



Avomation

ECONOMICS

AVOCADO ECONOMICS: AN EVALUATION OF COSTS AND RETURNS

VENTURA COUNTY - 1982

This report is based on the supposition that you are interested not only in growing avocados, but also in making money while doing it. This report will point out some facts and figures, do a little explaining, and generally inform you it's not going to be easy. As of January 1982, there were about 79,606 acres of avocados in California, 14,808 of which were nonbearing, representing a 19 percent increase in productive acreage over the next four years. In addition, about 1,000 acres are being planted each year. The basis of this report is not how much money you'll make growing avocados but how much you'll have to make to stay in business.

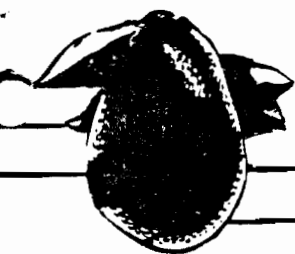
The first important consideration is that a 5-year-old avocado orchard has an investment value of \$25,270 per acre. This represents money spent developing an avocado orchard or elsewhere at 12 percent interest.

The second important consideration is the annual cost of production for a mature orchard which is \$7,576 per acre. This includes a 12 percent return on investment plus a charge of grower's labor. The \$7,576 represents what total costs would be of all work done by someone else or the grower received \$7.50 per hour including fringe benefits for his labor. A grower's labor must be considered because he could work for someone else and receive at least this wage for his time. When figuring costs, a grower should not fail to consider the cost of his own time. If you can show returns equalling \$7,576 per acre, you will be covering all cash costs plus allowing for depreciation of equipment and trees plus a 12 percent return on all the money you have invested. What is left is net management income or profit. If the money to develop and operate the orchard was borrowed, this 12 percent represents the interest you would be paying on the loan. If the interest charge is higher than 12 percent, you will have to adjust or strive to match your returns accordingly. Likewise, the interest charge must be adjusted if the cost of land is more or less than the assumed \$7,000 per acre. Before you see how the returns match up, it is necessary to explain how the figures of \$25,270 and \$7,576 were derived.

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January 1983

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AVOCADO - CASH FLOW - VENTURA COUNTY 1982

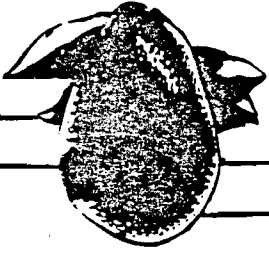
It is often necessary to know what the approximate monthly expenditures are for the various production costs. The following monthly cash flow chart has been developed for that purpose. The figures are taken from the Avocado Production Costs data sheet.

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
CULTURAL OPERATIONS													
Fertilization 8x													
Labor.....	\$ -	\$ -	\$ -	\$ 1.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 1.00	\$ -	\$ 14.00
Material.....	-	-	-	4.00	6.00	6.00	6.00	6.00	6.00	6.00	3.00	-	43.00
Zinc Spray.....	-	-	-	-	-	18.00	-	-	-	-	-	-	18.00
Leaf Analyses.....	-	-	-	-	-	-	-	-	3.00	-	-	-	3.00
Irrigation													
Labor.....	-	-	-	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	-	120.00
Water.....	-	-	-	29.00	29.00	29.00	29.00	30.00	29.00	29.00	29.00	-	233.00
Pest Control.....	-	-	23.00	-	-	24.00	-	-	24.00	-	-	24.00	95.00
Weed Control													
Herbicide 2x.....	-	-	-	16.00	-	-	-	-	-	-	16.00	-	32.00
Spot Oil 2x.....	-	-	-	-	-	34.00	-	-	34.00	-	-	-	68.00
Pruning.....	-	-	-	-	25.00	-	-	-	25.00	-	-	-	50.00
Orchard Thinning.....	-	-	-	-	-	-	103.00	-	-	-	-	-	103.00
Miscellaneous.....	8.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	85.00
Total.....	\$ 8.00	\$ 7.00	\$ 30.00	\$ 72.00	\$ 84.00	\$ 135.00	\$ 162.00	\$ 60.00	\$ 145.00	\$ 59.00	\$ 71.00	\$ 31.00	\$ 864.00
CASH OVERHEAD													
Taxes.....	\$ -	\$ -	\$ -	\$ 60.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 60.00	\$ 120.00
Maintenance & Repair...	\$ 12.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 100.00
General Expense.....	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 12.00	\$ 100.00
Management Charge.....	\$ 7.00	\$ 7.00	\$ 7.00	\$ 7.00	\$ 7.00	\$ 7.00	\$ 7.00	\$ 7.00	\$ 7.00	\$ 7.00	\$ 7.00	\$ 7.00	\$ 84.00
Total.....	\$ 27.00	\$ 23.00	\$ 23.00	\$ 83.00	\$ 23.00	\$ 23.00	\$ 23.00	\$ 23.00	\$ 23.00	\$ 23.00	\$ 23.00	\$ 87.00	\$ 404.00
TOTAL ALL CASH COSTS	\$ 35.00	\$ 30.00	\$ 53.00	\$ 155.00	\$ 107.00	\$ 158.00	\$ 185.00	\$ 83.00	\$ 168.00	\$ 82.00	\$ 94.00	\$ 118.00	\$ 1,268.00
ACCUMULATED CASH COSTS	\$ 35.00	\$ 65.00	\$ 118.00	\$ 273.00	\$ 380.00	\$ 538.00	\$ 723.00	\$ 806.00	\$ 974.00	\$ 1,056.00	\$ 1,150.00	\$ 1,268.00	\$ 1,268.00

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ANNUAL PRODUCTION COSTS

VENTURA COUNTY - 1982

After seeing how we got \$25,270 investment value per acre, you have a pretty good idea as to how easy it is to spend \$7,576 per acre per year to raise a crop.

