United States Department of Agriculture
National Agricultural Statistics Service

2022 California Walnut Objective Measurement Report

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WALNUT PRODUCTION FORECAST DOWN

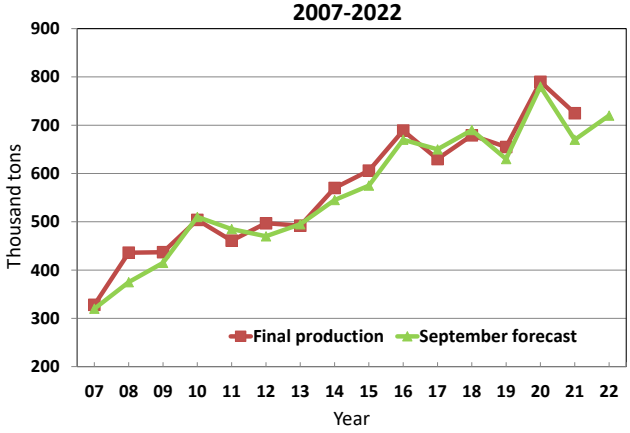
The 2022 California walnut production is forecast at 720,000 tons, down 1% from 2021's production of 725,000 tons. The forecast is based on 400,000 bearing acres, up 3% from 2021's estimated bearing acreage of 390,000.

The 2022 Walnut O.M. Survey utilized a total of 711 blocks with two sample trees per block. Survey data indicated an average nut set per tree of 981, down 1% from 2021's average of 992. Percent of sound kernels in-shell was 98.0% statewide. In-shell weight per nut was 20.2 grams, while the average in-shell suture measurement was 32.4 millimeters. The in-shell cross-width measurement was 33.2 and the average length in-shell was 37.9 millimeters.

California benefitted from heavy rain and significant snowpack in late 2021, however the state has since experienced hot and dry conditions. As a result, water allocations were significantly reduced in many areas. During the last two weeks of February, the Sacramento Valley experienced several nights of freezing temperatures. Frost damage was observed.

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

CALIFORNIA WALNUTS
Sept. Objective Forecast vs. Final Production
2007-2022



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

The 2022 Walnut Objective Measurement (O.M.) Survey was officially conducted from July 22 through August 25, 2022. There were a few samples completed before July 22nd for training and scheduling purposes. There were 1,422 trees sampled from 711 orchards.

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, so that the same trees are sampled the following year if that orchard is selected. On the accessible branch, every nut is counted and the first of every 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

The Objective Measurement Survey is funded by the California Walnut Board.

DATA RELIABILITY

The 80 percent confidence interval is from 650,000 tons to 790,000 tons.

