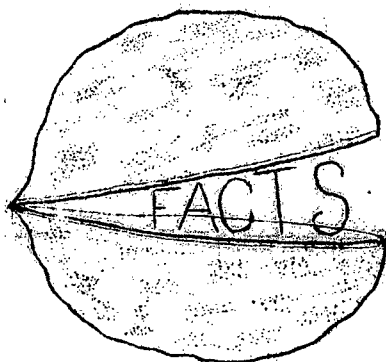


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Fourth Annual Summary  
of  
COST AND EFFICIENCY ANALYSIS ON WALNUT PRODUCTION  
Stanislaus County

1934

With Four-Year Summary



Compiled by  
THE AGRICULTURAL EXTENSION SERVICE  
University of California  
United States Department of Agriculture

## INTRODUCTION

The fourth annual summary and analysis of costs involved in producing walnuts are presented in this study which includes thirteen bearing walnut orchards representative of Stanislaus County, comprising six different commercial varieties for comparative study. The thirteen growers submitted complete records of yields, itemized costs and returns for the 1934 crop year on 271.8 acres.

The purpose of the study is to assist individual growers in analyzing their own walnut enterprise in order that they might make adjustments where possible to improve their net income. The study also furnishes data for other Stanislaus County walnut growers.

The 1934 year records show that the yields were heavier than in the previous years, the average production of all varieties being 1509 pounds per acre in 1934. This can be accounted for by the fact that several orchards in the study have not reached their full bearing possibilities and are increasing in production. The cost per pound was the lowest of the four-year study, being 6.46 cents, due to the increased yields per acre. The net profit per pound in the 1934 study was 3.97 cents. The average net price per pound was 10.43 cents, practically the same price as in 1933.

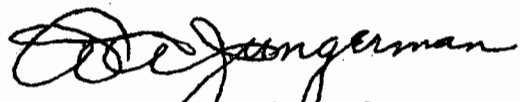
The variety question is still one on which no definite conclusion can be drawn at this time. With the use of Ethylene gas, the grades of such varieties as Eureka and Concord can be improved. These two varieties are heavy bearers, which would increase their returns and make these varieties compare favorably with good Franquettes, Mayettes and Paynes.

The 1934 study has again demonstrated that conclusions cannot be drawn from one or two years' studies. The 1934 study shows the Eureka to be the most profitable variety. This variety has shown improvement in net returns from fifth position in 1931, fourth in 1932, third in 1933 and first in 1934, making a steady yearly improvement. The 1935 year will determine if this variety can maintain its leadership in net return per acre to the grower.

The 1934 study shows the per cent earned on the investment of \$646.45 per acre was 15.3%. The total income per acre was \$157.44 while the total costs were \$97.55, leaving a net income per acre above all costs of \$59.89.

It is hoped to continue this study for at least another year, and if definite conclusions can be drawn with respect to certain cultural practices and varieties best adapted for this district for net income, such conclusions will be drawn from the summary of the five-year study.

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GENERAL SUMMARY

A comparison of the past four years' walnut records in Stanislaus County is shown in the general summary of Table 1. The individual's figures for 1934 may be entered in the designated column.

The 1934 crop year stands out as the most profitable of the four years insofar as those in the study were concerned. The most important factor accounting for this is the much higher yield per acre. Even though this year favored good production, one reason for the marked increase in yield was because a number of the orchards in the study are just beginning to come into full bearing. Table 2 shows several orchards to still be under 10 years of age. The lowest cost per cwt. and highest income per acre of any of the four years was the result of the increased yields even though prices did not improve.

Table 1.

