

**1988 SAMPLE COSTS TO ESTABLISH & PRODUCE  
ALMONDS ON CLASS II SOIL  
IN THE  
SACRAMENTO VALLEY**



by

Joe Connell, Butte County Farm Advisor  
John Edstrom, Colusa County Farm Advisor  
Janine Hasey, Sutter-Yuba Counties Farm Advisor  
Bill Krueger, Glenn County Farm Advisor  
Joe Osgood, Tehama County Farm Advisor  
Karen Klonsky, Farm Management Specialist, U.C. Davis  
and  
Jim Du Bruille, Staff Research Associate, U.C. Davis

UC Cooperative Extension

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This cost study provides detailed information on the sample costs of establishing and producing almonds in the Sacramento Valley on Class II soil. Costs are projected for a hypothetical 100 acre orchard on 105 acres of land. The 5 non-producing acres are for buildings, roads, ditches, burn area, etc.

This study is one of two which describe the typical costs of growing almonds on Class I and Class II soil. Each includes a Cost of Establishment Worksheet, a Cost of Production Worksheet, Monthly Summary of Sample Costs, Equipment List, and Ranging Analysis. A single list of assumptions is also included with each study. The variability in costs between Class I and Class II soils tends to represent the differences in pests, water, diseases, and soil conditions between Butte County (Class I) and western Colusa, Glenn and Tehama Counties (Class II). Costs given in this sample study are for those of a typical well-managed full bearing orchard and are not intended to reflect an average of all orchards in the Sacramento Valley.

Practices listed are based on those production procedures considered typical for this crop and area. Sample costs given for labor, materials, equipment and contract services are based on 1988 figures. Some costs or practices listed in this study may not be applicable to your situation. Production costs for almonds can vary based on a number of factors including age of orchard, spacing of trees, type of irrigation system, annual variations in pest pressure and differing management practices. This study is intended only as a guide and can be used as an aid in making production decisions, determining potential returns, preparing budgets and evaluating production loans. A blank "Your Costs" column is provided on the Cost of Production Worksheets to enter your actual costs.

For explanation of calculations used for the study refer to the attached List of Assumptions, call Agricultural Economics Extension, University of California, Davis, California (916) 752-2745, or contact the Farm Advisor in your county.

# ASSUMPTIONS FOR ESTABLISHING AND PRODUCING ALMONDS

## ON CLASS I AND CLASS II SOILS

Sacramento Valley - 1988

The following list contains a description of some general assumptions pertaining to the sample costs of establishing and producing almonds in the Sacramento Valley. The establishment assumptions apply to current sample costs for establishing a new orchard. The production assumptions apply to typical sample costs for a well managed, 12 year old almond orchard in full production.

### A. ESTABLISHMENT ASSUMPTIONS ONLY

#### 1. Land and trees for establishing a new almond orchard:

|                                |              |
|--------------------------------|--------------|
| Bare land value - Class I soil | \$2,500/acre |
| (105 acres) - Class II soil    | \$1,500/acre |

#### Trees:

|   |
|---|
| Class I soil - 75 Trees/acre - 24' square or 26' diamond. |
| Class II soil - 90 Trees/acre 22' X 22' spacing.          |

#### 2. Establishment costs could be adjusted for a bean intercrop during the first two years and mowed centers starting in the third year on Class soil.

### B. ESTABLISHMENT AND PRODUCTION ASSUMPTIONS

#### 1. Land and trees for 12 year old orchard:

Bare land value (105 acres):

|                 |              |
|-----------------|--------------|
| Class I Soil -  | \$1,905/acre |
| Class II Soil - | \$ 950/acre  |

#### Establishment costs:

|                 |              |
|-----------------|--------------|
| Class I Soil -  | \$3,500/acre |
| Class II Soil - | \$3,500/acre |

Since only 100 of the 105 total acres are in production, the land value per acre needs to be adjusted to \$2000 per producing acre for Class I and \$1000 per producing acre for Class II soil. Investment costs for land and trees reflect actual cost incurred at time of planting. The annual costs for depreciation are obtained by dividing the initial establishment costs by 30 years. Land is not depreciated. Interest on the investment in land and trees is calculated by multiplying the interest rate (11%) by the average value of land and trees. The average value of the trees is estimated to be one-half of the establishment costs.

#### 2. Labor rates: (include 27% for SDI ,FICA, insurance, and other benefits)

|   |           |
|---|-----------|
| Skilled labor (machinery operators):    | \$7.25/hr |
| Field labor (irrigators & misc. labor): | \$5.40/hr |



Class II soil -

Irrigation system - Drip.

