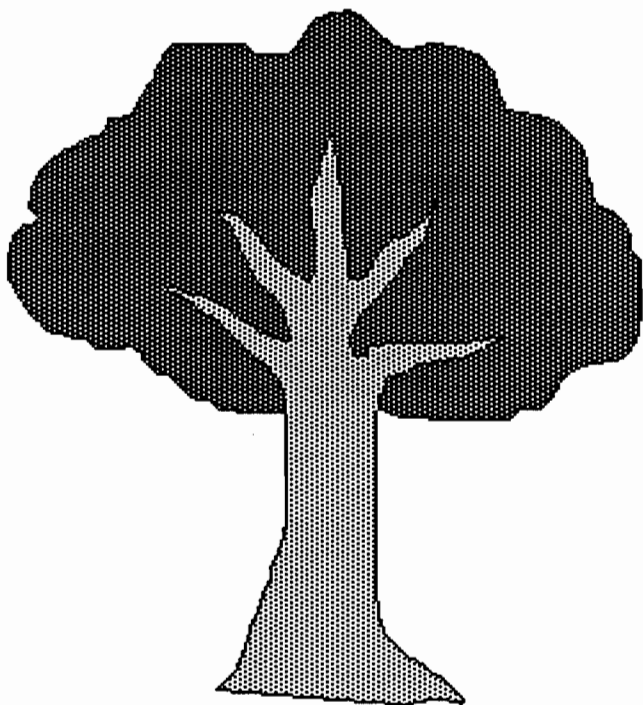


ALMONDS

San Joaquin Valley
1985



Alternate Cover Crops
Clover Cover

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 |
|---|---------|

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

- 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 Summer | handgun | 1 lb Diazinon | \$4.00 | \$8.40 |
| | | | 1 lb Omite | 4.40 | |
| 2nd | Dormant | handgun | 1 pt Lorsban | 4.50 | \$20.40 |
| | | | 1 1/2 gal. oil | 3.30 | |
| | May Summer | handgun | 1 1/2 lb Diazinon | 6.00 | |
| | | | 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 Summer | | 2 lb Diazinon | 8.00 | |
| | | | 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 Full Blossom-Feb | | 1.5 lb Rovral | 25.00 | |
| | | | 8 lb captan & Sticker | 11.00 | |
| | Fall-March | | 8 lb Ziram | 12.00 | |
| | | | 5 lb Neutral Zn | 4.00 | |
| | | | 1 lb Solubor Sticker | .50 1.00 | |
| | Midseason (May) or Hull split (July) | | 2 lb Guthion | 13.00 | |
| | | | 1/4 lb Pilctran | 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 - Clover Cover Crop
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

| | 1st Year | 2nd Year | 3rd Year | 4th Year | 5th Year |
|--|-------------|-------------|-------------|-------------|-------------|
| 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 @ \$3 per tree | | 6 | 3 | | |
| Prune and Train - skilled | | 15 | 30 | | |
| Prune and train - unskilled | | | | 29 | 29 |
| Brush Disposal | | 9 | 14 | 18 | 18 |
| Mow middles 6X - 4 acres/hr. | | 26 | 26 | 26 | 26 |
| Contact strip weed control | 10 | 10 | 10 | 10 | 10 |
| Pre-emergence strip control | 36 | 36 | 23 | 23 | 23 |
| Irrigation labor-.5 hr/acre | 3 | 3 | 3 | 3 | 3 |
| Water - 39" | 73 | 73 | 73 | 73 | 73 |
| Fertilize - labor & material | 22 | 31 | 34 | 41 | 41 |
| Insect and Disease control | 11 | 24 | 40 | 111 | 111 |
| Pollination - \$25 per hive | | | | 25 | 50 |
| Disk 1X - 3 acres per hr | 6 | | | | |
| Springtooth 3X - 4 acres/hr | 14 | | | | |
| SEEDBED PREPARATION: | | | | | |
| Springtooth 1X - 4 acres/hr | 5 | | | | |
| Planter rental | 4 | | | | |
| Coated seed - clover | 34 | | | | |
| Fertilize cover crop | 16 | 16 | 16 | 16 | 16 |
| Misc. expenses | 20 | 20 | 20 | 20 | 20 |
| Interest on operating costs | 72 | 19 | 21 | 28 | 29 |
| TOTAL CULTURAL COSTS | 1096 | 295 | 315 | 423 | 449 |
| TOTAL HARVESTING COSTS - custom | | | | 152 | 175 |
| 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 | 1176 | 375 | 395 | 655 | 704 |
| ACCUMULATED CASH COSTS | 1176 | 1551 | 1946 | 2601 | 3305 |

| | | | | | |
|---|------|------|------|------|------|
| CREDIT FOR PRODUCTION @ \$1/LB. | | | | 300 | 750 |
| NET CASH COST OF PRODUCTION | 1176 | 375 | 395 | 355 | -46 |
| ACCUMULATED NET CASH COST | 1176 | 1551 | 1946 | 2301 | 2255 |
| 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 | 153 | 202 | 253 | 338 | 430 |
| TOTAL INTEREST ON INVESTMENT | 1023 | 1072 | 1123 | 1208 | 1300 |
| TOTAL NET COST FOR THE YEAR | 2306 | 1553 | 1625 | 1670 | 1361 |
| ACCUMULATED NET COST | 2306 | 3859 | 5484 | 7154 | 8515 |

ALMOND ORCHARD PRODUCTION COSTS WORKSHEET

Strip Weed Control - Clover Cover Crop

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 |
| Contact strip weed control | 10 |
| Pre-emergence strip control | 23 |
| Irrigation labor-.5 hr/acre | 3 |
| Water - 39" | 73 |
| Fertilize - labor & materials | 66 |
| Insect and Disease control | 111 |
| Pollination - 2 hives/acre | 50 |
| Mow middles 6X - 4 acres/hr. | 26 |
| Fertilize cover crop | 16 |
| Misc. expenses | 20 |
| Interest on operating costs | 34 |

TOTAL CULTURAL COSTS 513

TOTAL HARVESTING COSTS - custom 223

OVERHEAD COSTS:

| | |
|---------------------------|----|
| County taxes | 60 |
| Office and Business Costs | 20 |

TOTAL OVERHEAD COSTS 80

TOTAL CASH COSTS 816

Investment costs:

| | Depreciation | Interest @ 13% | |
|---|--------------|----------------|-----|
| Land - \$6000/acre | | 780 | 780 |
| Trees | 213 | 553 | 766 |
| Building, equipment, and irrigation system | 107 | 90 | 197 |

TOTAL DEPRECIATION AND INTEREST 1743

TOTAL COST PER ACRE 2559

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 | 30 | 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 | |