	1931	1932	1933	1934	Your Record 1934
Number of records	14	14	15	13	
Number of acres reporting	415.8	333.8	310.8	271.8	
Average age of trees	11.7	14.0	13.5	15.0	
Average number trees per acre	17.9	18.0	19.2	19.7	
Yield--lbs. merchantable nuts per a.	865.0	971.0	824.0	1318.0	
Total yield--lbs. per acre	1007.0	1107.0	935.0	1509.0	
Per cent of nuts merchantable	85.9	87.0	88.2	87.3	
Av. net price per cwt. all nuts	\$ 13.58	\$ 9.25	\$ 10.47	\$ 10.43	
Total cost of production per cwt.	8.49	7.21	8.40	6.46	
Net profit per cwt.	5.09	2.04	2.07	3.97	
Cultural labor cost per acre	11.49	8.32	6.42	8.70	
Harvesting labor cost per acre	15.52	12.77	15.10	24.81	
Total labor cost per acre	27.01	21.09	21.52	33.51	
Cost of materials per acre	2.90	3.33	2.51	5.45	
Cash overhead cost per acre	5.75	5.33	4.22	5.48	
Total cash and labor cost per acre	35.66	29.75	28.25	44.44	
Depreciation charge per acre	8.99	10.66	10.57	14.32	
Interest charge per acre	40.81	39.38	39.76	38.79	
Total all costs per acre	85.46	79.79	78.58	97.55	
Total income per acre	136.65	102.37	97.89	157.44	
Income above cash costs per acre	100.99	72.62	69.64	113.00	
Capital and management income per a.	92.00	61.96	59.07	98.68	
Net profit above all costs per acre	51.19	22.58	19.31	59.89	
Investment per acre	680.31	656.34	662.73	646.45	
Per cent earned on investment	13.5%	9.4%	8.9%	15.3%	

GRADES AND RETURNS PER HUNDREDWEIGHT - INDIVIDUAL ORCHARDS 1934

The size of farm, varieties, age and yield for each individual record are shown in Table 2 along with the per cent of grades and average net price per cwt.

Although No. 2 orchard had the lowest yield of any in the high profit group, it was the most profitable due to the high quality of nuts produced. Of the nuts, 87.2% were Diamonds and the average returns of \$12.24 per cwt. for all nuts produced, the highest in the study, was nearly 2¢ per pound above the average returns for all orchards. Since all cooperators in this study are members of the Walnut Growers' Association, net returns are figured on the basis of opening prices minus an estimated 20% for Central marketing and the surplus pool costs minus estimated packing house costs. Table 11 shows net returns for each variety.

Table 2.

Serial Number	Number of Acres	Varieties and * Average Age		Av. Yield Lbs. per Acre	Per Cent of Grades					Average Net Price Per Cwt.				
					Dia- mond	Emer- ald	Sun- tand	Culls	Blows	Dia- monds	Emer- alds	Sun- tands	All mer- chantable	All Nuts Produced
2	7	M	19	1510	87.2	4.9	1.1	6.4	.4	\$13.10	\$ 9.86	\$ 9.98	\$12.89	\$12.24
16	9	P	7	1845	12.4	75.2	.6	11.2	.6	13.03	11.02	9.28	11.29	10.36
15	20	E	12	1762	0	55.4	35.4	8.7	.5	- -	11.69	10.53	11.23	10.51
12	35.6	All	14	2107	.1	63.3	25.5	10.4	.7	12.63	11.32	10.35	11.04	10.18
13	14	All	19	2338	29.9	28.9	23.0	17.4	.8	12.91	10.93	10.25	11.46	10.00
7	10	F-M	13	1823	7.2	37.0	45.5	9.0	.7	12.90	10.82	10.02	10.58	9.87
10	45.8	All	17	1764	69.0	15.7	1.6	12.2	1.5	13.19	10.74	10.26	12.69	11.38
5	30	F	20	1596	43.0	43.1	.6	12.6	.7	12.51	10.16	9.99	11.33	10.25
4	10	F-M	15	1523	0	64.4	25.8	9.7	.1	- -	11.17	9.97	10.83	10.10
3	8	E-M-F	9	1042	22.7	53.5	13.6	9.7	.5	13.12	11.69	10.44	11.86	10.99
17	10	P-E	7	1071	45.5	39.0	0	14.7	.8	13.54	10.82	- -	12.24	10.86
1	15	M-F	19	712	1.3	88.6	1.3	8.6	.2	11.81	11.30	9.67	11.29	10.60
14A	57.4	P	11	840	0	24.7	59.4	15.0	.9	- -	11.00	10.33	10.52	9.37
High	95.6	- -	-	1971	11.9	51.1	25.3	11.0	.7	12.99	11.27	10.32	11.23	10.31
Low	176.2	- -	-	1259	37.4	33.1	16.0	12.6	.9	13.04	10.81	10.29	11.68	10.54
Av. All	271.8	- -	-	1509	25.7	41.3	20.3	11.9	.8	13.03	11.07	10.30	11.47	10.43