25 hp pump - continuous irrigation - 36.00 acre inches/year.

Electricity costs @ 50% plant efficiency = \$17.00/acre-foot.

12. Harvest costs include ownership costs for shaking and harvesting and custom rates for hauling and hulling.

13. Interest on operating capital is based on cultural costs and assumes a 9 month loan at 11%.

14. Fertilizer program:

Broadcast Nitrogen on Class I soil.

Nitrogen applied under the drip system on Class II soil.

Fertilize with potassium sulfate ( $K_2SO_4$ ) in the fall as needed.

With zinc deficiency apply zinc sulfate spray in fall.

15. Orchard floor management:

Class I soil -

Centers are mowed for weed control seven times, pre-emergent and post-emergent strip spray is applied in fall after harvest, spot treatment with post-emergence herbicide in the growing season. Middles are sprayed in July for harvest preparation.

Class II soil -

Centers are mowed for weed control five times, pre-emergent and post-emergent strip spray is applied in fall after harvest, spot treatment with post-emergence herbicide in the growing season.

16. Insect and disease control:

Insect spray could cover navel orange worm, peach twig borer or mites. Disease sprays are for Brown rot and shothole.

17. Winter sanitation is performed with shaker or hand pole.

**SAMPLE COSTS TO ESTABLISH DRIP IRRIGATED ALMOND ORCHARD**  
**Class II Soil - Sacramento Valley - 1988**

Skilled labor: \$7.25 per hour      Interest rate: 11.0%  
 Field labor: \$5.40 per hour      90 Trees per acre, 22' X 22'.

| YEAR                             | Costs per Acre |                |                |                |                |                |
|----------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                                  | 1st            | 2nd            | 3rd            | 4th            | 5th            | 6th            |
| <b>YIELD (Nuts lbs/acre)</b>     |                |                |                | 400            | 800            | 1,600          |
| <b>Planting costs</b>            |                |                |                |                |                |                |
| Ripping                          | 90             |                |                |                |                |                |
| Land preparation                 | 35             |                |                |                |                |                |
| Layout, plant, and protect trees | 113            |                |                |                |                |                |
| Trees - 90 @ \$3.25              | 293            |                |                |                |                |                |
| <b>TOTAL PLANTING COSTS</b>      | <b>\$530</b>   |                |                |                |                |                |
| <b>Cultural costs:</b>           |                |                |                |                |                |                |
| Training and pruning             | \$8            | \$14           | \$30           | \$30           | \$30           | \$24           |
| Brush removal                    | 0              | 5              | 10             | 10             | 15             | 20             |
| Cultivate                        | 20             | 20             | 10             | 0              | 0              | 0              |
| Mow                              | 0              | 0              | 0              | 14             | 17             | 17             |
| Irrigation                       | 25             | 30             | 40             | 60             | 101            | 111            |
| Fertilizer applied               | 11             | 15             | 23             | 32             | 41             | 49             |
| Weed sprays                      | 16             | 33             | 33             | 33             | 33             | 33             |
| Dormant spray                    | 0              | 15             | 20             | 28             | 28             | 28             |
| Fungicide 2X                     | 0              | 0              | 0              | 0              | 54             | 54             |
| Insect spray                     | 12             | 12             | 0              | 0              | 0              | 28             |
| Replants                         | 0              | 10             | 5              | 0              | 0              | 0              |
| Bees, \$24/hive                  | 0              | 0              | 0              | 12             | 24             | 48             |
| Miscellaneous                    | 21             | 21             | 21             | 21             | 21             | 21             |
| Pick-up truck costs              | 15             | 15             | 15             | 15             | 15             | 15             |
| <b>TOTAL CULTURAL COSTS</b>      | <b>\$128</b>   | <b>\$190</b>   | <b>\$208</b>   | <b>\$255</b>   | <b>\$378</b>   | <b>\$448</b>   |
| <b>Harvesting Costs:</b>         |                |                |                |                |                |                |
| Shake                            |                |                |                | 36             | 36             | 36             |
| Sweep                            |                |                |                | 18             | 20             | 20             |
| Hand rake                        |                |                |                | 6              | 6              | 12             |
| Pick up and haul                 |                |                |                | 24             | 28             | 37             |
| Hull                             |                |                |                | 16             | 32             | 64             |
| <b>TOTAL HARVEST COSTS</b>       |                |                |                | <b>\$100</b>   | <b>\$122</b>   | <b>\$169</b>   |
| <b>Overhead Costs:</b>           |                |                |                |                |                |                |
| Office and business costs        | 60             | 60             | 60             | 60             | 60             | 60             |
| County Taxes                     | 25             | 25             | 25             | 25             | 32             | 35             |
| Insurance                        | 8              | 8              | 8              | 8              | 8              | 8              |
| <b>TOTAL OVERHEAD COSTS</b>      | <b>\$92</b>    | <b>\$92</b>    | <b>\$92</b>    | <b>\$92</b>    | <b>\$100</b>   | <b>\$103</b>   |
| <b>TOTAL CASH COSTS</b>          | <b>\$750</b>   | <b>\$283</b>   | <b>\$300</b>   | <b>\$447</b>   | <b>\$601</b>   | <b>\$720</b>   |
| <b>ACCUMULATED CASH COSTS</b>    | <b>\$750</b>   | <b>\$1,033</b> | <b>\$1,333</b> | <b>\$1,780</b> | <b>\$2,381</b> | <b>\$3,101</b> |