Refer to the attached AVOCADO PRODUCTION COSTS FOR VENTURA COUNTY.

TOTAL CULTURAL COSTS...(1)..... \$ 864

This includes labor and materials for the following cultural practices. Fertilization: applying 150 pounds of actual nitrogen per acre in eight applications, a zone foliage spray plus the cost of having a leaf analysis. Irrigation: applying 2.3 acre-feet of water in 32 applications (one time a week for 8 months or 32 weeks). Pest Control: applying snail bait, rat poison, gopher traps. Weed Control: applying two applications of residual herbicide plus two spot sprays of contact materials. Pruning includes removing deadwood, skirt pruning and tree shaping.

Orchard thinning is required between the 8th and 12th years and the total cost of \$1,030 per acre is prorated over 10 years for an annual cost of \$103 per acre. Miscellaneous includes tree care, erosion control, props, etc.

TOTAL OVERHEAD...(2)..... \$ 404

This includes taxes at \$120 per acre, maintenance and repairs, general expense and management charge. Items included in these have already been discussed.

TOTAL PREHARVEST COST...(3)..... \$ 1,268

TOTAL INVESTMENT OVERHEAD...(4)..... \$ 6,488

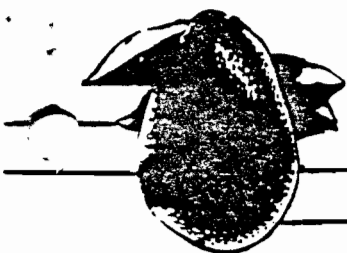
This includes depreciation at \$4,221 and interest on investment at \$2,087. The investment schedule is given on page 2 of the study.

TOTAL PREHARVEST COST...(5)..... \$ 7,576

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ECONOMICS

AVOCADO PRODUCTION COSTS

VENTURA COUNTY - 1982

BASIS FOR STUDY

The figures listed in this sample cost of production study are based on assumed conditions. The typical practices are listed, with sample costs given for labor, materials and equipment. These are not average costs but are intended as guidelines. Individual orchards may vary considerably from these figures in their costs and returns.

Sample Costs in this report are based on a typical mature commercial 10-acre, owner-operated orchard of mainly Hass avocado planted 18 x 22 feet or 110 trees per acre on a moderate slope hillside with drip irrigation system and with no frost protection equipment.

Wage Rate is \$7.50 per hour, including fringe benefits.

Pruning consists of removing skirt limbs and removal of broken branches, dead wood, suckers, cutting wild growth and topping to control shape.

Orchard Thinning of temporary trees is required as trees crowd. The first thinning at 8 to 12 years of age removes half the total trees. Additional thinning may be required 4 to 6 years later.

Harvest Costs vary from 4 to 8 cents per pound, depending on tree size, yield per tree, terrain, etc.

Marketing is through independent or cooperative packinghouses. An assessment of 5.0 percent of the value of crop at roadside is made for sales promotion and production research.

YIELDS AND RETURNS

Yield varies considerably among orchards and from year to year. Commercial production may range from 3,000 to 12,000 pounds per acre. Excellent orchards under favorable conditions produce more -- up to 30,000 pounds have been reported. The following chart illustrates returns per acre at various on-tree price per pound at several levels of production.

On-Tree Price*	Yield per Acre in Pounds							
	Per Pound	3,000	5,000	6,000	7,000	8,000	10,000	12,000
\$ 0.15	\$ 450	\$ 500	\$ 900	\$1,050	\$1,200	\$1,500	\$1,800	
0.20	600	1,000	1,200	1,400	1,600	2,000	2,400	
0.25	750	1,250	1,500	1,750	2,000	2,500	3,000	
0.30	900	1,500	1,800	2,100	2,400	3,000	3,600	
0.35	1,050	1,750	2,100	2,450	2,800	3,500	4,200	
0.40	1,200	2,000	2,400	2,800	3,200	4,000	4,800	

*Net to grower after harvest costs and marketing order assessment

----- Approximate required to pay preharvest cash costs - Line 3

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INVESTMENT SCHEDULE

Depreciation and interest on investment are included in this study. An annual charge for interest on investment is calculated on the money invested in land, trees, building and equipment. The charge is at a rate of 12 percent on assumed agricultural land value of \$7,000 per acre plus half life on tree, equipment and buildings.

Depreciation and interest per acre are calculated for the following investment schedule.