\* M = Mayette; P = Payne; E = Eureka; F = Franquette

COSTS AND PROFIT PER HUNDREDWEIGHT - INDIVIDUAL ORCHARDS 1934

Individual orchards are arranged downwards in order of net profit per acre in all tables in the study, the first six making the highest net profit per acre comprising the high profit group, and the remaining seven the low profit group.

The high group showed a net profit of \$4.83 per cwt. as compared to \$3.24 for the lows. Higher yields and therefore lower costs per cwt. are responsible for the difference since returns were practically the same. As a matter of fact the low group had a slight price advantage.

Table 3.

Serial Number	Cultural Labor Costs	Pick Hull Out Dry	Deliver to Market	Total Harvesting Labor	Total All Labor Costs	Total Material Cost	Cash Overhead	Depreciation	Interest	Total All Costs	Av. Net Price	Net Profit	Farm Income
2	\$ .47	\$1.00	←	\$1.00	\$1.47	\$ .24	\$ .28	\$ .81	\$2.70	\$5.50	\$12.24	\$6.74	\$9.47
16	.38	1.12	.08	1.20	1.58	.84	.30	.34	2.09	5.15	10.36	5.21	7.48
15	.34	1.04	.13	1.17	1.51	.17	.25	.73	2.42	5.08	10.51	5.43	8.09
12	.59	1.15	.14	1.29	1.88	.41	.39	.78	2.19	5.65	10.18	4.53	7.17
13	.79	1.40	.17	1.57	2.36	.19	.41	1.08	1.96	6.00	10.00	4.00	5.96
7	.19	1.42	.08	1.50	1.69	.20	.26	.59	2.24	4.98	9.87	4.89	7.13
10	.70	2.52	.14	2.66	3.36	.33	.43	.98	2.11	7.21	11.38	4.17	6.28
5	.43	1.75	.14	1.89	2.32	.10	.28	.83	2.17	5.70	10.25	4.55	6.72
4	.47	1.19	.13	1.32	1.79	.26	.35	1.03	2.71	6.14	10.10	3.96	6.93
3	.61	1.15	.07	1.22	1.83	.42	.32	.13	3.19	5.89	10.99	5.10	8.37
17	.30	2.05	.05	2.10	2.40	.39	.37	.43	3.54	7.13	10.86	3.73	7.47
1	.94	1.03	.09	1.12	2.06	.29	.45	1.59	5.35	9.74	10.60	.86	6.25
14A	.76	1.19	- -	1.19	1.95	.80	.42	1.80	4.17	9.14	9.37	.23	4.40
High	.52	1.18	.13	1.31	1.83	.34	.33	.77	2.21	5.48	10.31	4.83	7.28
Low	.63	1.82	.13	1.92	2.55	.38	.39	1.10	2.88	7.30	10.54	3.24	6.83
Av. All	.58	1.53	.13	1.64	2.22	.36	.36	.95	2.57	6.46	10.43	3.97	7.04

LABOR COSTS PER ACRE - INDIVIDUAL ORCHARDS 1934

Cultural practices and costs vary quite widely between different orchards as can be noted in Tables 4 and 5. Labor costs on the important operations are shown in Table 4. Pruning and brush disposal costs varied from \$4.46 per acre down to nothing. No. 14A was the only one to plant a cover crop and have any frost protection. No. 2, the most profitable record had no cultivation cost while No. 13 spent \$10.74 per acre on this operation. Average cultural labor costs for all records averaged \$8.70 per acre.

Group averages and total averages show operational costs based upon the actual number of acres performing such.

Table 4.

