

**COSTS FOR
ESTABLISHING AND PRODUCING ALMONDS
TULARE COUNTY, CALIFORNIA - 1988**

1. FARM SIZE: 80 Acres
2. SPACING: 22'x22' - 90 Trees Per Acre
3. IRRIGATION METHOD: Flood, Mow Middles
4. LABOR RATES: \$8.00 Per Hour Skilled, \$6.00 Unskilled

5. WEED CONTROL:

A preemergence herbicide is applied in December or January. Two passes are made with a weed sprayer 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 and 2nd year preemergence herbicide materials per sprayed acre:

1 qt Goal	\$15.00
1 gal Surflan.	\$56.00
1 qt Roundup or Paraquat	\$22.00

Total Materials.	<u>\$93.00</u>

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

1 qt Roundup	\$22.00
or Dinitro and Paraquat	

Years 3 + preemergence herbicide materials per sprayed acre:

1 lb Princep	\$ 2.50
3 qts Surflan.	\$42.00
1 qt Roundup	\$22.00

Total Materials.	<u>\$66.50</u>

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

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Preemergence Strip Weed Control

	<u>Years 1-2</u>	<u>Years 3+</u>
Materials	\$23.25	\$16.62
Application	\$ 2.36	\$ 2.36
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Total	<u>\$25.61</u>	<u>\$18.98</u>

Contact Strip Weed Control - All Years

Materials	\$ 5.50
Applications	\$ 2.36

Total	<u>\$ 7.86</u>

6. PEST CONTROL PROGRAM: (Custom Application)

Year 1 (materials applied with handgun)

<u>Pest</u>	<u>Applic. time</u>	<u>Rate & Material per 100 gals H₂O</u>	<u>Material Cost/Acre</u>	<u>Applic. Cost/Acre</u>	<u>Total Cost/Acre</u>
PTB	May	1/2 pt Parathion 8E	\$1.47	\$8.00	\$ 9.47
Mites	Summer	1 pt Omite 6E	\$7.83	\$8.00	\$15.83

					<u>Total Cost/Ac \$25.30</u>

Year 2 (air carrier sprayer application)

<u>Pest</u>	<u>Applic. time</u>	<u>Rate & Material per 100 gals H₂O</u>	<u>Material Cost/Acre</u>	<u>Applic. Cost/Acre</u>	<u>Total Cost/Acre</u>
PTB/SJS	Dormant	2 pts Parathion 8E	\$ 5.86		
		+ 6 gals Supreme oil	\$12.42	\$15.00	\$33.28
Mites	Summer	4 pts Omite 6E	\$31.32	\$15.00	\$46.32

					<u>Total Cost/Ac \$79.60</u>

Year 4+ (air carrier sprayer application)

<u>Pest</u>	<u>Applic. time</u>	<u>Rate & Material per 100 gals H₂O</u>	<u>Material Cost/Acre</u>	<u>Applic. Cost/Acre</u>	<u>Total Cost/Acre</u>
PTB/SJS	Dormant	2 pts Parathion 8E	\$ 5.86		
		+ 6 gals Supreme oil	\$12.42	\$15.00	\$ 33.28
Mites	Summer	4 pts Omite 6E	\$31.32	\$15.00	\$ 46.32
Shothole	Bloom	8 lbs Ziram 76W	\$13.52	\$15.00	\$ 28.52

					<u>Total Cost/Ac \$108.12</u>

Pest Control Program

Year	Number of Sprays	Material	Application	Total
1st	2	\$ 9.30	\$ 16.00	\$ 25.30
2nd	2	\$49.60	\$ 30.00	\$ 79.60
3rd+	3	\$63.12	\$ 45.00	\$108.12

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:

$$\begin{array}{rclclcl} \text{Labor} & + & \text{Tractor} & + & \text{Disk} & & \\ \$8.00 & + & \$6.75 & + & \$1.39 & = & \$16.14 \end{array}$$

