

## Early Leafing Lateral Bearing

### Costs for Establishing and Producing Walnuts

Southern San Joaquin Valley - 1984

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1. Acreage - The cost studies are based on a 60 acre orchard.
2. Varieties - A cost of establishment and a cost of production study was developed for each of three walnut variety types; 1) early-leafing lateral bearing, 2) late-leafing terminal bearing and 3) late-leafing lateral bearing. There are several differences among variety types that affect costs, labor and equipment requirements and yield. The most significant difference is the number of trees per acre; terminal-bearing trees are planted fewer to the acre than lateral-bearing. For the late-leafing varieties less pesticide applications are made than for the early-leafing varieties. Terminal bearing trees require less pruning per tree than lateral bearing trees. Of course, late-leafing varieties mature more slowly than early leafing varieties. This is reflected in the establishment cost studies in the fifth, sixth and seventh years. The differences in production practices among the three variety types will be explained in detail.
3. Spacing - Terminal bearing orchards are spaced 35' by 35' with 35 trees per acre. Lateral bearing orchards are planted 28' by 28' with 55 trees per acre.
4. Fertilizer - The rate of nitrogen applied is as follows:

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<u>Year</u>	<u>lbs/acre</u>
1	6
2	12
3	27
4	54
5	54
6	108
7	108
8+	150

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5. Irrigation system - A pipeline irrigation system is used. The first three years are flood irrigated. Borders are put after that and the centers are mowed.

Water applications rates are as follows:

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<u>Year</u>	<u>Acre Feet/Year</u>
1	1
2	1
3	1.5
4	2
5	3
6	3
7	3
8+	3.5

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6. Pesticide Application -

Early Leafing: 1 spray years 3-5, 2 sprays year 6, 4 sprays year 7 and on.

Late Leafing: 1 spray in the 4th year and then 1 spray every other year.  
(lateral and terminal bearing)

7. Pruning - Starting in year 5 a pruning tower is rented.

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<u>Year</u>	<u>Lateral Bearing</u> (early-leafing and late-leafing)	<u>Terminal Bearing</u> (late-leafing)
	<u>Hours/Acre</u>	
1	0.5	0.33
2	1	0.67
3	2	0.67
4	3	1
5	2	1
6	3	1.2
7	3	1.2
8+	4	1.2

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8. Labor Costs - Are based on an hourly rate of \$7.50 for skilled labor and \$5.75 for field labor. Included are cash wages, compensation insurance, social security, and other benefits that the employer might pay.

9. Equipment and Repair - Are listed under fuel and repair. Included are the cost of fuel, maintenance, replacement parts, tires, etc.

0. Harvest Costs - The first bearing year is hand-picked with the picker receiving half the crop. Following years are mechanically harvested. The custom rate includes a one ton minimum charge.

1. Overhead Costs - County taxes represent a set fee while office and

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business costs are estimated at about 8% of the total cultural costs. They include such costs as preparing roadways, general weed control, office, bookkeeping, etc.

12. Investment Cost - In allocating the equipment cost per acre, the following calculations were made: (a) "Original Cost" of equipment is the estimated new cost and includes 6% sales tax. (b) "Cost Per Acre" is the new cost divided by the number of acres the equipment will be used on. (c) "Depreciation" is based on the "Per Acre Cost" divided by the expected life of the equipment. (d) "Interest" on investment is figured on one-half of the new cost per acre multiplied by 13%. (e) The investment cost per acre is calculated as 60% of the cost of all new equipment to reflect a mix of new and used equipment.



## OVERHEAD COSTS:

County taxes	60	60	60	60	60	120
Office and Business Costs	74	19	24	22	24	30

TOTAL OVERHEAD COSTS	134	79	84	82	84	150
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TOTAL CASH COSTS	1064	314	379	363	486	683
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ACCUMULATED CASH COSTS	1064	1378	1757	2120	2606	3289
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## DEPRECIATION:

Building, equipment, and irrigation system	68	68	68	68	68	68
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## INTEREST ON INVESTMENT @ 13%:

Building, equipment, and irrigation system	57	57	57	57	57	57
Land \$6000	780	780	780	780	780	780
Interest in accum. cash cost	138	179	228	276	339	428

TOTAL INTEREST ON INVESTMENT	975	1016	1065	1113	1176	1265
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TOTAL COST FOR THE YEAR	2108	1398	1513	1560	1730	2015
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## CREDIT FOR PRODUCTION

.35/LB. In-shell					175	350
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NET COST FOR THE YEAR	2108	1398	1513	1560	1555	1665
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ACCUMULATED NET COST	2108	3506	5018	6578	8133	9798
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SAMPLE COSTS TO PRODUCE ENGLISH WALNUTS

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Labor rate \$ 7.50 /hr. skilled labor  
5.75 /hr. field labor

