



ECOND
WALNUT
COST STUDY

SUTTER COUNTY

1951

Agricultural Extension Service
University of California
U.S. Department of Agriculture
and Sutter County
Post Office Building
Yuba City, California

INTRODUCTION

This is the second annual report of the Sutter County Walnut Management Study and covers the 1950 crop year. The study was conducted by the Agricultural Extension Service in cooperation with a group of local walnut producers in order to help the growers solve their management problems and to develop a body of knowledge of value to the industry.

The number of records in this study is small and the results are not represented as averages for the county.

Since returns were not available when the 1949 report was made, a table showing 1949 returns is included.

Estimated Costs of Establishing Walnut Orchards

<u>Year</u>	<u>Annual Cost</u>	<u>Total Cost End of Year</u>
1	\$ 125	\$ 125
2	75	200
3	85	285
4	75	360
5	60	420
6	50	470
7	40	510
8	25	535
9	15	550
10	0	550

Production Life - 40 years or until 50 years old.
Annual Depreciation \$13.75

Average Value for Life of Orchard \$275
Interest at 5% \$13.75

NOTE: This study will not be continued further due to difficulty of getting interested cooperators.

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Production, Income, and Costs for Five Walnut

Orchards in Sutter County for 1950

	Serial Numbers					
	7	8	2	4	5	Av
Average Age	30	20	-	32	36	28
Yield - pounds per acre	2,304	1,758	1,605	1,545	1,990	1,751
Percent - large	69	71	61	71	29	73
medium	18	16	20	11	25	19
babies	4	3	8	3	9	5
culls	9	10	11	15	37	3
Average price per cwt.	23.56	21.36	20.16	19.15	14.29	20.39
Cost per cwt.	11.21	11.31	11.59	13.23	10.78	11.91
Management income	12.35	10.05	8.57	5.92	3.51	8.48
Income per acre	542.72	375.44	323.69	295.97	284.37	357.05
Costs per acre						
Labor	66.81	47.43	92.65	63.47	95.60	67.09
Tractor and truck	12.73	7.59	5.95	16.14	16.50	11.71
Contract operations	51.51	14.13	5.00	14.39	22.99	18.77
Materials	33.15	25.45	4.49	25.80	6.02	21.81
Cash overhead	12.91	25.30	17.00	16.80	24.08	18.85
Depreciation	15.83	34.99	31.68	27.96	22.07	28.20
Interest	65.37	44.00	29.34	39.83	27.33	42.07
Total	258.31	198.87	186.11	204.39	214.59	208.50
Management income per acre	284.41	176.57	137.58	91.58	69.78	148.55
Costs per acre by operation						
Tillage	10.08	9.36	15.12	11.59	12.90	12.20
Irrigation	13.05	17.68	11.22	25.93	-	15.87
Pruning and brush disposal	10.14	5.30	15.93	9.45	20.00	10.31
Fertilizing	20.42	19.65	-	20.58	5.00	15.72
Spraying	19.66	7.74	6.07	-	13.47	6.81
Miscellaneous & overhead	93.28	73.10	54.50	69.03	86.58	73.78
Total - pre-harvest	166.63	132.83	102.84	136.58	137.95	134.69
Knock	29.20	9.88	-	16.68	-	13.25
Pick	35.68	19.81	63.91	26.43	73.65	35.20
Hull & dry	17.22	34.85	16.22	20.64	-	22.48
Haul	9.58	1.50	3.14	4.06	2.99	2.88
Total Cost Per Acre	258.31	198.87	186.11	204.39	214.59	208.50

The costs by operation include labor, tractor, materials, interest and depreciation or the actual cost when the work was hired.

Summary of Income and Expense for 1949

	Record No.	3	4	1	6	2	5	Av.
Yield - pounds		2,240	2,149	1,797	1,782	1,516	1,296	1,856
Av. Price per Cwt.		19.78	18.68	19.33	21.42	19.17	20.95	20.32
Cost per Cwt.		9.19	9.71	10.79	13.43	12.97	17.29	12.01
Management Income per Cwt.		10.59	8.97	8.54	7.99	6.20	3.66	10.40
Total Income per Acre		443.18	401.42	347.28	381.65	290.58	271.49	377.18
Total Cost per Acre		205.92	208.73	193.89	239.26	196.58	224.15	222.87
Management Income per acre		237.26	192.69	153.40	142.39	94.00	47.14	154.31

This summary of the 1949 Walnut Management Study Records is included in this report because the income figures were not available at the time the 1949 report was issued.