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

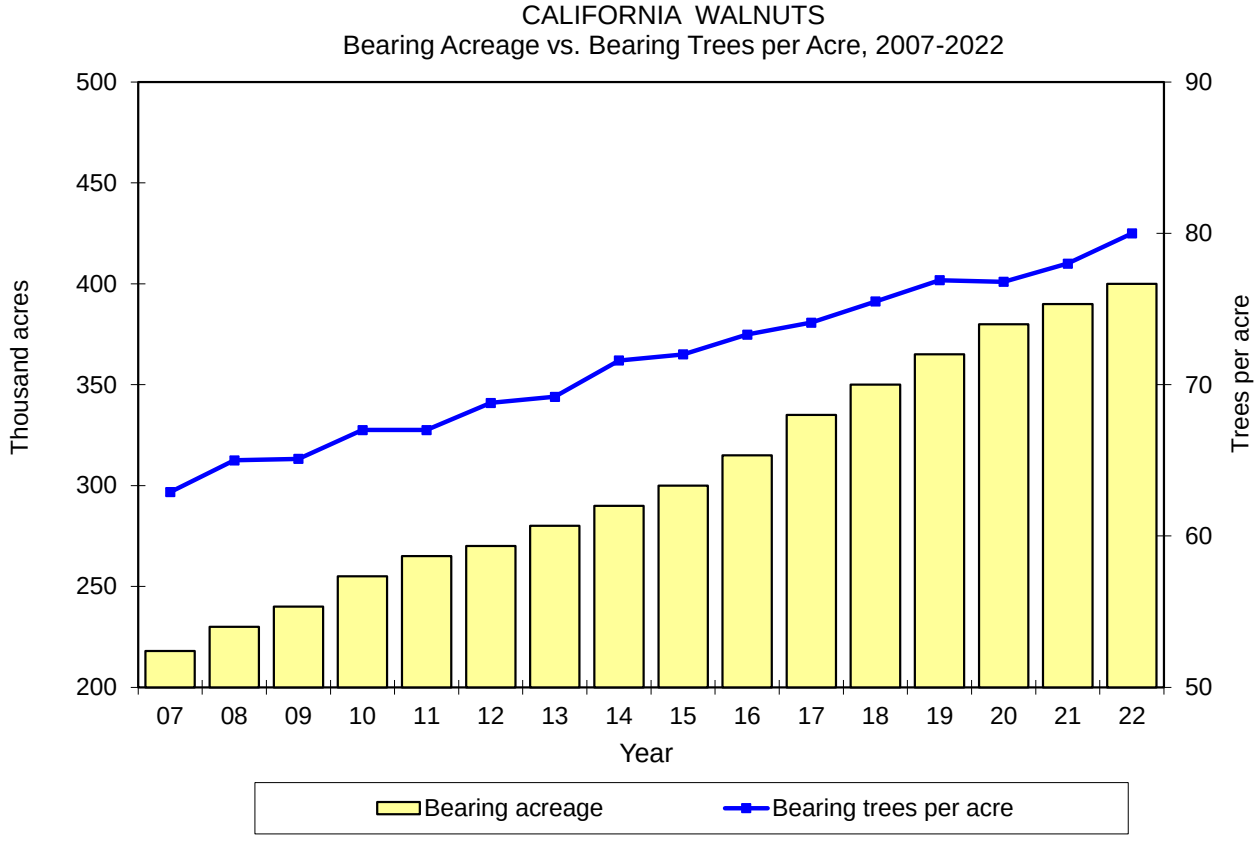
Year	Bearing acres	Trees per acre	Per bearing acre	Total production	Price per ton	Total value
			Tons		*Dollars*	*1,000 Dollars*
2003	213,000	57.7	1.53	326,000	1,160	378,160
2004	214,000	60.3	1.52	325,000	1,390	451,750
2005	215,000	61.1	1.65	355,000	1,570	557,350
2006	216,000	62.4	1.60	346,000	1,630	563,980
2007	218,000	62.9	1.50	328,000	2,290	751,120
2008	230,000	65.0	1.90	436,000	1,280	558,080
2009	240,000	65.1	1.82	437,000	1,710	747,270
2010	255,000	67.0	1.98	504,000	2,040	1,028,160
2011	265,000	67.0	1.74	461,000	2,900	1,336,900
2012	270,000	68.6	1.84	497,000	3,030	1,505,910
2013	280,000	69.2	1.76	492,000	3,710	1,825,320
2014	290,000	71.6	1.97	571,000	3,340	1,907,140
2015	300,000	72.0	2.02	606,000	1,670	1,012,020
2016	315,000	73.3	2.19	689,000	1,850	1,274,650
2017	335,000	74.1	1.88	630,000	2,490	1,568,700
2018	350,000	75.5	1.94	679,000	1,350	916,650
2019	365,000	76.9	1.79	655,000	1,890	1,237,950
2020	380,000	76.8	2.08	790,000	1,200	948,000
2021 [1]	390,000	78.0	1.86	725,000	1,410	1,022,250
2022 [2 3]	400,000	80.0	1.80	720,000	NA	NA

[1] Price per ton and total value are May 2022 preliminary data.

[2] Bearing years include plantings of the following: Chandler, Chico, Howard, Tulare (2018 & 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 (2017 & Earlier); Franquette, Franquette Scharsch, Mayette, Placentia, Poe, Willsons/Willsons Wonder, Woodland (2015 & Earlier); all other varieties not specified (2016 & Earlier).

[3] Price per ton and total value preliminary data will be released May 2023.

