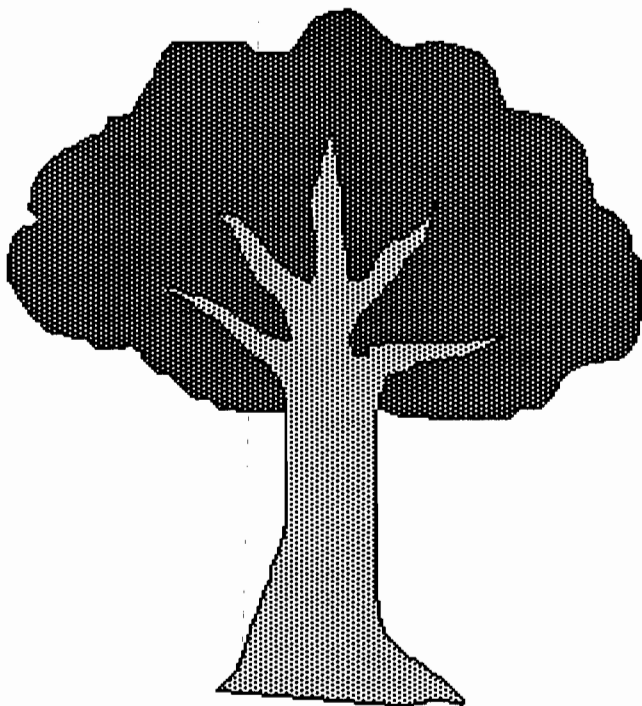


ALMONDS

San Joaquin Valley
1985



Alternate Cover Crops
Mow & Cultivate

Almond Orchard Establishment Costs - Underlying Assumptions
Northern San Joaquin Valley
Alternate Cover Crops

1. Trees are planted in January
2. Cover crop goes in in the Fall
3. 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 third 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 Simazine	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

- 3a. Strip weed control - Materials are applied to 1/3 of the acreage.

Pre-emergence strip weed control

	<u>years 1-2</u>	<u>years 3+</u>
Materials	\$33.45	\$20.92
Application	<u>\$ 2.36</u>	<u>2.36</u>
TOTAL	\$35.81	\$23.28

Contact strip weed control - all years

Materials	\$ 7.54
Application	<u>2.36</u>
TOTAL	\$ 9.90

3b. Total Herbicide plot - materials are applied to entire acre.

Pre-emergence	<u>years 1-2</u>	<u>years 3+</u>
Materials	\$100.36	\$63.00
Application	<u>2.36</u>	<u>2.36</u>
TOTAL	\$102.72	\$65.36

Contact weed control - all years

Materials	\$ 22.61
Application	<u>2.36</u>
TOTAL	\$ 24.97

3c. Chemical mow -

Winter - 12 oz Roundup per sprayed acre
 Summer - 12 oz Roundup 2x
 Pre-harvest - 16 oz Roundup

TOTAL - 52 oz Roundup per sprayed acre, 4 applications.

35 oz Roundup per tree acre, 4 applications.

	Per Sprayed Acre	Per Tree Acre
Materials -	\$36.92	\$24.85
Application -	\$ 9.44	\$ 6.28
TOTAL COST -	\$46.36	\$31.13

3c. Pre-harvest weed control - applied through sprinkler system starting in the 4th year. It is used only when middles are cultivated or controlled by herbicides.

3 lb Eptam - \$10

4. Pest control program - is the same for all floor covers. Application is made with a PTO speedsprayer pulled by a 60 HP tractor. In the first 2 years a hand gun is used with the weed sprayer and small tractor.

Detail of Materials Applied

Year	Time	Application Method	Material	Cost	Total Cost
1st	May	handgun	1 lb Diazinon	\$4.00	\$8.40
	Summer	handgun	1 lb Omite	4.40	
2nd	Dormant	handgun	1 pt Lorsban	4.50	\$20.40
			1 1/2 gal. oil	3.30	
	May	handgun	1 1/2 lb Diazinon	6.00	
	Summer	handgun	1 1/2 lb Omite	6.60	
3rd	Dormant	speed sprayer	1 1/2 pt Lorsban	6.75	\$28.00
			2 1/4 gal. oil	4.45	
	May	handgun	2 lb Diazinon	8.00	
	Summer	handgun	2 lb Omite	8.80	
4th	Dormant	speed sprayer	6 lb of 25% Parathion	5.88	\$90.58
			6 gal. oil	13.20	
	Pink Bud-Feb		1.5 lb Rovral	25.00	
	Full Blossom-Feb		8 lb captan & Sticker	11.00	
	Fall-March		8 lb Ziram	12.00	
			5 lb Neutral Zn	4.00	
			1 lb Solubor	.50	
			Sticker	1.00	
	Midseason (May) or Hull split (July)		2 lb Guthion	13.00	
			1/4 lb Pllctran	5.00	