Yield: 3500 pounds of dry nuts per acre

Operation	Labor Hours per Acre	Labor	Cash and Fuel & Repairs	Labor Costs per Acre		Total Cost	Your Cost
				Kind and Quantity	Materials Cost		
<b>Cultural costs:</b>							
Pruning	4	30.00		Tower Rental \$20/hr.	80.00	110.00	
Brush Disposal	1.2	9.00	8.00			17.00	
Fertilizer				150 lbs. N @ .33/lb.	49.50	49.50	
				Custom application	6.00	6.00	
Oray: Pest Control 4X				Materials	112.00	112.00	
				Custom application	48.00	48.00	
Prillage and Irrig. pre	1	5.75				5.75	
Irrigation	1	5.75		3.5 ac.ft. @ \$14.00/ ac. ft. + \$6.00 tax	55.00	60.75	
Oray: weed control				Materials and Applic.		26.80	
ow 5X	2.5	18.75	22.50			41.25	
isc.	1	7.50	7.00			14.50	
Interest on operating capital @ 13%						63.90	
<b>TOTAL CULTURAL COSTS</b>	<b>10.7</b>	<b>76.75</b>	<b>37.50</b>		<b>350.50</b>	<b>555.45</b>	
<b>Harvest costs:</b>							
Shake, pick haul				Custom \$120/ton	210.00	210.00	
ull and Dry				\$70/ton	122.50	122.50	
<b>TOTAL HARVEST COSTS</b>						<b>332.50</b>	
<b>Cash overhead:</b>							
Office and business costs						71.04	
ounty Taxes						120.00	
<b>TOTAL CASH OVERHEAD COSTS</b>						<b>191.04</b>	
<b>TOTAL CASH COSTS</b>						<b>1078.99</b>	
<b>TOTAL CASH COST PER TON</b>						<b>616.56</b>	
<b>Investment</b>							
	Per Acre			Annual Cost			
				Depreciation	Interest @ 13%		
Equipment & buildings	880.00			67.57	57.20	124.87	
ees 40 yr. depreciation	9798.00			244.95	636.87	881.82	
nd	6000.00				780.00	780.00	
<b>TOTAL INVESTMENT COSTS</b>	<b>16678.00</b>			<b>312.62</b>	<b>1474.07</b>	<b>1786.69</b>	
<b>TOTAL COSTS PER ACRE</b>						<b>2865.68</b>	
st per ton @	3500 lbs. yield					<b>1637.53</b>	

Cost of Producing Walnuts at Varying Yields  
Early Leafing Lateral Bearing

	POUNDS PER ACRE								
	1000	1500	2000	2500	3000	3500	4000	4500	5000
Cultural costs	555.45	555.45	555.45	555.45	555.45	555.45	555.45	555.45	555.45
Harvest cost	155.00	172.50	190.00	237.50	285.00	332.50	380.00	427.50	475.00
Cash overhead	176.84	178.24	179.64	183.44	187.24	191.04	194.84	198.64	202.44
Total cash cost	887.29	906.19	925.09	976.39	1027.69	1078.99	1130.29	1181.59	1232.89
Investment cost	1786.69	1786.69	1786.69	1786.69	1786.69	1786.69	1786.69	1786.69	1786.69
Total cost	2673.98	2692.88	2711.78	2763.08	2814.38	2865.68	2916.98	2968.28	3019.58

Income Above Cash Costs at Varying Yields & Prices

POUNDS PER POUND	POUNDS PER ACRE								
	1000	1500	2000	2500	3000	3500	4000	4500	5000
25	-637.29	-551.19	-425.09	-351.39	-277.69	-203.99	-130.29	-56.59	17.11
30	-587.29	-456.19	-325.09	-226.39	-127.69	-28.99	69.71	168.41	267.11
35	-537.29	-381.19	-225.09	-101.39	22.31	146.01	269.71	393.41	517.11
40	-487.29	-306.19	-125.09	23.61	172.31	321.01	469.71	618.41	767.11
45	-437.29	-231.19	-25.09	148.61	322.31	496.01	669.71	843.41	1017.11
50	-387.29	-156.19	74.91	273.61	472.31	671.01	869.71	1068.41	1267.11
55	-337.29	-81.19	174.91	398.61	622.31	846.01	1069.71	1293.41	1517.11
60	-287.29	-6.19	274.91	523.61	772.31	1021.01	1269.71	1518.41	1767.11

Income Above Total Costs at Varying Yields & Prices

POUNDS PER POUND	POUNDS PER ACRE								
	1000	1500	2000	2500	3000	3500	4000	4500	5000
25	-2423.98	-2317.88	-2211.78	-2138.08	-2064.38	-1990.68	-1916.98	-1843.28	-1769.58
30	-2373.98	-2242.88	-2111.78	-2013.08	-1914.38	-1815.68	-1716.98	-1618.28	-1519.58
35	-2323.98	-2167.88	-2011.78	-1888.08	-1764.38	-1640.68	-1516.98	-1393.28	-1269.58
40	-2273.98	-2092.88	-1911.78	-1763.08	-1614.38	-1465.68	-1316.98	-1168.28	-1019.58
45	-2223.98	-2017.88	-1811.78	-1638.08	-1464.38	-1290.68	-1116.98	-943.28	-769.58
50	-2173.98	-1942.88	-1711.78	-1513.08	-1314.38	-1115.68	-916.98	-718.28	-519.58
55	-2123.98	-1867.88	-1611.78	-1388.08	-1164.38	-940.68	-716.98	-493.28	-269.58
60	-2073.98	-1792.88	-1511.78	-1263.08	-1014.38	-765.68	-516.98	-268.28	-19.58

ENGLISH WALNUT ORCHARD  
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EQUIPMENT AND BUILDING LIST

ITEM	ORIGINAL COST	ANNUAL USE (ACRES)	COST PER ACRE	LIFE (YEARS)	OVERHEAD DEPREC- IATION	INTEREST AT 13%	COST PER HOUR
tractors:							
55 HP wheel diesel	30000	60	500.00	10	50.00	32.50	7.00
disk, tandem 14'	7500	60	125.00	10	12.50	8.13	3.60
float	9500	60	158.33	10	15.83	10.29	4.56
power	4000	60	66.67	10	6.67	4.33	2.00
brush Rake	1000	60	16.67	15	1.11	1.08	1.00
pipeline Irrigation System	24000	60	400.00	20	20.00	26.00	
buildings	12000	60	200.00	30	6.67	13.00	
TOTAL COST	88000		1466.67		112.78	95.33	
% OF NEW COSTS	52800		880.00		67.67	57.20	