

# **PECANS**

## **Costs for Establishing and Producing**

### **Southern San Joaquin Valley**

**1989**

**University of California  
Cooperative Extension**

UC Cooperative Extension

## COSTS FOR ESTABLISHING AND PRODUCING PECANS SOUTHERN SAN JOAQUIN VALLEY - 1989

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1. **YIELD:**

Economic bearing is assumed to commence in the 4th year from planting.

Yield	<u>YEAR</u>						Mature
	1	2	3	4	5	6	
Lbs/Acre	0	0	0	80	300	800	2000

2. **LABOR COSTS:**

Are based on an hourly rate of \$8.00 for skilled labor and \$6.00 for filed labor. Included are cash wages, workman's compensation insurance, social security, and other benefits that the employer might pay.

3. **ACREAGE:**

The cost study is based on a 60 acre orchard 3 acres of which consists of roads and burn areas.

4. **SPACING:**

The trees in this orchard are spaced 28' by 28' which is 55 trees per acre.

5. **VARIETIES:**

It is assumed that 20% of the orchard consists of at least one pollinator variety. Pollinator varieties do not normally have special cultural requirements although they usually mature later than the main variety.

6. **IRRIGATION SYSTEM:**

A pipeline flood irrigation system is used to deliver irrigation district water.

<u>YEAR</u>	<u>TREE REQUIRES</u>	<u>ACRE FEET/YEAR</u> <u>(Amount Needed)<sup>1/</sup></u>
1	1	1.4
2	1	1.4
3	1.5	2.1
4	2	2.9
5	3	4.3
6	3	4.3
7	4	5.7
8+	4	5.7

1/ This flood system is judged 70% efficient thus water "amount needed" exceeds tree requirements by that amount.

7. FERTILIZER

NITROGEN:

The rate of nitrogen applied is as follows:

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<u>YEAR</u>	<u>LBS/YEAR</u>
1	0
2	6
3	12
4	27
5	54
6	100
7	150
8	150

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ZINC:

Zinc is required and applied as a foliar spray. Foliar treatments are made at the rate of 4-6 lbs zinc sulfate (36%) + 2-3 lbs of low biuret (L.B.) urea per 100 gallons of water. Usually 250 gallons of solution per acre is applied beginning at bud break and at 4-6 week intervals up to mid August.

8. PESTICIDE APPLICATION:

Pesticide is required two times per year to control aphids at an application cost of \$15 per acre per application. For two applications, zinc is commonly included and applied with these sprays.

Twenty-five percent of the acreage is sprayed with herbicide (borders) twice during the season (one "preemergence" & one "contact").

9. PRUNING:

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<u>YEAR</u>	<u>HRS/ACRE</u>
1	0.5
2	1
3	2
4	3
5*	3*
6	4
7	4
8+	4

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\* A tower is rented from years 5 on.

10. BRUSH REMOVAL:

Pruning brush is removed from the orchard.

11. HARVEST COST:

The first two bearing years are hand-picked with the picker receiving half the crop. The following years are mechanically harvested on a cost per ton basis, one ton minimum charge.

12. INTEREST:

An operating interest rate of 13% is assumed. Operating capital is assumed to be borrowed for 6 months of each establishment and producing year. Interest is also charged on accumulated cash costs in establishment years to reflect interest charged on a long-term establishment loan. Interest is also charged on investment capital at 11% to account for the income foregone by keeping money tied up in capital equipment.

13. 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.

14. FUEL AND REPAIR:

Included are the cost of fuel, maintenance, replacement parts, tires, etc.

15. INVESTMENT COST:

In allocating the cost of owning equipment per acre, the following calculations were made: (a) "Original Cost" of equipment is the estimated new cost and includes 6% sale 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.

16. LAND:

Land is valued at \$5000 per acre. At full production, the ranch is assessed at \$8000 per acre for tax purposes. The ranch is not included in the Williamson Act.

**SAMPLE COSTS TO ESTABLISH PECAN ORCHARD**  
Southern San Joaquin Valley - 1989

Costs are for an orchard planted 28' X 28', with 55 trees/acre. A pipeline irrigation system is used.

