

**COOPERATIVE EXTENSION
UNIVERSITY OF CALIFORNIA**

COUNTY OF FRESNO
FARM AND HOME ADVISORS OFFICE

1720 SOUTH MAPLE AVENUE
FRESNO, CALIFORNIA 93720

Almond Cost Studies - Southern San Joaquin 1985 Assumptions

Karen Klonsky

1. Farm Size - 80 Acres
2. Spacing - 22' x 22' - 90 trees per acre
3. Irrigation method - Flood, mow middles
4. Labor rates - \$7.00 per hour skilled, \$5.75 unskilled
5. Weed Control - A pre-emergence herbicide is applied in December or January. Two passes are made with a weedsprayer pulled by a 40 HP tractor moving at 4 mph. The time required, including fillup, is about 12 minutes per acre for the two passes. A contact weed spray is applied in May or June also made in two passes.

The materials per sprayed acre are listed below. For strip weed control only one fourth of each acre is sprayed.

1st & 2nd year pre-emergence herbicide materials per sprayed acre

1 qt Goal	\$17.00
5 lb Surflan	60.75
1 qt Roundup or Paraquat	22.61

Total Materials \$100.36

1st and 2nd year contact herbicide & materials per sprayed acre

1 qt Roundup or Dinitro and Paraquat	\$22.61
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Years 3 + pre-emergence herbicide materials per sprayed acre

1 lb Simizine	3.70
3 lb Surflan	36.45
1 qt Roundup	<u>22.61</u>
TOTAL Materials	\$62.76

Years 3+ Contact weed control - same as years 1 & 2

Strip weed control - Materials are applied to 1/4 of the acreage.

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Pre-emergence strip weed control

	<u>years 1-2</u>	<u>years 3+</u>
Materials	\$25.09	\$ 5.65
Application	<u>\$ 2.36</u>	<u>2.36</u>
TOTAL	\$27.45	\$ 8.01

Contact strip weed control - all years

Materials	\$ 5.65
Applications	<u>2.36</u>
TOTAL	\$8.01

6. Pest Control Program

Custom application - \$15/spray/acre

Year	Pest	Time	Material	Cost	Total
1st	mite	summer	1 pt. Omite	\$7.50	\$9.48
	PTB	May	2 lbs. Parathion	1.98	
2nd		dormant	2 lbs. Parathion	1.98	\$13.88
			2 gals. Volck	4.40	
	mite	summer	1 pt. Omite	7.50	
3rd		dormant	2 lbs. Parathion	1.98	\$20.28
			2 gals. Volck	4.40	
	mite	summer	1 pt. Omite	7.50	
	shothole	bloom	4 lbs. Ziram	6.40	
4th+		dormant	2 lbs. Parathion	1.98	\$43.28
			2 gals. Volck	4.40	
	mite	summer	1 pt. Omite	7.50	
	shothole	bloom	4 lbs. Benelate	18.00	
			4 lbs Caplan	4.00	

Pest Control Program

Year	Number of Sprays	Material	Application	Total
1st	2	\$ 9.48	\$30.00	\$39.48
2nd	2	13.88	30.00	43.88
3rd	3	20.28	45.00	65.28
4th +	4	43.28	60.00	103.28

7. Equipment costs -- Costs for fuel and repairs for operating equipment are included under cultural costs. The costs per hour are listed on the equipment list table. The costs per hour are calculated by adding the cost of the labor, tractor and implement. For example, for disking the 70 HP tractor is used. The cost per hour is:

$$\text{Labor + tractor + disk} \\ \$7.50 + \$8.00 + \$1.39 = \$16.89$$

To calculate the cost per time over each acre the following rates were used:

Disking	3 acres/hr
Mowing	4 acres/hr
Weedsprayer	5 acres/hr

The rate of 3 acres per hour is the same as 1/3 hr per acre. So, for disking the cost per time per acre is:

$$1/3 * 16.89 = \$5.63$$

8. Labor Hours for Various Operations

Year	Hours per Acre					
	1	2	3	4	5	mature
Prune, train-skilled	0	2.5	4.2			
prune, train-unskilled				5.7	5.7	10
brush disposal-tractor driver	0	.5	.75	1	1	1
brush disposal-unskilled	0	.5	1	1	1	2
irrigate	2	2	2	.5	.5	.5

9. Fertilizer -

31 cents/lb. actual N

Year	rare/tree	material/acre	application & labor
1st	1/8 lb 2 X = 1/4 lb	\$7.00	\$3
2nd	1/4 lb 2 X = 1/2 lb	14.00	4
3rd	1/2 lb 2 X = 1 lb	28.00	5
4th	3/4 lb 2 X = 1 2/2 lb	42.00	\$10 - custom
5th	1 lb 2 X = 2 lb	56.00	\$10 - custom
mature	1.1 lb 2 X = 2.2 lb	62.00	\$10 - custom