FOR MORE AND BETTER WALNUTS

Tree Spacing.

Many orchards are too crowded for best production and efficient management. Growers with such orchards should consider heavy trimming of alternate diagonal rows looking forward to later complete removal. This will allow remaining trees to develop fully.

Fertilization is necessary to maintain tree growth.

It is also thought that the extra foliage induced may help to prevent sunburn. Nitrogen at the rate of 100 to 150 pounds or more per acre of mature trees applied in late winter or early spring is the usually recommended practice.

Irrigation of walnuts is a most important practice.

Walnuts will root to considerable depths if the soil allows. In winters of deficient rainfall the lower root zone may not be wetted. Then early spring irrigation becomes important. The entire root zone should be kept above the wilting point throughout the irrigation season. Soil borings should be made to determine the condition if in doubt.

In some areas of high water table, flash irrigations are sometimes needed to keep the upper layer of the soil moist without adding to the water table. This permits the roots to explore all the soil available.

Pest and Disease Control.

Walnut aphids do far more damage than is generally realized. An aphicide is usually added to the May codlin moth spray when applied. Otherwise, whenever the aphid population is on the increase and approaches 10 per leaf, treatment is indicated.

Codlin moth is becoming a problem in many orchards, especially of the Payne variety. Some authorities figure that the actual damage is at least twice that shown by the packing house report. For instance, if the packing house reports 4% worm damage, the actual loss is 8% of the crop, since many of the damaged nuts do not reach the packing house.

Red spiders are sometimes serious on walnuts. Do not use sulfur on walnut trees. They are sensitive to it. See the 1952 Walnut Spray Program included in this report.

Walnut Blight exacts a heavy toll, particularly in the earlier blooming varieties. Some years it has been serious in all varieties. When properly applied, yellow copper oxide or other fixed coppers give good results.

Bordeaux mixture on walnut foliage is not recommended because of unfavorable reaction on the trees.

Branch wilt is a fungus disease which gains entrance through wounds or sunburned spots. Its first noticeable evidence is dead leaves which show up with the beginning of hot weather. After some weeks or months these leaves drop, leaving dead twigs or branches. The disease progresses downward into the tree much as does pear blight in pear trees.

There is some evidence that the disease is less severe in thrifty trees. Wounds should be avoided. Tree shakers, carefully used, will cause less wounds than knocking poles.

Once established, the only recognized remedy is to cut out and burn the attacked branches. Cut back of any evidence of the disease which may have progressed up to two feet beyond the visible evidence.

WALNUT SPRAY PROGRAM - 1952

Season	Insect or Disease	Treatment	Remarks
Dormant	Soft scales	Dormant oil emulsion 3 gals. water to make 100 gals.	Avoid spraying trees which are dry. Do not use oftener than once in 3 years.
Pre-bloom and Post-bloom	Blight	Yellow copper oxide 2 lbs. in 100 gals. water <u>or</u> other fixed coppers as recommended by manufacturer.	Timing is important. Exposed pistils may be killed.
About May 5	Codling Moth	Standard lead arsenate 2 lbs. plus $\frac{1}{2}$ lb. 50% DDT wetttable plus basic zinc sulfate $\frac{1}{2}$ lb. plus light medium summer oil $\frac{1}{3}$ gal. all with water to make 100 gals.	Mix as follows: Add lead to tank when $\frac{1}{2}$ full, then add oil when tank is $\frac{3}{4}$ full. Slurry DDT separately and add
	Aphis	Add 2/3 lb. of 10% gamma isomer B.H.C. or 1/3 lb. 25% Parathion.	Never use B.H.C. on walnuts later than this application. Permit required for Parathion
Summer	Aphis	5% nicotine dust, 30 lbs. per acre, or T.E.P.P. dust, or $\frac{1}{2}$ pt. 40% T.E.P.P. per acre or Parathion spray or dust.	Don't apply T.E.P.P. in hot part of day.
	Red-humped caterpillar	Basic lead arsenate	Either dust or spray.
	Red spider mite	Aramite 15% wetttable 1 lb. per 100 gals. or T.E.P.P. 40% - 1 pt. per acre in water to cover, or T.E.P.P. dust, or Parathion spray or dust.	Avoid sulfur on walnuts. Permit required for Parathion.
	Catalina cherry moth	Sprays or dusts not effective.	Harvest early.

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