Skilled labor: \$8.00 per hour                      Interest rate: 12.0%  
Field labor: \$6.00 per hour

YEAR	Costs per Acre						
	1st	2nd	3rd	4th	5th	6th	7th
YIELD (Pounds/acre)	---	---	---	80	300	800	1,000
<b>Planting costs</b>							
Land preparation: subsoil & level - contract	160						
Disk and Float: 4 hours - labor and tractor	76						
Trees: 55 @ \$10.50 (+2 2nd Yr. & 1 3rd Yr.)	578	21	11				
Survey & Plant: 55 @ \$1.50 (2nd & 3rd yr. 3)	83	6	3				
<b>TOTAL PLANTING COSTS</b>	<b>\$896</b>	<b>\$27</b>	<b>\$14</b>				
<b>Cultural costs:</b>							
Prune and train (skilled hand labor)	\$4	\$8	\$15	\$23	\$55	\$83	\$112
Brush disposal	5	9	20	20	20	20	20
Tillage and Irrigation Preparation: 7 hrs. yr. 1, 1 hr. yrs. 2+	127	17	17	17	17	17	17
Put up borders	30	0	0	0	0	0	0
Mow middles (5 times)	0	40	40	40	40	40	40
Weed control sprays (material & application)	0	42	42	42	42	42	42
Irrig. labor: 4 hrs. 1st yr. 1 hr. yrs. 2+	24	6	6	6	6	6	6
Water @ \$20/ac. ft. + \$6/ac. district tax	36	36	56	76	106	106	120
Fertilizer: Nitrogen \$0.33/lb .5 hr. labor and tractor	2	4	9	18	18	36	36
Zinc sprays (4 times) Application	0	9	16	24	24	24	32
Pest control sprays Custom application	0	11	21	27	27	27	27
Miscellaneous labor and power - 1 hour	16	16	16	16	16	16	16
Pick-up truck costs	25	25	25	25	25	25	25
<b>TOTAL CULTURAL COSTS</b>	<b>\$276</b>	<b>\$260</b>	<b>\$350</b>	<b>\$401</b>	<b>\$463</b>	<b>\$509</b>	<b>\$560</b>
<b>Harvesting Costs:</b>							
Hand pick for 1/2 crop @ \$.95/lb				38			
Catching frame, \$75/acre					75		
Shake, sweep, pick & haul, \$130/ton-1 ton min.							130
Pole nuts, \$20/acre							20
Hull and dry, \$85/ton				3	13	34	43
<b>TOTAL HARVEST COSTS</b>				<b>\$41</b>	<b>\$88</b>	<b>\$109</b>	<b>\$193</b>
<b>Overhead Costs:</b>							
Office and business costs	100	100	100	100	100	100	100
County Taxes	54	54	54	54	54	151	166
Insurance	3	3	3	3	3	3	3
<b>TOTAL OVERHEAD COSTS</b>	<b>\$158</b>	<b>\$158</b>	<b>\$158</b>	<b>\$158</b>	<b>\$158</b>	<b>\$255</b>	<b>\$270</b>
<b>TOTAL CASH COSTS</b>	<b>\$1,330</b>	<b>\$444</b>	<b>\$521</b>	<b>\$600</b>	<b>\$709</b>	<b>\$873</b>	<b>\$1,022</b>
<b>ACCUMULATED CASH COSTS</b>	<b>\$1,330</b>	<b>\$1,774</b>	<b>\$2,295</b>	<b>\$2,896</b>	<b>\$3,604</b>	<b>\$4,478</b>	<b>\$5,500</b>