10. Water costs - weighted average of ditch and pump:

\$18 per AF + \$6 district tax = \$24/AF

Year	rate	labor(hr/acre)
1st	2AF	2
2nd	2AF	2
3rd	3AF	2
4th	4AF	.5
5th	4AF	.5
mature	4AF	.5

11. Harvest costs -

3rd year - handknock, rollout tarps, 3 minutes/tree, 4 people

Labor = 4 1/2 hrs X 4 people = 18 hrs/acre = \$103.50

hulling; 3 cents/lb in shell, 50% meats = \$25.00

hauling; \$7 per acre minimum

4th year on

Shaking 60 cents/tree

Sweeping

\$149/acre

Pickup

hauling - \$7 per gross ton, 4X shelled weight, \$7 per acre
minimum

hulling - \$.03 per lb in shell

ALMOND ORCHARD ESTABLISHMENT COSTS WORKSHEET
Strip Weed Control - Native Cover in Centers
Southern San Joaquin Valley 1985

Costs are for an 80 acre block planted 22' x 22', with 90 trees per acre. The orchard is furrow irrigated for the first two years and then flood irrigated.

Skilled Labor \$ 7.00
Field Labor \$ 5.75

	1st Year	2nd Year	3rd Year	4th Year	5th Year
YIELD: lbs. nut meats / acre	---	---	250	500	1000
CULTURAL COSTS:					
Land Preparation: subsoil contract	200				
Disk & float: 3 hrs labor and tractor	56				
Fumigate - methyl bromide	112				
Trees: 90 @ \$3.10 (+2 2nd Yr. and 1 3rd Yr.)	279	6	3		
Survey and Plant: 75 @ \$.85	64				
Replant trees @ \$3/tree		6	3		
Prune and Train - skilled		18	29		
Prune and train - unskilled				33	33
Brush Disposal		9	13	18	18
Disc 3X - 3 acres per hour	19	19			
Mow middles - 3 acres/hr.			17	23	23
Contact strip weed control	8	8	8	8	8
Pre-emergence strip control		27	27	18	18
Furrow out 6X - 3 acres/hr.	34	34			
Put up borders for flood		14			
Irrigation labor	12	12	12	3	3
Water - \$18/AF	36	36	54	72	72
Fertilize - labor & material	10	18	33	52	66
Pest control	61	44	65	103	103
Dormant shaking			54	54	54
Pollination - \$25 per hive			25	50	50
Misc. expenses	20	20	20	20	20
Interest on operating costs	64	19	25	32	33
TOTAL CULTURAL COSTS	973	288	389	484	499
HARVESTING COSTS :					
Hand knock, rollout tarps			104		
Shake, sweep, pickup - custom				149	149
Hull - \$.03 per lb. in shell			15	30	60
Haul - \$7 per gross ton, \$7 minimum			7	7	14
TOTAL HARVEST COSTS			126	186	223
OVERHEAD COSTS:					
County taxes	60	60	60	60	60
Office and Business Costs	20	20	20	20	20
TOTAL OVERHEAD COSTS	80	80	80	80	80
TOTAL CASH COSTS	1053	368	594	750	802
ACCUMULATED CASH COSTS	1053	1421	2015	2765	3568

ALMOND ORCHARD
EQUIPMENT AND BUILDING LIST
San Joaquin Valley - 1985

ITEM	ORIGINAL COST	ANNUAL USE (ACRES)	COST PER ACRE	LIFE (YEARS)	OVERHEAD		COST PER HOUR
					DEPRECIATION	INTEREST AT 13%	
70 HP wheel diesel	38000	80	475.00	10	47.50	30.88	8.00
Flail mower, 10'	4000	80	50.00	10	5.00	3.25	2.00
Disk, tandem 10'	2900	80	36.25	10	3.63	2.36	1.39
Brush Rake	1000	80	12.50	15	.83	.81	.48
Low profile trailer	1400	80	17.50	15	1.17	1.14	.22
Ridger	600	80	7.50	10	.75	.49	.29
Tool bar	100	80	1.25	10	.13	.08	.05
Speed sprayer, PTO	12000	80	150.00	15	10.00	9.75	5.00
Weedsprayer	1200	80	15.00	10	1.50	.98	.50
Handgun	50	80	.63	5	.13	.04	.01
3-Wheel Motorcycle	1500	80	18.75	5	3.75	1.22	1.50
Pickup	8000	80	100.00	5	20.00	6.50	6.00
Misc. Tools	1000	80	12.50	10	1.25	.81	6.00
Pump and Well	10000	80	125.00	20	6.25	8.13	
Buildings	10000	80	125.00	30	4.17	8.13	
TOTAL COST	91750		1146.88		106.04	74.55	
60% OF NEW COSTS	55050		688.13		63.63	44.73	

ALMOND ORCHARD PRODUCTION COSTS WORKSHEET
 Strip Weed Control - Native Cover in Centers
 Southern San Joaquin Valley 1985

Costs are for an 80 acre block planted 22' x 22', with 90 trees per acre.
 The orchard is flood irrigated.

