United States Department of Agriculture
National Agricultural Statistics Service

2024 California Walnut Objective Measurement Report

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WALNUT PRODUCTION FORECAST DOWN

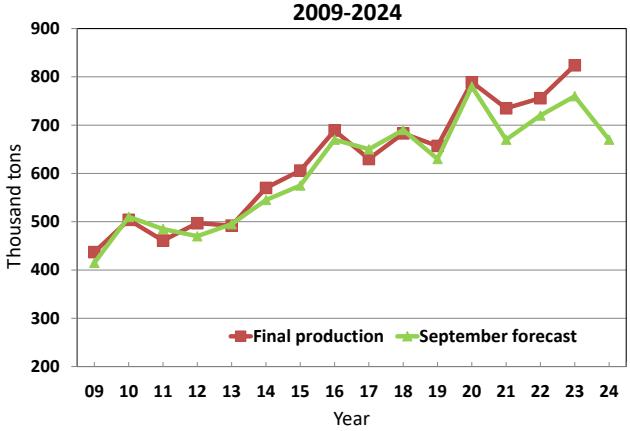
The 2024 California walnut production is forecast at 670,000 tons, down 19% from 2023's production of 824,000 tons. The forecast is based on 370,000 bearing acres, down 4% from 2023's estimated bearing acreage of 385,000.

The 2024 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 761, down 24% from 2023's average of 1,004. Percent of sound kernels in-shell was 98.1% statewide. The average in-shell weight and dimensions for 2024 were: 21.1 grams, suture measurement was 32.5 millimeters, cross-width measurement was 33.4, and the average length was 38.4 millimeters.

The 2024 chilling hours were low. Several late winter and spring storms boosted the Sierra Nevada snowpack and significantly added to reservoirs bringing California to normal water conditions. Some instances of blight showed in walnut groves because of heavy spring rains. The summer brought record high temperatures to California and growers were forced to increase irrigation. Percent sound results from the Objective Measurement survey indicate nut quality will be decreased from last year.

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
2009-2024



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 2024 Walnut Objective Measurement (O.M.) Survey was officially conducted from July 22 through August 22, 2024. There were a few samples completed before July 22 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 510,000 tons to 830,000 tons.

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

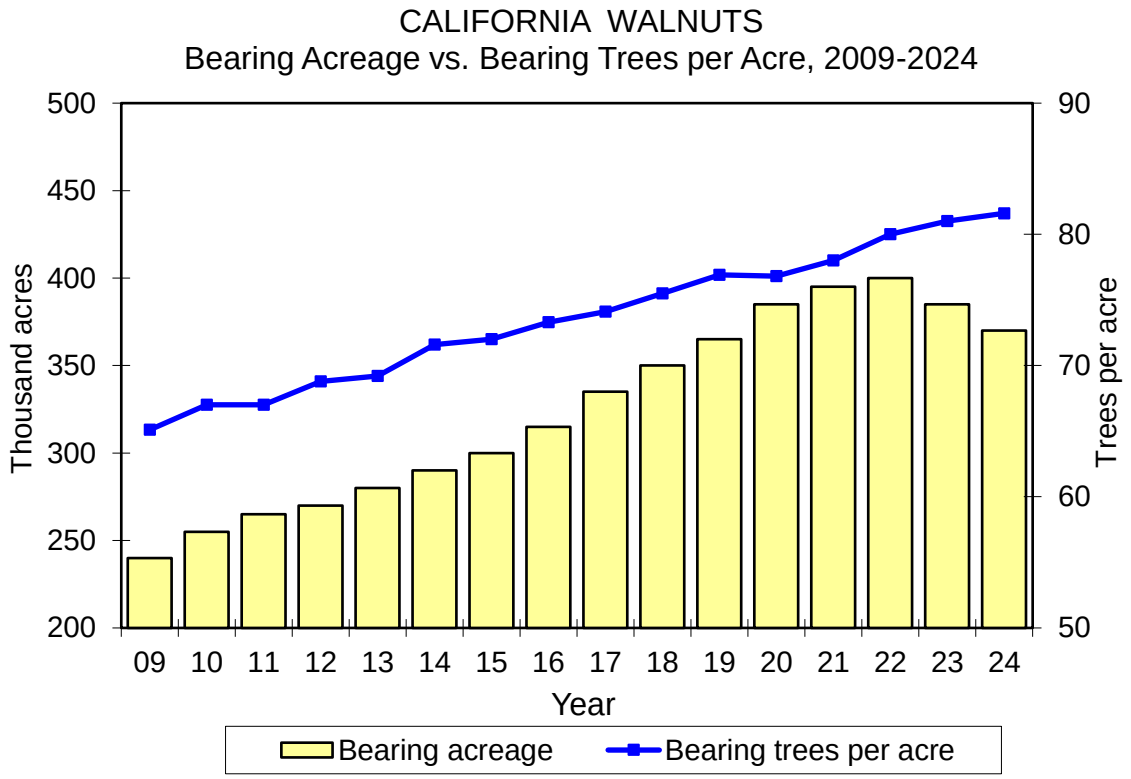
Year	Bearing acres	Trees per acre	Per bearing acre	Total production	Price per ton	Total value
			Tons		*Dollars*	*1,000 Dollars*
2004	214,000	60.3	1.52	325,000	1,390	451,750
2005	215,000	61.1	1.65	355,000	1,570	557,350
2006	216,000	62.4	1.60	346,000	1,630	563,980
2007	218,000	62.9	1.50	328,000	2,290	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	1.98	683,000	1,350	922,050
2019	365,000	76.9	1.80	657,000	1,890	1,241,730
2020	385,000	76.8	2.05	789,000	1,200	946,800
2021	395,000	78.0	1.86	735,000	1,450	1,065,750
2022	400,000	80.0	1.89	756,000	600	453,600
2023 [1]	385,000	81.0	2.14	824,000	840	692,160
2024 [2 3]	370,000	81.6	1.81	670,000	NA	NA