YEAR	Costs per Acre						
	1st	2nd	3rd	4th	5th	6th	7th
<b>Depreciation:</b>							
Buildings, equipment and irrigation system	80	80	80	80	80	80	80
<b>TOTAL DEPRECIATION</b>	<b>\$80</b>	<b>\$80</b>	<b>\$80</b>	<b>\$80</b>	<b>\$80</b>	<b>\$80</b>	<b>\$80</b>
<b>Interest on Investment</b>							
Buildings, equipment and irrigation system	52	52	52	52	52	52	52
Land \$5000/acre	600	600	600	600	600	600	600
Interest on accumulated cash costs	160	213	275	347	433	537	660
<b>TOTAL INTEREST ON INVESTMENT</b>	<b>\$812</b>	<b>\$865</b>	<b>\$927</b>	<b>\$999</b>	<b>\$1,085</b>	<b>\$1,189</b>	<b>\$1,312</b>
<b>TOTAL COST FOR THE YEAR</b>	<b>\$2,221</b>	<b>\$1,389</b>	<b>\$1,529</b>	<b>\$1,680</b>	<b>\$1,873</b>	<b>\$2,143</b>	<b>\$2,414</b>
<b>CREDIT FROM HARVEST @ \$0.95/POUND in shell</b>				<b>\$76</b>	<b>\$285</b>	<b>\$760</b>	<b>\$950</b>
<b>NET COST FOR THE YEAR</b>	<b>\$2,221</b>	<b>\$1,389</b>	<b>\$1,529</b>	<b>\$1,604</b>	<b>\$1,588</b>	<b>\$1,383</b>	<b>\$1,464</b>
<b>TOTAL ACCUMULATED NET COST</b>	<b>\$2,221</b>	<b>\$3,610</b>	<b>\$5,139</b>	<b>\$6,743</b>	<b>\$8,331</b>	<b>\$9,714</b>	<b>\$11,178</b>

SAMPLE COSTS TO PRODUCE PECANS  
Southern San Joaquin Valley - 1989

Labor Rate:           \$8.00/hr. skilled labor  
                          \$6.00/hr. field labor

Interest Rate:           12%  
Yield - dry (lbs/acre): 2,000

Operation	Tractor/ Implement		Hours	Cash and Labor Costs per Acre				Total Cost	Your Cost	
	No.	Implement		Labor Cost/A	Fuel & Repairs	Material Cost	Custom /Rent			
Cultural costs:										
Pruning			4.0	\$32.00			\$80.00	\$112		
Brush Disposal	1	6	1.2	10.56	\$9.59			20		
Fertilize (100# N @ \$.33)						\$36.00	6.00	42		
Zinc 4X (incl. L.B., Urea)						32.00	30.00	62		
Spray: Pest Control 3X						27.00	30.00	57		
Tillage and irrig. prep.	1	2	1.0	8.80	8.55			17		
Irrigation (8 X 8.5" = 68")		8				120.00		120		
Labor			1.0	6.00				6		
Spray: Weed Control							42.00	42		
Mow 5X	1	4	2.5	22.00	18.37			40		
Miscellaneous			1.0	8.00	7.50			16		
Costs for pick up truck					25.00			25		
Interest on operating capital @ 12%								40		
<b>TOTAL CULTURAL COSTS</b>			11	\$87	\$69	\$215	\$188	\$599		
Harvest Costs:										
Shake, sweep, pick and haul	\$130 per ton, 1 ton minimum						\$130	\$130		
Pole nuts	\$20 per acre						20	20		
Hull & Dry	\$85 per ton						85	85		
<b>TOTAL HARVEST COSTS</b>							\$235	\$235		
Cash overhead:										
Office and business costs								\$100		
County Taxes								110		
Equipment Insurance								3		
<b>TOTAL CASH OVERHEAD COSTS</b>								\$214		
<b>TOTAL CASH COSTS</b>								\$1,048		
<b>TOTAL CASH COST/TON:</b>			2000 lbs/acre yield						\$1,048	
Investment										
	Per production Acre	Annual Cost		Depreciation		Interest @ 12%				
Land (bare)	\$5,000					\$600		\$600		
Equipment & buildings	863		\$80			52		132		
Trees (40 yr. depreciation)	11,178		279			671		950		
<b>TOTAL INVESTMENT COSTS</b>			\$ 17,041	\$359		\$1,322		\$1,682		
<b>TOTAL COSTS PER ACRE</b>								\$2,730		
<b>TOTAL COST/TON:</b>			2000 lbs/acre yield						\$2,730	