Serial Number	Pruning and Brush Disposal	Plant Cover Crop	Fertilizing	Spraying	Dusting	Cultivation	Irrigation Preparation	Irrigation	Frost Protection	Misc. Labor	Total Cultural Costs	Harvesting Labor	Total All Labor Costs
2	\$4.46	--	--	--	\$1.71	--	--	\$ .86	--	--	\$7.03	\$15.10	\$22.13
16	1.45	--	.85	.85	--	3.32	.10	.50	--	--	7.07	22.08	29.15
15	1.20	--	--	--	--	4.32	.34	.23	--	--	6.12	20.44	26.56
12	1.42	--	--	.28	--	2.00	1.55	6.90	--	.24	12.39	27.33	39.72
13	2.96	--	3.37	--	.11	10.74	.16	.67	--	.58	18.59	36.68	55.27
7	1.00	--	--	--	--	2.50	--	--	--	--	3.50	27.35	30.85
10	2.38	--	--	4.06	.28	5.56	--	--	--	.04	12.32	46.86	59.18
5	3.52	--	--	--	.27	3.15	--	--	--	--	6.94	30.07	37.01
4	2.20	--	--	--	--	3.40	.78	.78	--	--	7.16	20.16	27.32
3	.12	--	.39	--	.13	3.35	--	1.84	--	.53	6.36	12.72	19.08
17	--	--	.07	--	--	3.18	--	--	--	--	3.25	22.50	25.75
1	2.16	--	--	--	--	2.30	.30	1.92	--	--	6.68	7.99	14.67
14A	2.18	.26	.51	.58	--	1.16	--	.87	.69	--	6.35	10.02	16.37
High	1.78	--	2.38	.39	.64	4.09	.83	3.16	--	.34	10.16	25.87	36.03
Low	2.38	.36	.44	2.12	.26	3.08	.49	1.12	.69	.11	7.90	24.25	32.15
Av. All	2.16	.36	.90	1.60	.33	3.42	.75	2.11	.69	.22	8.70	24.81	33.51

INVESTMENT OVERHEAD COSTS PER ACRE - INDIVIDUAL ORCHARDS 1934

Investment overhead consists of interest and depreciation charges on trees, improvements, and equipment and interest on land. Interest is charged at the rate of 6% while depreciation is based upon the cost and expected length of life of each item in the inventory.

Depreciation on trees is based on an estimated net cost of \$440 per acre to bring the trees into full bearing by the 12th year and a total length of life of 55 years. Three orchards in the study, Nos. 16, 3, and 17 were under 12 years of age and therefore had no tree depreciation charge.

Investment overhead for the high profit group averaged slightly above the low group. All records averaged \$53.11 per acre.

Table 6.

Serial Number	INTEREST				Total Interest Charge	DEPRECIATION			Total Depreciation Charge	Total Investment Overhead
	Trees	Improvements	Equipment	Land		Trees	Improvements	Equipment		
2	\$21.90	\$1.34	\$ .36	\$15.00	\$38.60	\$10.00	\$1.14	\$ .35	\$11.49	\$50.09
16	21.60	.42	1.55	15.00	38.57	- -	2.00	4.23	6.23	44.80
15	26.10	.10	1.45	15.00	42.65	10.00	.10	2.77	12.87	55.52
12	24.90	- -	6.11	15.00	46.01	10.00	- -	6.55	16.55	62.56
13	21.90	.78	8.19	15.00	45.87	10.00	2.00	13.24	25.24	45.87
7	25.50	.02	.20	15.00	40.72	10.00	.20	.58	10.78	51.50
10	23.10	.46	1.67	12.00	37.23	10.00	.42	7.04	17.46	54.69
5	21.30	.01	1.37	12.00	34.68	10.00	.07	3.16	13.23	47.91
4	24.30	- -	1.99	15.00	41.29	10.00	- -	5.71	15.71	57.00
3	25.20	.20	.32	7.50	33.22	- -	.31	1.05	1.36	34.58
17	21.60	.20	1.13	15.00	37.93	- -	.60	4.02	4.62	42.55
1	21.90	- -	1.15	15.00	38.05	10.00	- -	1.34	11.34	49.39
14A	26.10	.29	2.63	6.00	35.02	10.00	.23	4.90	15.13	50.15
High	24.24	.28	3.97	15.00	43.49	9.06	.61	5.44	15.11	58.60
Low	23.75	.23	1.81	10.44	36.23	8.98	.24	4.68	13.90	50.13
Av. All	23.92	.25	2.58	12.04	38.79	9.01	.37	4.94	14.32	53.11