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

Disking	3 acres/hr
Mowing	4 acres/hr
Weed Sprayer	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:

$$1/3 * \$16.14 = \$5.38$$

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	1.2	1.2	1.2
Brush disposal-unskilled	0	.5	1	1	1	2
Irrigate - unskilled	2	2	2	.5	.5	.5

9. FERTILIZER:

\$.33/lb actual N

Year	Rate/Tree	Material/Acre	Application & Labor
1st	1/8 lb 2x = 1/4 lb	\$ 7.00	\$ 3.00
2nd	1/4 lb 2x = 1/2 lb	\$14.00	\$ 4.00
3rd	1/2 lb 2x = 1 lb	\$28.00	\$ 5.00
4th	3/4 lb 2x = 1½ lb	\$42.00	\$10.00 - custom
5th	1 lb 2x = 2 lbs	\$56.00	\$10.00 - custom
Mature	1.1 lb 2x = 2.2 lbs	\$62.00	\$10.00 - custom

10. WATER COSTS: Weighted average of ditch and pump:

\$18.00 per AF + \$6.00 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 = 4½ hrs x 4 people = 18 hrs/acre = \$103.50
 Hulling; 3 cents/lb inshell, 55% meats = \$ 14.00
 Hauling; per acre minimum charge = \$ 8.00

4th Year on

Shaking
 Sweeping
 Pickup

} ————— \$125.00/acre

Rake \$ 4.00/acre

Hauling - \$8 per gross ton

Hulling - \$.03 per lb inshell

ACCUMULATED CASH COSTS	\$1,167	\$1,569	\$2,094	\$2,961	\$3,895
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YEAR	Costs per Acre				
	1st	2nd	3rd	4th	5th
Depreciation:					
Buildings, equipment and irrigation system	69	69	69	69	69
TOTAL DEPRECIATION	\$69	\$69	\$69	\$69	\$69
Interest on Investment at 11%					
Buildings, equipment and irrigation system	38	38	38	38	38
Land \$6000/acre	660	660	660	660	660
Interest on accumulated cash costs	128	173	230	326	428
TOTAL INTEREST ON INVESTMENT	\$826	\$871	\$928	\$1,024	\$1,126
TOTAL COST FOR THE YEAR	\$2,063	\$1,342	\$1,522	\$1,960	\$2,130
CREDIT FROM HARVEST @ \$0.90/POUND			\$225	\$450	\$900
NET COST FOR THE YEAR	\$2,063	\$1,342	\$1,297	\$1,510	\$1,230
TOTAL ACCUMULATED NET COST	\$2,063	\$3,404	\$4,701	\$6,211	\$7,441

SAMPLE COSTS TO PRODUCE ALMONDS
Strip Weed Control - Native Cover in Centers
Southern San Joaquin Valley - 1989

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

Labor Rate: \$8.00/hr. skilled labor Interest Rate: 11%
\$6.00/hr. field labor Yield - dry (lbs/acre): 1,500

