	13	6	0	0	51	21	18	9	1	0	53	19	17	11	0	0	21	15	19	34	12	0	23	17	30	28	1
Hartley	1	76	12	7	4	0	1	69	14	9	6	1	1	64	14	9	7	2	0	52	10	14	20	4	1	63	14	13	9	0
Howard	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Payne	0	49	27	15	8	1	1	67	13	10	8	0	1	51	19	19	8	1	0	72	16	5	7	1	0	60	19	12	8	1
Serr	0	48	19	22	10	1	2	77	10	6	5	0	2	60	16	11	11	0	2	69	11	8	10	1	1	69	11	10	8	1
Tehama	0	52	17	15	16	0	0	53	13	18	15	1	0	45	19	18	15	1	1	52	14	12	17	5	0	38	26	21	14	1
Tulare	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Vina	0	34	19	26	19	1	0	39	18	18	22	2	4	32	27	21	12	1	0	39	18	18	20	4	0	32	21	21	23	2
Other	4	52	15	16	14	0	8	60	11	12	9	0	2	57	15	12	11	1	4	54	10	12	16	3	0	29	18	22	30	0
STATE	1	64	15	12	7	0	2	63	15	11	9	1	1	51	19	16	10	2	1	51	13	13	18	3	1	55	16	15	12	1
Number of Shells Measured	13,539				13,822				12,736				13,491				13,291													

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/ Beginning in 2007, the Howard and Tulare varieties were taken out of "Other" and published separately.  
 3/ 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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