| YEAR                                      | Costs per Acre |                |                |                |                |                |
|---|----------------|----------------|----------------|----------------|----------------|----------------|
|   | 1st            | 2nd            | 3rd            | 4th            | 5th            | 6th            |
| <b>Depreciations:</b>                     |                |                |                |                |                |                |
| Building & equipment                      | 181            | 181            | 181            | 181            | 181            | 181            |
| <b>TOTAL DEPRECIATION</b>                 | <b>\$181</b>   | <b>\$181</b>   | <b>\$181</b>   | <b>\$181</b>   | <b>\$181</b>   | <b>\$181</b>   |
| <b>Interest on Investment at 11%</b>      |                |                |                |                |                |                |
| Building & equipment                      | 108            | 108            | 108            | 108            | 108            | 108            |
| Land \$1500/acre                          | 165            | 165            | 165            | 165            | 165            | 165            |
| Interest on accumulated cash costs        | 83             | 114            | 147            | 196            | 262            | 341            |
| <b>TOTAL INTEREST ON INVESTMENT</b>       | <b>\$356</b>   | <b>\$387</b>   | <b>\$420</b>   | <b>\$469</b>   | <b>\$535</b>   | <b>\$614</b>   |
| <b>TOTAL COST FOR THE YEAR</b>            | <b>\$1,287</b> | <b>\$850</b>   | <b>\$901</b>   | <b>\$1,097</b> | <b>\$1,317</b> | <b>\$1,515</b> |
| <b>CREDIT FROM HARVEST @ \$1.00/POUND</b> |                |                |                | \$400          | \$800          | \$1,600        |
| <b>NET COST FOR THE YEAR</b>              | <b>\$1,287</b> | <b>\$850</b>   | <b>\$901</b>   | <b>\$697</b>   | <b>\$517</b>   | <b>\$-85</b>   |
| <b>TOTAL ACCUMULATED NET COST</b>         | <b>\$1,287</b> | <b>\$2,137</b> | <b>\$3,038</b> | <b>\$3,735</b> | <b>\$4,251</b> | <b>\$4,166</b> |

1950  
 1951  
 1952  
 1953  
 1954  
 1955  
 1956  
 1957  
 1958  
 1959  
 1960

| YEAR                                      | 1st | 2nd | 3rd | 4th | 5th | 6th |
|---|-----|-----|-----|-----|-----|-----|
| Depreciations:                            |     |     |     |     |     |     |
| Building & equipment                      |     |     |     |     |     |     |
| <b>TOTAL DEPRECIATION</b>                 |     |     |     |     |     |     |
| <b>Interest on Investment at 11%</b>      |     |     |     |     |     |     |
| Building & equipment                      |     |     |     |     |     |     |
| Land \$1500/acre                          |     |     |     |     |     |     |
| Interest on accumulated cash costs        |     |     |     |     |     |     |
| <b>TOTAL INTEREST ON INVESTMENT</b>       |     |     |     |     |     |     |
| <b>TOTAL COST FOR THE YEAR</b>            |     |     |     |     |     |     |
| <b>CREDIT FROM HARVEST @ \$1.00/POUND</b> |     |     |     |     |     |     |
| <b>NET COST FOR THE YEAR</b>              |     |     |     |     |     |     |
| <b>TOTAL ACCUMULATED NET COST</b>         |     |     |     |     |     |     |

