

## Late 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:

<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

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.

<u>Year</u>	<u>Lateral Bearing (early-leafing and late-leafing)</u>	<u>Terminal Bearing (late-leafing)</u>
	<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

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.

10. 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.

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

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.

English Walnut Orchard Establishment Costs  
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Cost Analysis Work Sheet

Costs are for an orchard planted 28' x 28', with 55 trees per acre. A pipeline irrigation system is used. Numbers have been rounded to the nearest dollar.

Skilled Labor \$ 7.50  
Field Labor \$ 5.75

Costs Per Acre

	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th year
YIELD: lbs./acre In-shell	---	---	---	---	---	400	900

**CULTURAL COSTS:**

Land Preparation: subsoil contract	160						
Disk and Float: 4 hours labor and tractor	45						
Trees: 55 @ \$8.5 (+2 2nd Yr. and 1 3rd Yr.)	468	17	9				
Survey and Plant: 55 @ \$1.00 2nd and 3rd Yrs. \$3.	55	6	3				
Prune and Train (skilled hand labor)	4	8	15	23	55	83	83
Brush Disposal	5	9	19	28	28	106	106
Tillage and Irrigation Preparation: 7hrs. yrs. 1-3							
1 hr. yrs. 4+	127	127	127	18	18	18	18
Put up borders				30			
Mow middles				41	41	41	41
Spray: weed control				27	27	27	27
Irrigation: 4hrs. labor 1st 2 yrs., 6 hrs. 3rd yr., 1hr. 4+ yrs.	23	23	35	6	6	6	6
Water: \$14 ac. ft. plus \$6 acre district tax	20	20	27	34	48	48	48
Fertilizer: Nitrogen \$.33/Lb .5 hr. labor and tractor	2	4	9	18	18	36	36
	7	7	7	7	7	7	7
Spray: pest control materials Custom application				19		19	
				14		14	
Misc. labor and power, 1hr. labor and tractor	15	15	15	15	15	15	15
<b>TOTAL CULTURAL COSTS</b>	<b>930</b>	<b>235</b>	<b>264</b>	<b>279</b>	<b>263</b>	<b>420</b>	<b>367</b>

**HARVESTING COSTS:**

Hand pick-\$5.35/lb. for .5 of crop						70	
Shake, pick haul \$120/ton, 1 ton minimum							120
Wash and Dry \$70/ton						14	32

**TOTAL HARVESTING COSTS**

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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 Kind and Quantity	Materials Cost	Total Cost	Your 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	
Spray: Pest Control every other year				Materials-\$19/spray	9.50	9.50	
				Custom app. \$14/spray	7.00	7.00	
Tillage 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	
Spray: weed control						26.80	
Flow 5X	2.5	18.75	22.50			41.25	
Misc.	1	7.50	7.00			14.50	
Interest on operating capital @ 13%						45.25	
<b>TOTAL CULTURAL COSTS</b>	<b>10.7</b>	<b>76.75</b>	<b>37.50</b>		<b>207.00</b>	<b>393.30</b>	
<b>Harvest costs:</b>							
Shake, pick haul				Custom \$120/ton	210.00	210.00	
Shake 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						58.06	
County Taxes						120.00	
<b>TOTAL CASH OVERHEAD COSTS</b>						<b>178.06</b>	
<b>TOTAL CASH COSTS</b>						<b>903.86</b>	
<b>TOTAL CASH COST PER TON</b>						<b>516.49</b>	
<b>Investment</b>							
	<b>Per Acre</b>			<b>Annual Cost</b>			
				<b>Depreciation</b>		<b>Interest @ 13%</b>	
Equipment & buildings	880.00			67.67	57.20	124.87	
Trees 40 yr. depreciation	11659.00			291.48	757.84	1049.31	
Land	6000.00				780.00	780.00	
<b>TOTAL INVESTMENT COSTS</b>	<b>18539.00</b>			<b>359.15</b>	<b>1595.04</b>	<b>1954.18</b>	
<b>TOTAL COSTS PER ACRE</b>						<b>2858.04</b>	
<b>Cost per ton @ 3500 lbs. yield</b>						<b>1633.17</b>	

ENGLISH WALNUT ORCHARD  
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EQUIPMENT AND BUILDING LIST

ITEM	ORIGINAL COST	ANNUAL USE (ACRES)	COST PER ACRE	LIFE (YEARS)	OVERHEAD DEPRECIATION	INTEREST AT 13%	COST PER HOUR
<b>Tractors:</b>							
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
Mower	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	
<b>TOTAL COST</b>	<b>88000</b>		<b>1466.67</b>		<b>112.78</b>	<b>95.33</b>	
<b>60% OF NEW COSTS</b>	<b>52800</b>		<b>880.00</b>		<b>67.67</b>	<b>57.20</b>	