Operation	Tractor/ Implement		Hours	Cash and Labor Costs per Acre					Total Cost	Your Cost	
	No.	Implement No.		Labor Cost/A	Fuel & Repairs	Material Cost	Custom /Rent				
Cultural costs:											
Pruning			5.7	\$34.20						\$34	
Brush Disposal	1	6	1.2	10.56	\$8.44					19	
Field labor			2.0	12.00						12	
Contact strip weed control							\$7.86			8	
Pre-emergence strip control							19.00			19	
Irrigation (7 X 6")	11					86.00				86	
Labor			.5	3.00						3	
Fertilize (200# N @ \$.33)						66.00	10.00			76	
Pest Control - 4 sprays							144.00			144	
Pollination - 2 hives/acre							50.00			50	
Mow middles 4X	1	2	1.3	11.73	12.20					24	
Dormant shaking @ \$0.60 ea.							54.00			54	
Miscellaneous			1.0	8.00	12.00					20	
Costs for pick up truck					15.00					15	
Interest on operating capital @ 11%										31	
TOTAL CULTURAL COSTS			12	\$79	\$48	\$152	\$285			\$595	
Harvest Costs:											
Shake, sweep, pickup - custom @ 125/acre							\$125			\$125	
Hull - \$0.03 per lb in shell, 55% meats							82			82	
Haul - \$8 per gross ton, \$8 per acre minimum							22			22	
Rake nuts, \$4/acre							4			4	
TOTAL HARVEST COSTS							\$233			\$233	
Cash overhead:											
Office and business costs										\$64	
County Taxes										101	
Equipment Insurance										3	
TOTAL CASH OVERHEAD COSTS										\$167	
TOTAL CASH COSTS										\$995	
TOTAL CASH COST/LB:			1500 lbs/acre yield								\$.66
Investment											
	Per production		Annual Cost								
	Acres		Depreciation	Interest @ 11%							
Land (bare)	\$6,000			\$660	\$660						
Equipment & buildings	684		\$69	38	107						
Trees (30 yr. depreciation)	7,441		248	409	657						
TOTAL INVESTMENT COSTS			\$ 14,125	\$317	\$1,107	\$1,424					
TOTAL COSTS PER ACRE									\$2,419		
TOTAL COST/LB:			1500 lbs/acre yield								\$1.61

MONTHLY SUMMARY OF PER ACRE CASH COSTS TO PRODUCE ALMONDS

Production Year: October - September
Southern San Joaquin Valley - 1989

Operation	Oct	Nov	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Dec	TOTAL
Cultural costs:													
Pruning			34.2										\$34
Brush Disposal			19.0										19
Field Labor			12.0										12
Strip weed control								7.9					8
Pre-emerg. strip cntl	19.0												19
Irrigation (7 X 6")					12.3	12.3	12.3	24.6	12.3		12.3		86
Labor					.4	.4	.4	.9	.4		.4		3
Fertilize (200# N)						47.5			28.5				76
Pest Control-4 sprays			43.2	37.4					31.7	31.7			144
Pollination - 2 hives				50.0									50
Mow middles 4X					6.0		6.0		6.0	6.0			24
Dormant shaking			54.0										54
Miscellaneous	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	20
Pick-up truck costs	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	15
Interest on operating capital @ 11%	.2	.2	1.7	2.6	2.8	3.4	3.6	4.0	4.8	7.3			31
TOTAL CULTURAL COSTS	\$22	\$3	\$167	\$93	\$24	\$67	\$25	\$40	\$87	\$48	\$16	\$3	\$595
Harvest Costs (1.75 tns/A):													
Shake, sweep, pickup										125.0			125
Hull - \$0.03/lb										81.8			82
Haul - \$8/gross ton										21.8			22
Rake nuts, \$4/acre										4.0			4
TOTAL HARVEST COSTS										\$233			\$233
Cash overhead:													
Office and business	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	64
County Taxes		50.3					50.3						101
Equipment Insurance			2.7										3
TOTAL CASH OVERHEAD	\$5	\$56	\$8	\$5	\$5	\$56	\$5	\$5	\$5	\$5	\$5	\$5	\$167
TOTAL CASH COSTS	\$27	\$59	\$175	\$98	\$30	\$122	\$31	\$46	\$92	\$286	\$21	\$8	\$995

EQUIPMENT AND BUILDING LIST FOR ALMOND ORCHARD
Southern San Joaquin Valley - 1989