MONTHLY SUMMARY OF  
SAMPLE COSTS TO PRODUCE ALMONDS ON CLASS II SOIL

Sacramento Valley - 1988

| Operation                   | Jan         | Feb         | Mar         | Apr         | May         | Jun         | Jul         | Aug         | Sep          | Oct         | Nov         | Dec         | TOTAL        |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|--------------|
| Pruning - 90 Trees/ac       |             |             |             |             |             |             |             |             |              |             | 29.7        | 29.7        | \$59         |
| Stack brush                 |             |             |             |             |             |             | 4.3         |             |              |             |             | 17.3        | 22           |
| Buck brush                  |             |             |             |             |             |             | .8          |             |              |             |             | 3.0         | 4            |
| Tree replacement            |             | 4.3         |             |             |             |             |             |             |              |             | 1.8         |             | 6            |
| Fertilize (6 X 50# N)       |             |             | 11.4        | 11.4        | 11.4        | 11.4        | 11.4        |             |              |             |             |             | 57           |
| Irrigation (36")            |             |             | 3.6         | 7.1         | 10.7        | 14.2        | 14.2        | 10.7        | 7.1          | 3.6         |             |             | 71           |
| Labor                       |             |             | 5.0         | 5.0         | 5.0         | 5.0         | 5.0         | 5.0         | 5.0          | 5.0         |             |             | 40           |
| Now 5X                      |             | 3.3         | 3.3         | 3.3         | 3.3         |             | 3.3         |             |              |             |             |             | 17           |
| Weed sprays 3X              |             |             |             |             | 8.1         |             | 8.1         |             |              |             | 32.5        |             | 49           |
| Dormant spray               | 28.3        |             |             |             |             |             |             |             |              |             |             |             | 28           |
| Fungicide 2X                |             |             | 32.3        | 21.6        |             |             |             |             |              |             |             |             | 54           |
| Insect spray                |             |             |             |             |             |             | 28.0        |             |              |             |             |             | 28           |
| Bees (2.5 hives/acre)       |             | 30.0        | 30.0        |             |             |             |             |             |              |             |             |             | 60           |
| Miscellaneous               | 1.8         | 1.8         | 1.8         | 1.8         | 1.8         | 1.8         | 1.8         | 1.8         | 1.8          | 1.8         | 1.8         | 1.8         | 21           |
| Costs - pick up truck       | 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           |
| Int.operating capital       | .3          | .7          | 1.5         | 2.0         | 2.4         | 2.7         | 3.4         | 4.1         | 5.1          |             |             |             | 22           |
| <b>TOTAL CULTURAL COSTS</b> | <b>\$32</b> | <b>\$41</b> | <b>\$90</b> | <b>\$53</b> | <b>\$44</b> | <b>\$36</b> | <b>\$81</b> | <b>\$23</b> | <b>\$20</b>  | <b>\$12</b> | <b>\$67</b> | <b>\$53</b> | <b>\$552</b> |
| Shake                       |             |             |             |             |             |             |             | 18.8        | 18.8         |             |             |             | 38           |
| Sweep                       |             |             |             |             |             |             |             | 10.9        | 10.9         |             |             |             | 22           |
| Hand rake and pole          |             |             |             |             |             |             |             | 8.1         | 8.1          |             |             |             | 16           |
| Pick up and haul            |             |             |             |             |             |             |             | 17.0        | 17.0         |             |             |             | 34           |
| Hull                        |             |             |             |             |             |             |             |             | 32.0         | 32.0        |             |             | 64           |
| <b>TOTAL HARVEST COSTS</b>  |             |             |             |             |             |             |             | <b>\$55</b> | <b>\$87</b>  | <b>\$32</b> |             |             | <b>\$174</b> |
| Office and business         | 5.0         | 5.0         | 5.0         | 5.0         | 5.0         | 5.0         | 5.0         | 5.0         | 5.0          | 5.0         | 5.0         | 5.0         | 60           |
| County Taxes                |             |             |             | 18.6        |             |             |             |             |              |             |             | 18.6        | 37           |
| Equipment Insurance         | 7.7         |             |             |             |             |             |             |             |              |             |             |             | 8            |
| <b>TOTAL CASH OVERHEAD</b>  | <b>\$13</b> | <b>\$5</b>  | <b>\$5</b>  | <b>\$24</b> | <b>\$5</b>  | <b>\$5</b>  | <b>\$5</b>  | <b>\$5</b>  | <b>\$5</b>   | <b>\$5</b>  | <b>\$5</b>  | <b>\$24</b> | <b>\$105</b> |
| <b>TOTAL CASH COSTS</b>     | <b>\$44</b> | <b>\$46</b> | <b>\$95</b> | <b>\$77</b> | <b>\$49</b> | <b>\$41</b> | <b>\$86</b> | <b>\$83</b> | <b>\$112</b> | <b>\$49</b> | <b>\$72</b> | <b>\$77</b> | <b>\$831</b> |