Skilled Labor \$ 7.50
 Field Labor \$ 5.75

YIELD: lbs. nut meats / acre 1500

CULTURAL COSTS:

Prune and train - 5.7 hrs unskilled labor	33
Brush Disposal	24
Contact strip weed control	8
Pre-emergence strip control	18
Irrigation labor-.5 hr/acre	3
Water - 4 acre feet @ \$18/AF	72
Fertilize - 200 lbs. N @ \$.31/lb. + \$10 custom application	72
Pest control - 4 sprays	103
Pollination - 2 hives/acre	50
Mow middles 4X - 3 acres/hour	23
Dormant shaking - \$.60 per tree	54
Misc. expenses	20
Interest on operating costs	34

TOTAL CULTURAL COSTS 513

HARVESTING COSTS:

Shake, sweep, pickup - custom @ \$149/acre	149
Hull - \$.03 per lb in shell, 50% meats	90
Haul - \$7 per gross ton, \$7 per acre minimum	21

TOTAL HARVEST COSTS 260

OVERHEAD COSTS:

County taxes	60
Office and Business Costs	20

TOTAL OVERHEAD COSTS 80

TOTAL CASH COSTS 853

TOTAL CASH COSTS PER POUND .57

INVESTMENT COSTS:

	Depreciation	Interest @ 13%	
Land - \$6000/acre		468	468
Trees	153	398	552
Buildings & equipment	64	45	108

TOTAL DEPRECIATION AND INTEREST 1128

TOTAL COST PER ACRE 1981

TOTAL COST PER POUND 1.32

	1st Year	2nd Year	3rd Year	4th Year	5th Year
CREDIT FOR PRODUCTION @ \$1/LB.			250	500	1000
NET CASH COST OF PRODUCTION	1053	368	344	250	-198
ACCUMULATED NET CASH COST	1053	1421	1765	2015	1818
DEPRECIATION:					
Equipment & buildings	64	64	64	64	64
INTEREST ON INVESTMENT @ 13%:					
Equipment & buildings	45	45	45	45	45
Land \$6000	468	468	468	468	468
Interest on accum. cash cost	137	185	262	359	464
TOTAL INTEREST ON INVESTMENT	650	697	775	872	977
TOTAL NET COST FOR THE YEAR	1766	1129	1183	1186	842
ACCUMULATED NET COST	1766	2895	4077	5264	6106

ALMOND PRODUCTION CASH FLOW ANALYSIS
PER ACRE MONTHLY CASH COST/CULTURAL PRACTICE CALENDAR
PRODUCTION YEAR: OCTOBER-SEPTEMBER

PRACTICE	MONTH												TOTAL
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	
PRUNING				33.00									33.00
BRUSH DISPOSAL				24.00									24.00
STRIP WEED CONTROL (CONTACT)							8.00						8.00
STRIP WEED CONTROL (PREEMERGENCE)		18.00											18.00
IRRIGATION (LABOR + H ₂ O)					9.35		9.35	18.70	18.70	9.35		9.35	74.80
FERTILIZER						36.00				36.00			72.00
PEST CONTROL ^{1/}			26.38		42.00					27.50			95.88
POLLINATION				50.00									50.00
ROW MIDDLES (4x)					5.60		5.60		5.60		5.60		22.40
DORMANT SHAKING				54.00									54.00
MIS. EXPENSES					10.00						10.00		20.00
INTEREST ON OPERATING CAPITAL ^{2/}		2.34	3.43	20.93	8.70	4.68	2.98	2.43	6.73	5.90	2.03	1.22	61.37
HARVEST ^{3/}											130.00	130.00	260.00
COUNTY TAXES			30.00				30.00						60.00
OFFICE & BUSINESS COSTS	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	19.92
TOTAL	1.66	22.00	61.47	183.59	77.31	42.34	57.59	22.79	60.19	52.91	149.29	142.23	873.37

^{1/} Pest Control - 3 sprays

^{2/} Rate 13% on preharvest cash costs

^{3/} 2000 lbs meats/acre