MONTHLY SUMMARY OF PER ACRE CASH COSTS FOR PECANS

Production Year: December - November  
Southern San Joaquin Valley - 1989

Operation	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	TOTAL
Cultural costs:													
Pruning		112.0											\$112
Brush Disposal		20.1											20
Fertilize (100# N)							42.0						42
Zinc 4X *					15.5	15.5		15.5	15.5				62
Spray:Pest Control 3X						19.0		19.0		19.0			57
Tillage & irrig. prep										17.3			17
Irrigation (8 X 8.5")				12.0	12.0	12.0	12.0	24.0	24.0	24.0			120
Labor				.6	.6	.6	.6	1.2	1.2	1.2			6
Spray: Weed Control												42.0	42
Mow 5X			8.1		8.1		8.1	8.1	8.1				40
Miscellaneous					7.8						7.8		16
Pick-up truck costs	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	25
Interest on operating capital @ 11%		1.4	1.5	1.6	2.1	2.6	3.3	4.0	4.6	5.3	5.4	8.3	40
<b>TOTAL CULTURAL COSTS</b>	<b>\$2</b>	<b>\$136</b>	<b>\$12</b>	<b>\$16</b>	<b>\$48</b>	<b>\$52</b>	<b>\$68</b>	<b>\$74</b>	<b>\$55</b>	<b>\$69</b>	<b>\$15</b>	<b>\$52</b>	<b>\$599</b>
Harvest Costs (1.0 tn/A)													
Shake,sweep,pick,haul												130.0	130
Pole nuts												20.0	20
Hull & Dry												85.0	85
<b>TOTAL HARVEST COSTS</b>												<b>\$235</b>	<b>\$235</b>
Cash overhead:													
Office and business	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	100
County Taxes			55.1				55.1						110
Equipment Insurance				3.5									3
<b>TOTAL CASH OVERHEAD</b>	<b>\$8</b>	<b>\$8</b>	<b>\$63</b>	<b>\$12</b>	<b>\$8</b>	<b>\$8</b>	<b>\$63</b>	<b>\$8</b>	<b>\$8</b>	<b>\$8</b>	<b>\$8</b>	<b>\$8</b>	<b>\$214</b>
<b>TOTAL CASH COSTS</b>	<b>\$10</b>	<b>\$144</b>	<b>\$75</b>	<b>\$28</b>	<b>\$56</b>	<b>\$60</b>	<b>\$131</b>	<b>\$82</b>	<b>\$64</b>	<b>\$77</b>	<b>\$24</b>	<b>\$296</b>	<b>\$1,048</b>

\* Applied foliar 4 times.



**EQUIPMENT AND BUILDING LIST FOR PECANS**  
Southern San Joaquin Valley - 1989

Interest Rate: 12%

Fuel Cost per Gallon \$.80  
\$.86

ITEM #	DESCRIPTION	NEW COST	ANNUAL USE (ACRES)	COST PER ACRE	LIFE (HRS)	YEARS TO TRADE	OVERHEAD*			HOURLY COSTS		
							DEPRECIATION	INTEREST*	TAR*	FUEL*	REPAIRS*	TOTAL
Tractors:												
1	55 HP wheel diesel	\$20,000	60	\$333	12,000	10	\$33.33	\$20.00	120%	\$2.95	\$2.00	\$4.95
2	Disc, tandem 14'	7,500	60	125	2,500	10	12.50	7.50	120		3.60	3.60
3	Float	2,000	60	33	2,500	10	3.33	2.00	120		.96	.96
4	Mower	4,000	60	67	2,000	10	6.67	4.00	120		2.40	2.40
5	Brush rake	1,000	60	17	2,500	15	1.11	1.00	100		.40	.40
6	Brush shredder	7,600	60	127	2,500	10	12.67	7.60	100		3.04	3.04
7	Weed sprayer, SP	1,650	60	28	2,000	10	2.75	1.65	120	2.58	.99	3.57
8	Pipeline irrigation system	24,000	60	400	27,000	20	20.00	24.00	10		.09	.09
9	Pick-up, 1/2 ton	14,000	60	233	2,000	7	33.33	14.00	60			
	Miscellaneous shop tools	4,500	60	75		10	7.50	4.50				
	Buildings	12,000	60	200		30	6.67	12.00				
TOTAL COST		\$86,250		\$1,438			\$133	\$86				
60% OF NEW COSTS*		\$51,750		\$863			\$80	\$52				