Interest Rate: 11%

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

ITEM #	DESCRIPTION	NEW COST	ANNUAL COST		LIFE (HRS)	YEARS TO TRADE	OVERHEAD*		TAR*	HOURLY COSTS		
			USE (ACRES)	PER ACRE			DEPRECIATION	INTEREST*		FUEL*	REPAIRS*	TOTAL
Tractors:												
1	70 HP wheel diesel	\$38,000	80	\$475	12,000	10	\$47.50	\$26.13	120%	\$2.95	\$3.80	\$6.75
2	Flail Mower, 10'	4,000	80	50	2,000	10	5.00	2.75	120		2.40	2.40
3	Disc, tandem 10'	2,900	80	36	2,500	10	3.63	1.99	120		1.39	1.39
4	Brush rake	1,000	80	13	2,500	15	.83	.69	100		.40	.40
5	Low profile trailer	1,400	80	18	2,500	10	1.75	.96	120		.67	.67
6	Ridger	600	80	8	2,500	15	.50	.41	120		.29	.29
7	Tool Bar	100	80	1	2,500	15	.08	.07	120		.05	.05
8	Speed sprayer, PTO	12,000	80	150	2,000	10	15.00	8.25	120		7.20	7.20
9	Weed sprayer	1,200	80	15	2,000	10	1.50	.83	120		.72	.72
10	Handgun	50	80	1	2,500	10	.06	.03	120		.02	.02
11	Pump and well	10,000	80	125	27,000	20	6.25	6.88	10		.04	.04
12	3-Wheel Motorcycle	1,500	80	19	2,000	7	2.68	1.03				
13	Pick-up, 1/2 ton	14,000	80	175	2,000	7	25.00	9.63				
14	Miscellaneous shop tools	4,500	80	56		10	5.63	3.09				
15	Buildings	12,000	80	150		30	5.00	8.25				
TOTAL COST		\$91,250		\$1,141			\$115	\$63				
60% OF NEW COSTS*		\$54,750		\$684			\$69	\$38				

* 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 ALMONDS AT VARYING PRICES AND YIELDS

	YIELD (Pounds/acre)								
	1000	1500	2000	2500	3000	3500	4000	4500	5000
Cultural Costs	595	595	595	595	595	595	595	595	595
Harvest Costs	198	233	267	302	336	371	405	440	474
Cash Overhead	167	167	167	167	167	167	167	167	167
Cash cost/acre	960	995	1,029	1,064	1,098	1,133	1,167	1,202	1,236
Cash cost/ton	1,920	1,326	1,029	851	732	647	584	534	495
Investment cost	1,424	1,424	1,424	1,424	1,424	1,424	1,424	1,424	1,424
TOTAL COST/ACRE	2,384	2,419	2,453	2,488	2,522	2,557	2,591	2,626	2,661
TOTAL COST/TON	4,768	3,225	2,453	1,990	1,682	1,461	1,296	1,167	1,064

PER ACRE INCOME ABOVE CASH COSTS AT VARYING PRICES AND YIELDS

Dollars per Dry In-shell Pound	YIELD (Pounds/acre)								
	1000	1500	2000	2500	3000	3500	4000	4500	5000
.30	-660	-545	-429	-314	-198	-83	33	148	264
.35	-610	-470	-329	-189	-48	92	233	373	514
.40	-560	-395	-229	-64	102	267	433	598	764
.45	-510	-320	-129	61	252	442	633	823	1,014
.50	-460	-245	-29	186	402	617	833	1,048	1,264
.55	-410	-170	71	311	552	792	1,033	1,273	1,514
.60	-360	-95	171	436	702	967	1,233	1,498	1,764

PER ACRE INCOME ABOVE TOTAL COSTS AT VARYING PRICES AND YIELDS

Dollars per Dry In-shell Pound	YIELD (Pounds/acre)								
	1000	1500	2000	2500	3000	3500	4000	4500	5000
.30	-2,084	-1,969	-1,853	-1,738	-1,622	-1,507	-1,391	-1,276	-1,161
.35	-2,034	-1,894	-1,753	-1,613	-1,472	-1,332	-1,191	-1,051	-911
.40	-1,984	-1,819	-1,653	-1,488	-1,322	-1,157	-991	-826	-661
.45	-1,934	-1,744	-1,553	-1,363	-1,172	-982	-791	-601	-411
.50	-1,884	-1,669	-1,453	-1,238	-1,022	-807	-591	-376	-161
.55	-1,834	-1,594	-1,353	-1,113	-872	-632	-391	-151	89
.60	-1,784	-1,519	-1,253	-988	-722	-457	-191	74	339