Application costs - Fuel, repairs and labor

Years 3 + Application with speed sprayer,
PTO - 5 acres per hour

60 HP tractor	\$8.00
Sprayer	5.00
Tractor driver	<u>7.50</u>
	\$20.50 per hour

\$ 4.10 per acre

Years 1 & 2
Handgun application 10 acres per hour

40 HP tractor	\$ 3.80
Weed sprayer	.50
Handgun	.01
Tractor drive	<u>\$ 7.50</u>

\$11.81 per hour = \$1.18/acre

Cost of Pest Control

Year	Number of Sprays	Material	Application	Total
1st	2	\$ 8.40	\$ 2.36	\$10.76
2nd	3	20.40	3.54	23.94
3rd	3	28.00	12.30	40.30
4th +	5	90.58	20.50	111.08

5. 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 60 HP tractor is used. The cost per hour is:

$$\$7.50 + \$8.00 + \$3.60 = \$19.10$$

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

Disking	3 acres/hr
Mowing	4 acres/hr
Springtooth	4 acres/hr
Rolling	3 acres/hr
Handgun	10 acres/hr
Speedsprayer	5 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:

$$1/3 * 19.10 = \$6.43$$

The only difference between the equipment lists for a cover crop or no cover crop is the mower.

6. Labor Hours for Various Operations

Hours per Acre

Year	1	2	3	4	5	mature
Prune, train-skilled	0	2	4			
prune, train-unskilled				5	5	10
brush disposal-tractor driver	0	.5	.75	1	1	1
brush disposal-unskilled	0	.5	1	1	1	2
irrigate	.5	.5	.5	.5	.5	.5

7. Cover crops planted:

Blando brome - annual cover and clover - perennial cover.
Seed in September; Fertilize in Spring.

Mowing Schedule:

1x pre-frost
1x after 1st heads
4x for annual grasses
6x Total

Fertilizer for clover:

11-48-0, 100 lbs applied in Spring through irrigation system.
Materials \$16.15

Fertilizer for Blando brome: 20 lbs N @ 30 cents/lb., \$6

Seed:

Blando brome 20 lbs/acre \$2.70/lb.
Clover-coated 10 lbs/acre \$3.44/lb.

8. Water costs

Costs figured at \$22.50/acre foot.

Native Cover: 40" = \$75/acre
Blando Brome: 31" = \$58/acre
Mow and Cultivate: 40" = \$75/acre
Clover: 39" = \$73/acre
Chemical Mow: 33" = \$62/acre
Cultivate Centers: 33" = \$62/acre
Total Herbicide: 34" = \$63/acre

9. Harvest costs -

Polling \$15/acre
Shake - \$55/hr \$45/acre
Pickup - \$60/hr \$40/acre
Rake - \$35/hr \$30/acre
Hull - 3 cents/lb in shell, 60% of weight is meat.
Haul - \$7 per gross ton, \$7 per acre, minimum.

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ALMOND ORCHARD ESTABLISHMENT COSTS WORKSHEET
Strip Weed Control - Mow & Cultivate Centers
San Joaquin Valley 1985

Costs are for an 80 acre block planted 24' x 24', with 75 trees per acre.
A solid set sprinkler system is used. Costs given are per acre.

Skilled Labor \$ 7.50
Field Labor \$ 5.75

	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	5th Yr.
YIELD: lbs. nut meats / acre	---	---	---	300	750

CULTURAL COSTS:

Land Preparation: backhoe contract	300				
Disk & float: 3 hrs labor and tractor	57				
Fumigate - methyl bromide	112				
Trees: 75 @ \$3 (+2 2nd Yr. and 1 3rd Yr.)	225	6	3		
Survey and Plant: 75 @ \$1.00	75				
Replant trees 2nd & 3rd years		6	3		
Prune and Train - skilled		15	30		
Prune and train - unskilled				29	29
Brush Disposal		9	15	18	18
Mow 3X - 4 acres per hr.	13	13	13	13	13
Disk 1X - 3 acres per hr.	6	6	6	6	6
Springtooth 2X - 4 acres/hr.	10	10	10	10	10
Contact strip weed control	10	10	10	10	10
Pre-emergence strip control	36	36	23	23	23
Roll 1X - 3 acres/hr.				4	4
Pre-harvest herbicide				10	10
Irrigation labor -.5 hr/acre	3	3	3	3	3
Water - 40"	75	75	75	75	75
Fertilize - labor & material	22	31	34	41	41
Insect and Disease control	11	24	40	111	111
Pollination - \$25 per hive				25	50
Misc. expenses	20	20	20	20	20
Interest on operating costs	68	18	20	28	30
TOTAL CULTURAL COSTS	1044	283	305	426	452

TOTAL HARVESTING COSTS - custom				152	175
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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	1124	363	385	658	707
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ACCUMULATED CASH COSTS	1124	1486	1871	2529	3235
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CREDIT FOR PRODUCTION @ \$1/LB.				300	750
NET CASH COST OF PRODUCTION	1124	363	385	358	-43
ACCUMULATED NET CASH COST	1124	1486	1871	2229	2185
DEPRECIATION:					
Building, equipment, and irrigation system	107	107	107	107	107
INTEREST ON INVESTMENT @ 13%:					
Building, equipment, and irrigation system	90	90	90	90	90
Land \$6000	780	780	780	780	780
Interest on accum. cash cost	146	193	243	329	421
TOTAL INTEREST ON INVESTMENT	1016	1063	1113	1199	1291
TOTAL NET COST FOR THE YEAR	2247	1533	1605	1663	1354
ACCUMULATED NET COST	2247	3779	5385	7048	8402

ALMOND ORCHARD PRODUCTION COSTS WORKSHEET
Strip Weed Control - Mow & Cultivate Centers
Northern San Joaquin Valley 1985

Costs are for an 80 acre block planted 24' x 24', with 75 trees per acre.
A solid set sprinkler system is used.

Skilled Labor \$ 7.50
Field Labor \$ 5.75

YIELD: lbs. nut meats / acre 1500

CULTURAL COSTS:

Prune and train - unskilled	58
Brush Disposal	24
Mow middles 6X - 4 acres/hr.	26
Contact strip weed control	10
Pre-emergence strip control	23
Irrigation labor-.5 hr/acre	3
Water - 40"	75
Fertilize - labor & materials	66
Insect and Disease control	111
Pollination - 2 hives/acre	50
Mow 3X - 4 acres per hour	13
Disk 1X - 3 acres per hour	6
Springtooth 2X - 4 acres per hour	10
Roll 1X - 3 acres per hour	5
Pre-harvest herbicide	10
Misc. expenses	20
Interest on operating costs	36

TOTAL CULTURAL COSTS 545

TOTAL HARVESTING COSTS - custom 223

OVERHEAD COSTS:

County taxes	60
Office and Business Costs	20

TOTAL OVERHEAD COSTS 80

TOTAL CASH COSTS 848

Investment costs:

	Depreciation	Interest @ 13%	
Land - \$6000/acre		780	780
Trees	210	546	756
Building, equipment, and irrigation system	107	90	197

TOTAL DEPRECIATION AND INTEREST 1733

TOTAL COST PER ACRE 2581

ALMOND ORCHARD WITH COVER CROP
EQUIPMENT AND BUILDING LIST
San Joaquin Valley - 1985

ITEM	ORIGINAL COST	ANNUAL USE (ACRES)	COST PER ACRE	LIFE (YEARS)	OVERHEAD		COST PER HOUR
					DEPREC- IATION	INTEREST AT 13%	
Tractors:							
40 HP wheel diesel	17000	80	212.50	10	21.25	13.81	3.80
60 HP wheel diesel	31000	80	387.50	10	38.75	25.19	8.00
Flail mower, 12'	4000	80	50.00	10	5.00	3.25	2.00
Disk, tandem 14'	7500	80	93.75	10	9.38	6.09	3.60
Springtooth harrow	7800	80	97.50	10	9.75	6.34	3.70
Roller	1000	80	12.50	15	.83	.81	.05
Brush Rake	1000	80	12.50	15	.83	.81	1.00
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	
Irrigation System	72000	80	900.00	20	45.00	58.50	
Buildings	10000	80	125.00	30	4.17	8.13	
TOTAL COST	185050		2313.13		177.83	150.35	
60% OF NEW COSTS	111030		1387.88		106.70	90.21	