\* DEFINITIONS:

- YEARS TO TRADE----- The projected life of the machine in years adjusted for excessive annual use.
- OVERHEAD ----- Per acre per year.
- DEPRECIATION ----- "COST PER ACRE" divided by "YEARS TO TRADE"
- INTEREST----- ("COST PER ACRE" X "INTEREST RATE") divided by 2 = average interest cost per acre per year.
- TAR----- Total accumulated repairs. The total cost of repairs during the machine's life expressed as a percent of "NEW COST". Calculated from equations based on equipment type and annual use.
- HOURLY COST OF FUEL----- Diesel fuel, oil and lube costs per hour = HP x cost of diesel fuel/gal X 0.0667.  
Gasoline fuel, oil and lube costs per hour = HP x cost of gasoline/gal X 0.0889.
- HOURLY COST OF REPAIRS-- ("NEW COST" X "TAR") divided by ("LIFE IN HOURS").
- 60% OF NEW COSTS ----- Used to reflect a mix of new and used equipment.

**COST TO PRODUCE PECANS AT VARYING PRICES AND YIELDS**

	YIELD (Pounds/acre)					
	500	1000	1500	2000	2500	3000
Cultural Costs	599	599	599	599	599	599
Harvest Costs	74	128	181	235	289	343
Cash Overhead	214	214	214	214	214	214
Cash cost/acre	887	941	994	1,048	1,102	1,156
Cash cost/ton	3,548	1,881	1,326	1,048	882	770
Investment cost	1,682	1,682	1,682	1,682	1,682	1,682
<b>TOTAL COST/ACRE</b>	<b>2,569</b>	<b>2,622</b>	<b>2,676</b>	<b>2,730</b>	<b>2,784</b>	<b>2,837</b>
<b>TOTAL COST/TON</b>	<b>10,275</b>	<b>5,245</b>	<b>3,568</b>	<b>2,730</b>	<b>2,227</b>	<b>1,892</b>

**PER ACRE INCOME ABOVE CASH COSTS AT VARYING PRICES AND YIELDS**

Dollars per Pound	YIELD (Pounds/acre)					
	500	1000	1500	2000	2500	3000
.80	-487	-141	206	552	898	1,244
.85	-462	-91	281	652	1,023	1,394
.90	-437	-41	356	752	1,148	1,544
.95	-412	9	431	852	1,273	1,694
1.00	-387	59	506	952	1,398	1,844
1.05	-362	109	581	1,052	1,523	1,994
1.10	-337	159	656	1,152	1,648	2,144
1.15	-312	209	731	1,252	1,773	2,294
1.20	-287	259	806	1,352	1,898	2,444

**PER ACRE INCOME ABOVE TOTAL COSTS AT VARYING PRICES AND YIELDS**

Dollars per Pound	YIELD (Pounds/acre)					
	500	1000	1500	2000	2500	3000
.80	-2,169	-1,822	-1,476	-1,130	-784	-437
.85	-2,144	-1,772	-1,401	-1,030	-659	-287
.90	-2,119	-1,722	-1,326	-930	-534	-137
.95	-2,094	-1,672	-1,251	-830	-409	13
1.00	-2,069	-1,622	-1,176	-730	-284	163
1.05	-2,044	-1,572	-1,101	-630	-159	313
1.10	-2,019	-1,522	-1,026	-530	-34	463
1.15	-1,994	-1,472	-951	-430	91	613
1.20	-1,969	-1,422	-876	-330	216	763