TOTAL COSTS ON IMPORTANT OPERATIONS - INDIVIDUAL ORCHARDS 1934

In Table 8 labor, material, interest, and depreciation costs have been combined to show total costs for all of the important operations. For cultural operations per acre figures are given while comparative harvesting costs are on a per hundredweight basis.

Quite a variability exists between total costs for the different orchards. Some operators may find helpful information in this table when comparing their costs with others in the study.

Table 8.

Serial Number	Irrigation Per Acre*	Cultivation Per Acre	Spraying Per Acre	Dusting Per Acre	Heating Per Acre	Harvesting Per Cwt.
2	\$3.56	\$ .31	\$ - -	\$ 3.00	\$ - -	\$1.00
16	3.20	4.16	3.60	- -	- -	1.41
15	3.00	4.85	- -	- -	- -	1.41
12	18.15	2.00	1.12	- -	- -	1.76
13	4.86	11.59	- -	5.75	- -	2.22
7	2.40	3.17	- -	- -	- -	1.57
10	1.10	6.59	6.20	1.55	- -	3.17
5	1.04	3.55	- -	3.19	- -	2.00
4	7.59	7.38	- -	- -	- -	1.42
3	3.97	4.35	- -	.54	- -	1.27
17	3.24	3.34	- -	- -	- -	2.25
1	5.88	2.65	- -	- -	- -	1.15
14A	2.60	1.46	2.14	- -	3.50	1.62

\*These figures include irrigation taxes plus interest and depreciation costs on irrigation lay-outs.



GENERAL SUMMARY COMPARING VARIETIES

The six principal varieties of walnuts in this study are again compared as in the previous three years' studies. The varieties are listed from left to right in order of decreasing net profit per acre.

The results of the 1934 study, in comparing the six varieties as to net return to the grower, show the Eureka first. This variety has made a steady improvement each year for the past four years. The Franquette has been consistent in bringing net returns, being close to the top each year both in quality and returns per acre. The Payne cannot be fairly compared, as the age of the trees are less than other varieties in the study and should bear favorably with other varieties when in full bearing. The Mayette, as in other years, ranks first in quality but is far from first when it comes to net return per acre due to its lower yield--bearing 1075 pounds per acre while the Eureka production was 2144 pounds per acre in 1934. The problem for the Mayette growers is to increase the yield per acre, as this variety has produced the highest grade consistently for the past four years but is a low producer.

Table 9.

	Eureka	Franquette	El Monte	Mayette	Concord	Payne
Number of records	6	6	2	7	2	4
Acres reporting	73.8	44.1	11.7	47.4	3.9	78.2
Av. age of trees	13.8	18.8	16.5	16.7	18.1	10.8
Number of trees per acre	16.9	23.6	9.8	17.7	20.3	20.5
Total yield--lbs. per acre	2144	1703	1490	1075	1544	1026
Av. net price received per cwt.	\$10.58	\$10.61	\$10.87	\$10.93	\$ 9.49	\$ 9.35
Total all costs per cwt.	5.35	5.91	7.49	8.13	8.08	3.05
Net profit per cwt.	5.23	4.70	3.38	2.80	1.41	1.78
Cultural labor cost per acre	10.05	8.66	12.34	9.13	16.01	6.72
Harvesting labor cost per acre	36.10	32.68	30.04	14.37	31.22	14.81
Total labor cost per acre	46.15	41.34	42.38	23.50	47.23	21.59
Material cost per acre	5.61	2.91	6.32	4.26	5.01	7.48
Cash overhead cost per acre	6.81	5.43	6.98	5.15	8.21	4.10
Total cash and labor cost per a.	58.57	49.68	55.68	32.91	60.45	33.17
Depreciation cost per acre	14.62	14.36	17.30	14.12	22.05	13.67
Interest charge per acre	41.54	36.63	38.73	40.32	42.33	35.81
Total all costs per acre	114.73	100.67	111.71	87.35	124.83	82.65
Total income per acre	226.86	180.64	162.02	117.49	146.60	100.84
Net profit per acre	112.13	79.97	50.31	30.14	21.77	18.19
Income above cash and labor per a.	168.29	130.96	106.34	84.58	86.15	67.67