[1] Price per ton and total value are May 2024 preliminary data.

[2] Bearing years include plantings of the following: Chandler, Chico, Howard, Ivanhoe, Tulare (2020 & Earlier); Amigo, Ashley, Cisco, Marchetti, Nuggett, Payne, Pedro, Serr, Sunland, Tehama, Trinta, Vina (2019 & Earlier); Franquette, Franquette Scharsch, Mayette, Poe (2017 & Earlier); all other varieties not specified (2018 & Earlier).

[3] Price per ton and total value preliminary data will be released May 2025.

NA Not Available



WEIGHT, SIZE, PERCENT SOUND AND SET BY COUNTY, 2022-2024

District and variety	In-shell weight (grams)	In-shell size (millimeters)			Kernel Grade - Percent Sound	Nuts per Tree
		Length	Width	Cross-Width		
STATE LEVEL						
2022	20.2	37.9	32.4	33.2	98.0	981
2023	21.5	39.1	32.7	33.3	99.2	1,004
2024	21.1	38.4	32.5	33.4	98.1	761
BY COUNTY						
Butte						
2022	19.7	37.7	31.9	33.1	94.3	1,015
2023	20.1	39.0	31.9	32.4	99.8	967
2024	19.7	37.5	31.5	32.6	98.0	672
Glenn						
2022	18.7	37.1	31.4	32.7	97.5	1,043
2023	20.5	38.7	31.9	32.6	99.8	833
2024	19.5	37.3	31.3	32.5	96.2	719
Kings						
2022	16.2	37.5	32.6	33.1	99.7	1,264
2023	19.6	40.1	33.6	34.0	98.8	1,336
2024 [1]	--	--	--	--	--	--
San Joaquin						
2022	22.6	38.5	32.9	33.5	99.9	1,115
2023	23.1	38.9	33.0	33.4	99.0	1,167
2024	23.0	39.0	33.2	34.0	99.9	665
Stanislaus						
2022	23.1	38.1	32.9	33.5	99.8	871
2023	23.6	38.9	33.2	33.8	100.0	759
2024	24.1	39.2	33.7	34.4	100.0	668
Sutter						
2022	22.9	38.1	32.5	33.4	100.0	720
2023	23.4	39.2	32.6	33.5	99.9	922
2024	23.5	38.7	32.7	33.9	100.0	664
Tehama						
2022	19.3	37.7	31.9	33.0	91.7	870
2023	20.0	38.5	31.6	32.3	100.0	884
2024	20.5	38.0	31.8	32.7	98.2	535
Tulare						
2022	14.9	37.3	32.8	33.1	98.6	1,168
2023	18.3	39.2	33.3	33.6	96.7	1,288
2024	16.5	38.0	32.5	32.8	93.8	1,000
Yuba						
2022	23.2	38.9	33.2	34.2	99.8	785
2023	20.4	38.9	31.8	32.4	100.0	695
2024	24.1	39.0	32.9	34.0	100.0	611
Other						
2022 [2]	21.1	37.9	32.2	33.1	99.1	960
2023 [3]	23.5	39.5	32.9	33.7	99.7	1,021
2024 [4]	21.0	38.5	32.7	33.6	98.2	1,060

[1] In 2024, Kings County was included in "Other".

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

[3] Other includes: Colusa, Fresno, Kern, Lake, Madera, Merced, Monterey, Placer, Sacramento, Solano, and Yolo.

[4] Other includes: Colusa, Fresno, Kings, Lake, Madera, Merced, Monterey, Placer, Sacramento, Shasta, Solano, and Yolo.