**EQUIPMENT AND BUILDING LIST FOR ALMONDS ON CLASS II SOIL  
Sacramento Valley - 1988**

Interest Rate: 11%

Fuel Cost per Gallon \$ .65 diesel  
\$ .75 unleaded

| ITEM #                   | DESCRIPTION                 | NEW COST         | ANNUAL USE (ACRES) | COST PER ACRE  | LIFE (HRS) | YEARS TO DEPREC- INTEREST* |              | TAR*         | --- HOURLY COSTS --- |          |        |        |
|--------------------------|-----------------------------|------------------|--------------------|----------------|------------|----------------------------|--------------|--------------|----------------------|----------|--------|--------|
|                          |                             |                  |                    |                |            | TRADE                      | ATION        |              | FUEL*                | REPAIRS* | TOTAL  |        |
| <b>Tractors:</b>         |                             |                  |                    |                |            |                            |              |              |                      |          |        |        |
| 1                        | 60 HP wheel diesel          | \$22,000         | 100                | \$220          | 12,000     | 10                         | \$22.00      | \$12.10      | 120%                 | \$2.61   | \$2.20 | \$4.81 |
| 2                        | 30 HP wheel diesel          | 15,000           | 100                | 150            | 12,000     | 10                         | 15.00        | 8.25         | 120                  | 1.31     | 1.50   | 2.81   |
| 3                        | Weed sprayer, P.T.O.        | 2,750            | 100                | 28             | 1,200      | 10                         | 2.75         | 1.51         | 100                  |          | 2.29   | 2.29   |
| 4                        | Orchard sprayer, 500 gal.   | 38,000           | 100                | 380            | 2,000      | 10                         | 38.00        | 20.90        | 80                   | 3.90     | 15.20  | 19.10  |
| 5                        | Flail mower, 10 foot        | 6,500            | 100                | 65             | 2,000      | 10                         | 6.50         | 3.58         | 120                  |          | 3.90   | 3.90   |
| 6                        | Buck Rake/Front end loader  | 5,600            | 100                | 56             | 2,500      | 10                         | 5.60         | 3.08         | 100                  |          | 2.24   | 2.24   |
| 7                        | 4 wheel ATV & sprayer       | 6,000            | 100                | 60             | 3,000      | 5                          | 12.00        | 3.30         | 60                   |          | 1.20   | 1.20   |
| 8                        | Pruning equipment           | 1,200            | 100                | 12             |            | 10                         | 1.20         | .66          | 100                  |          |        |        |
| 9                        | Pick-up truck, 1/2 ton      | 14,000           | 100                | 140            | 2,000      | 5                          | 28.00        | 7.70         | 60                   |          | 4.20   | 4.20   |
| 10                       | Drip irrigation system      | 60,000           | 100                | 600            | 27,000     | 15                         | 40.00        | 33.00        | 10                   |          | .22    | .22    |
| 11                       | Irrigation pump (25 hp)     | 9,000            | 100                | 90             | 35,000     | 20                         | 4.50         | 4.95         | 5                    |          | .01    | .01    |
| 12                       | Shaker                      | 63,000           | 100                | 630            | 2,500      | 10                         | 63.00        | 34.65        | 80                   | 1.95     | 20.16  | 22.11  |
| 13                       | Sweeper                     | 18,000           | 100                | 180            | 2,500      | 10                         | 18.00        | 9.90         | 100                  | 2.25     | 7.20   | 9.45   |
| 14                       | Pick-up machine/4 carts     | 22,400           | 100                | 224            | 2,500      | 10                         | 22.40        | 12.32        | 80                   | 1.30     | 7.17   | 8.47   |
| 15                       | Offset disc, 12'            | 6,833            | 100                | 68             | 2,500      | 10                         | 6.83         | 3.76         | 120                  |          | 3.28   | 3.28   |
|                          | Buildings                   | 25,000           | 100                | 250            |            | 35                         | 7.14         | 13.75        |                      |          |        |        |
|                          | Miscellaneous shop tools    | 6,000            | 100                | 60             |            | 10                         | 6.00         | 3.30         |                      |          |        |        |
|                          | Thermometers & frost alarms | 500              | 100                | 5              |            | 5                          | 1.00         | .28          |                      |          |        |        |
| <b>TOTAL COST</b>        |                             | <b>\$321,783</b> |                    | <b>\$3,218</b> |            |                            | <b>\$300</b> | <b>\$177</b> |                      |          |        |        |
| <b>60% OF NEW COSTS*</b> |                             | <b>\$193,070</b> |                    | <b>\$1,931</b> |            |                            | <b>\$180</b> | <b>\$106</b> |                      |          |        |        |