PER CENT OF NUTS IN EACH SIZE AND QUALITY GRADE BY VARIETIES

Table 10 gives a comparison of the quality of nuts by varieties produced by orchards in the 1934 study. Franquettes produced the greatest per cent of Diamonds and the lowest per cent of Suntands. Mayette had the least per cent of culls and blows and therefore the most merchantable nuts. Eureka improved in per cent of Diamonds this year over last. Some of this improvement at least is due to better harvesting practices in connection with this variety.

Table 10.

	Eureka	Franquette	El Monte	Mayette	Concord	Payne
Diamond Large	17.7	34.6	38.7	30.2	30.8	11.4
Diamond Fancy	2.4	13.3	2.7	2.5	1.2	1.8
Total per cent Diamond	20.1	47.9	41.4	32.7	32.0	13.2
Emerald Large	39.0	17.0	36.4	42.2	- -	26.8
Emerald Fancy	3.4	8.0	2.1	4.4	- -	5.3
Emerald Babies	2.4	15.2	2.2	2.7	.6	4.0
Total per cent Emerald	44.8	40.2	40.7	49.3	.6	36.1
Suntand Large	19.6	.3	6.6	4.9	42.4	29.3
Suntand Fancy	1.6	.1	.2	3.0	2.0	4.2
Suntand Babies	.5	- -	.1	1.1	.7	2.4
Total per cent Suntand	21.7	.4	6.9	9.0	45.1	35.9
Total per cent merchantable	86.6	88.5	89.0	91.0	77.7	85.2
Culls	12.8	10.9	10.6	8.7	18.9	13.4
Blows	.6	.6	.4	.3	3.4	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

NET PRICES RECEIVED PER HUNDREDWEIGHT FOR EACH GRADE BY VARIETIES

Net prices for the different varieties as given in Table 11 were figured as explained in the notes on Table 2. Culls were estimated at 5¢ minus Central, Surplus Pool, and House handling costs. Blows were considered a loss and therefore were charged 50¢ per cwt. to cover packing house handling costs. For the fourth successive year the Mayette variety brought the highest average returns for all nuts produced. This was because of the least amount of culls and blows.

Table 11.

	Eureka	Franquette	El Monte	Mayette	Concord	Payne
Diamond Large	\$13.67	\$13.27	\$13.27	\$13.15	\$13.27	\$13.27
Diamond Fancy	11.67	11.27	10.87	11.15	11.27	11.27
Average all Diamonds	13.43	12.68	13.12	13.00	13.20	13.00
Emerald Large	11.77	11.37	10.97	11.37	- -	11.37
Emerald Fancy	10.57	10.17	9.77	10.17	- -	10.17
Emerald Babies	8.97	8.97	8.17	8.17	8.17	8.97
Average all Emeralds	11.53	10.23	10.76	11.12	8.17	10.94
Suntand Large	10.57	10.57	10.17	10.57	10.17	10.57
Suntand Fancy	9.37	9.37	8.97	9.37	9.37	9.37
Suntand Babies	8.97	8.97	8.17	8.17	8.17	8.97
Average all Suntand	10.45	9.99	10.12	9.95	10.11	10.32
Av. price all merchantable	11.70	11.56	11.81	11.68	11.37	11.00
Culls (estimate)	3.50	3.50	3.50	3.50	3.50	3.50
Blows (estimate)	-.50	-.50	-.50	-.50	-.50	-.50
Average price all nuts	10.58	10.61	10.87	10.93	9.49	9.83