NA Not Available



WEIGHT, SIZE, PERCENT SOUND AND SET BY COUNTY & VARIETY, 2021-2022

County and variety	In-shell weight (grams)	In-shell size (millimeters)			Kernel Grade - Percent Sound	Nuts per Tree
		Length	Width	Cross-Width		
STATE LEVEL						
2021	22.2	37.9	32.4	33.4	99.5	992
2022	20.2	37.9	32.4	33.2	98.0	981
BY COUNTY						
Butte						
2021	21.7	37.1	32.1	33.1	99.1	1,034
2022	19.7	37.7	31.9	33.1	94.3	1,015
Glenn						
2021	22.7	36.8	31.7	33.1	99.8	934
2022	18.7	37.1	31.4	32.7	97.5	1,043
Kings						
2021	18.9	38.5	33.0	33.7	98.4	1,284
2022	16.2	37.5	32.6	33.1	99.7	1,264
San Joaquin						
2021	22.5	39.0	32.9	33.7	99.9	1,087
2022	22.6	38.5	32.9	33.5	99.9	1,115
Stanislaus						
2021	24.4	38.5	32.9	33.9	99.6	671
2022	23.1	38.1	32.9	33.5	99.8	871
Sutter						
2021	22.8	37.5	31.7	33.0	99.7	785
2022	22.9	38.1	32.5	33.4	100.0	720
Tehama						
2021	23.9	37.0	32.2	33.6	99.8	1,012
2022	19.3	37.7	31.9	33.0	91.7	870
Tulare						
2021	18.6	37.8	32.7	33.3	99.0	1,127
2022	14.9	37.3	32.8	33.1	98.6	1,168
Yuba						
2021	23.9	37.6	32.1	33.1	98.4	875
2022	23.2	38.9	33.2	34.2	99.8	785
Other [2]						
2021	22.2	38.0	32.5	33.6	99.8	1,062
2022	21.1	37.9	32.2	33.1	99.1	960
BY VARIETY						
Chandler						
2021	22.5	37.9	32.1	33.3	99.8	988
2022	20.3	38.0	32.0	32.9	98.5	1,009
Hartley						
2021	22.9	38.8	32.7	32.9	99.0	1,272
2022	22.5	38.7	33.1	33.4	97.3	1,029
Howard						
2021	22.5	36.2	31.7	33.5	99.1	838
2022	20.4	36.5	32.0	33.7	95.1	849
Serr						
2021	18.3	37.5	33.4	33.0	95.6	847
2022	16.3	36.4	32.6	32.2	98.1	980
Tulare						
2021	20.9	37.9	34.1	34.4	98.9	972
2022	19.4	37.8	34.2	34.2	98.3	996
Vina						
2021	21.7	38.7	32.3	33.1	100.0	1,056
2022	20.1	37.9	32.4	32.7	100.0	751
Other [3]						
2021	19.4	39.0	33.0	34.0	99.0	1,157
2022	17.8	38.8	32.6	33.6	99.2	950

[1] Percentages may not add to 100 due to rounding.

[2] Other includes: Colusa, Fresno, Lake, Madera, Merced, Placer, Sacramento, San Luis Obispo, Shasta, Solano, Yolo

[3] Other includes: Chico, Eureka, Franquette, Ivanhoe, Payne, Poe, Solano

Percentage Distribution of Walnut Shell Suture Size, By County and Variety

County and Variety	U.S. Standards Size Intervals [1]											
	2021						2022					
	Mth	Jmb	Lge	Med	Bby	Oth	Mth	Jmb	Lge	Med	Bby	Oth
	- - - - - - - Percent of Total [2] - - - - - - -											
STATE LEVEL	1	63	18	13	5	0	1	64	17	12	6	0
COUNTIES												
Butte	0	57	21	14	8	0	0	59	17	14	9	0
Glenn	0	52	21	17	10	0	0	45	25	18	11	1
Kings	0	72	16	8	3	0	1	68	16	11	4	0
San Joaquin	1	75	14	8	2	0	2	70	15	9	3	0
Stanislaus	1	71	13	10	5	0	1	71	12	11	5	0
Sutter	0	50	22	19	8	0	1	64	17	13	5	0
Tehama	0	58	20	14	7	0	0	57	18	14	10	0
Tulare	1	67	16	11	4	0	1	69	16	10	4	0
Yuba	0	55	23	14	8	0	0	82	11	6	1	0
Other [3]	1	62	21	12	4	0	1	61	18	13	7	0
VARIETIES:												
Chandler	0	59	20	14	6	0	0	59	19	14	7	0
Hartley	0	72	16	9	3	0	1	76	11	8	5	0
Howard	0	48	23	18	11	0	1	57	18	14	9	0
Serr	0	77	10	8	5	0	1	69	13	11	6	0
Tulare	3	84	7	5	1	0	4	81	9	4	1	0
Vina	0	54	28	12	5	0	1	60	21	13	6	0
Other [4]	1	77	13	6	3	0	1	70	17	7	6	0
Number of Shells Measured	13,539						13,921					

[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.

[3] Other includes: Colusa, Fresno, Lake, Madera, Merced, Placer, Sacramento, San Luis Obispo, Shasta, Solano, Yolo

[4] Other includes: Chico, Eureka, Franquette, Ivanhoe, Payne, Poe, Solano

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

For more California agricultural statistics, visit www.nass.usda.gov/ca