\* 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 ON CLASS II SOIL AT VARYING PRICES AND YIELDS

|                 | YIELD (Heat Pounds/acre) |       |       |       |       |       |
|-----------------|--------------------------|-------|-------|-------|-------|-------|
|                 | 500                      | 1000  | 1500  | 2000  | 2500  | 3000  |
| Cultural Costs  | 552                      | 552   | 552   | 552   | 552   | 552   |
| Harvest Costs   | 118                      | 143   | 169   | 194   | 220   | 245   |
| Cash Overhead   | 105                      | 105   | 105   | 105   | 105   | 105   |
| Cash cost/acre  | 775                      | 800   | 826   | 851   | 877   | 902   |
| Cash cost/lb    | 1.55                     | .80   | .55   | .43   | .35   | .30   |
| Investment cost | 705                      | 705   | 705   | 705   | 705   | 705   |
| TOTAL COST/ACRE | 1,480                    | 1,506 | 1,531 | 1,557 | 1,582 | 1,608 |
| TOTAL COST/LB   | 2.96                     | 1.51  | 1.02  | .78   | .63   | .54   |

PER ACRE INCOME ABOVE CASH COSTS AT VARYING PRICES AND YIELDS

| \$ per Heat Pound | YIELD (Heat Pounds/acre) |       |       |       |       |       |
|-------------------|--------------------------|-------|-------|-------|-------|-------|
|                   | 500                      | 1000  | 1500  | 2000  | 2500  | 3000  |
| .60               | -475                     | -200  | 74    | 349   | 623   | 898   |
| .80               | -375                     |       | 374   | 749   | 1,123 | 1,498 |
| 1.00              | -275                     | 200   | 674   | 1,149 | 1,623 | 2,098 |
| 1.20              | -175                     | 400   | 974   | 1,549 | 2,123 | 2,698 |
| 1.40              | -75                      | 600   | 1,274 | 1,949 | 2,623 | 3,298 |
| 1.60              | 25                       | 800   | 1,574 | 2,349 | 3,123 | 3,898 |
| 1.80              | 125                      | 1,000 | 1,874 | 2,749 | 3,623 | 4,498 |

PER ACRE INCOME ABOVE TOTAL COSTS AT VARYING PRICES AND YIELDS

| \$ per Heat Pound | YIELD (Heat Pounds/acre) |      |       |       |       |       |
|-------------------|--------------------------|------|-------|-------|-------|-------|
|                   | 500                      | 1000 | 1500  | 2000  | 2500  | 3000  |
| .60               | -1,180                   | -906 | -631  | -357  | -82   | 192   |
| .80               | -1,080                   | -706 | -331  | 43    | 418   | 792   |
| 1.00              | -980                     | -506 | -31   | 443   | 918   | 1,392 |
| 1.20              | -880                     | -306 | 269   | 843   | 1,418 | 1,992 |
| 1.40              | -780                     | -106 | 569   | 1,243 | 1,918 | 2,592 |
| 1.60              | -680                     | 94   | 869   | 1,643 | 2,418 | 3,192 |
| 1.80              | -580                     | 294  | 1,169 | 2,043 | 2,918 | 3,792 |

SEASON-AVERAGE GROWER PRICES FOR ALMONDS (Shelled basis), 1978 - 1987

| YEAR                     | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 |
|--------------------------|------|------|------|------|------|------|------|------|------|------|
| AVERAGE PRICE (\$/POUND) | 1.45 | 1.53 | 1.47 | .78  | .94  | 1.04 | .77  | .80  | 1.92 | .95  |

Source: Non-Citrus Fruits and Nuts Summary, NASS, USDA