WEIGHT, SIZE, PERCENT SOUND AND SET BY VARIETY, 2022-2024

District and variety	In-shell weight (grams)	In-shell size (millimeters)			Kernel Grade - Percent Sound	Nuts per Tree
		Length	Width	Cross-Width		
BY VARIETY						
Chandler						
2022	20.3	38.0	32.0	32.9	98.5	1,009
2023	21.5	39.5	32.3	32.9	99.4	1,018
2024	21.2	38.6	32.3	33.2	98.4	770
Hartley						
2022	22.5	38.7	33.1	33.4	97.3	1,029
2023	23.0	38.9	33.1	33.1	99.8	1,204
2024	22.4	38.6	32.8	33.0	98.5	640
Howard						
2022	20.4	36.5	32.0	33.7	95.1	849
2023	21.0	37.1	31.9	33.4	100.0	811
2024	21.0	36.7	31.7	33.6	98.8	737
Serr [1]						
2022	16.3	36.4	32.6	32.2	98.1	980
2023	--	--	--	--	--	--
2024	--	--	--	--	--	--
Tulare						
2022	19.4	37.8	34.2	34.2	98.3	996
2023	22.1	38.9	35.0	34.9	98.3	980
2024	21.3	38.7	34.7	34.6	97.3	668
Vina [1]						
2022	20.1	37.9	32.4	32.7	100.0	751
2023	--	--	--	--	--	--
2024	--	--	--	--	--	--
Other						
2022 [2]	17.8	38.8	32.6	33.6	99.2	950
2023 [3]	19.5	39.3	32.4	33.0	97.2	1,123
2024 [4]	19.2	38.1	32.3	33.0	94.7	1,057

[1] Beginning in 2023, the Serr and Vina varieties were included in "Other" and not published separately.

[2] Other includes: Chico, Eureka, Franquette, Ivanhoe, Payne, Poe, Solano, and Tehama.

[3] Other includes: Chico, Durham, Eureka, Franquette, Ivanhoe, Livermore, Payne, Serr, Solano, Tehama, and Vina.

[4] Other includes: Durham, Eureka, Franquette, Ivanhoe, Livermore, Payne, Serr, Solano, Tehama, and Vina.

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

District and Variety	U.S. Standards Size Intervals [1]																	
	2022						2023						2024					
	Mth	Jmb	Lge	Med	Bby	Oth	Mth	Jmb	Lge	Med	Bby	Oth	Mth	Jmb	Lge	Med	Bby	Oth
	- - - - - - - Percent of Total [2] - - - - - - -																	
STATE LEVEL	1	64	17	12	6	0	2	66	17	10	5	0	2	63	19	11	5	0
COUNTIES																		
Butte	0	59	17	14	9	0	1	58	20	13	8	0	0	51	21	15	12	1
Glenn	0	45	25	18	11	1	1	57	22	13	7	0	0	49	20	18	13	0
Kings	1	68	16	11	4	0	5	76	12	5	1	0	--	--	--	--	--	--
San Joaquin	2	70	15	9	3	0	1	70	17	9	3	0	3	73	16	7	1	0
Stanislaus	1	71	12	11	5	0	2	71	17	8	3	0	5	77	12	4	1	0
Sutter	1	64	17	13	5	0	1	66	19	11	3	0	1	71	17	9	2	0
Tehama	0	57	18	14	10	0	0	54	22	15	9	0	0	55	22	14	8	0
Tulare	1	69	16	10	4	0	3	74	12	8	3	0	1	61	20	12	5	0
Yuba	0	82	11	6	1	0	0	55	19	15	10	1	1	74	18	7	1	0
Other [3 4 5]	1	61	18	13	7	0	2	66	17	11	4	0	2	64	20	11	3	0
VARIETIES:																		
Chandler	0	59	19	14	7	0	1	65	19	11	4	0	1	63	19	12	5	0
Hartley	1	76	11	8	5	0	1	75	9	10	5	0	1	70	16	10	4	0
Howard	1	57	18	14	9	0	1	52	22	15	10	0	0	53	23	14	9	1
Serr [6]	1	69	13	11	6	0	--	--	--	--	--	--	--	--	--	--	--	--
Tulare	4	81	9	4	1	0	8	78	6	5	1	0	8	77	7	5	2	0
Vina [6]	1	60	21	13	6	0	--	--	--	--	--	--	--	--	--	--	--	--
Other [7 8 9]	1	70	17	7	6	0	0	63	19	11	6	0	0	60	26	10	3	0
Number of Shells Measured	13,921						13,189						13,764					

[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] For 2022, Other includes: Colusa, Fresno, Lake, Madera, Merced, Placer, Sacramento, San Luis Obispo, Shasta, Solano, and Yolo.

[4] For 2023, Other includes: Colusa, Fresno, Kern, Lake, Madera, Merced, Monterey, Placer, Sacramento, Solano, and Yolo.

[5] For 2024, Other includes: Colusa, Fresno, Kings, Lake, Madera, Merced, Monterey, Placer, Sacramento, Shasta, Solano, and Yolo.

[6] Beginning in 2023, the Serr and Vina varieties were included in "Other" and not published separately.

[7] For 2022, Other includes: Chico, Eureka, Franquette, Ivanhoe, Payne, Poe, Solano, and Tehama.

[8] For 2023, Other includes: Chico, Durham, Eureka, Franquette, Ivanhoe, Livermore, Payne, Serr, Solano, Tehama, and Vina.

[9] For 2024, Other includes: Durham, Eureka, Franquette, Ivanhoe, Livermore, Payne, Serr, Solano, Tehama, and Vina.

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

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