Item	Expected Life	ACRS	Per-Acre Costs		
			Investment	Depreciation	Interest
Land, assumed value	-	-	\$ 7,000	-	\$ 840
Trees (110/acre)	20 yrs	5 yrs	18,270	\$ 3,654	1,097
Irrigation System	10 "	5 "	1,100	220	66
Pickup	5 "	3 "	500	167	30
Weed Sprayer	10 "	5 "	400	80	24
Buildings	20 "	5 "	400	80	24
Hand Tools	10 "	5 "	100	20	6
Total Investment Schedule			\$27,770	\$ 4,221	\$2,087

COST ANALYSIS PER ACRE

Cultural Operations

	Hours	Labor	Mat. & Equip.	Total
Fertilizer				
Nitrogen - 1.5 lbs N/tree - 8x	2	\$ 14	\$ 43	\$ 57
Zinc spray (aerial contract)	c	15	3	18
Leaf analysis (contract)	c	3	-	3
Irrigation				
2.3 Ac/ft/acre	-	-	233	233
Labor - 32x	16	120	-	120
Pest Control - snails, rodents	6	45	50	95
Weed Control				
Herbicide - 2x	2	14	18	32
Spot oil - 2x	4	28	40	68
Pruning, skirt, dead wood, shaping	6	45	5	50
Orchard Thinning - 10 yr. prorated	c	93	10	103
Miscellaneous - erosion, tree care	6	45	40	85
(1) Total Cultural Costs		\$422	\$442	\$864

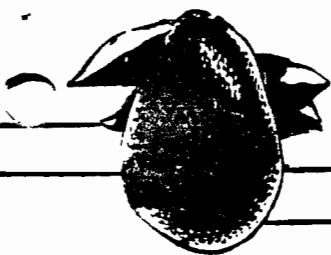
Overhead Costs

Taxes	\$ 120
Maintenance and repairs	100
General Expense	100
Management Charge	84
(2) Total Cash Overhead Costs	\$ 404
(3) Total Preharvest Cash Costs	\$1,268

Investment Overhead

Depreciation	\$4,221
(4) Total Cash Costs plus Depreciation	5,489
Interest on Investment	2,087
(5) Total Preharvest Costs	\$7,576

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TOTAL FIRST-YEAR INVESTMENT COSTS

Refer to the attached AVOCADO ORCHARD DEVELOPMENT COSTS FOR VENTURA COUNTY.

TOTAL LABOR AND FIELD POWER (1) \$ 1,595

This includes the following: land preparation, orchard layout, planting, irrigation, fertilization, weed control, pest control, tree care (mulching, protectors, staking, tying, pruning), and miscellaneous items such as erosion control and repairs.

TOTAL MATERIALS (2) \$ 1,296

This includes the following: trees at \$9.00 each, mulching materials, tree protectors, water, fertilizer, weed oil, pest control materials and miscellaneous supplies.

TOTAL CASH CULTURAL COSTS (3) \$ 2,891

This includes labor, field power and materials for the first year.

TOTAL CASH OVERHEAD COSTS (4) \$ 721

Cash overhead costs include general expense items such as postage, telephone, insurance, office, publications, membership dues, laboratory fees, etc.; management charge or the fee paid to a grove manager supervising the development of a grove for a grower, county property taxes, and maintenance and repair costs for building and equipment.

TOTAL PREHARVEST CASH COSTS (5) \$ 3,612

This includes all cash costs for labor, materials, and cash overhead expenses. Because there is no fruit credits to apply against these costs, this figure represents the NET CASH COSTS for the first year.

LESS FRUIT CREDITS (6) \$ 0

No production is expected until the third year; therefore, no fruit credit is applied the first year. Fruit credits are applied for the third, fourth and fifth years and is figured on 10, 20 and 40 pounds per tree respectively at 35 cents per pound.

NET CASH COSTS (7) \$ 3,612

The TOTAL PREHARVEST CASH COSTS (5) less fruit credit (6).

ACCUMULATED NET CASH COSTS (8) \$ 3,612

For the first year it is the same as NET CASH COSTS (7).
For subsequent years it is ACCUMULATED NET CASH COSTS (8)
plus NET CASH COSTS (7) for the following year.

TOTAL INVESTMENT COSTS (9) \$ 2,072

The investment costs include depreciation on irrigation system, pickup, weed sprayer and equipment, buildings and hand tools. Depreciation is figured by dividing the per-acre costs by years of life. Trees are not depreciated until they start to produce, generally the fourth or fifth year. Total first-year depreciation is \$567. Interest on investment for the first year equals 12 percent of the total cost per acre (5) plus 12 percent of land value (\$7,000) and undepreciated balance of irrigation system, pickup, weed sprayer and equipment and building. Interest for remaining years equals 12 percent of prior-year total investment value (12).

TOTAL NET ALL COSTS (10) \$ 5,684

The total net all costs is determined by adding NET CASH COSTS (7) and TOTAL INVESTMENT COSTS (9).

ACCUMULATED TOTAL NET COSTS (11) \$ 5,684

For the first year it is the same as TOTAL NET ALL COSTS (10).
For subsequent years it is ACCUMULATED NET CASH COSTS (11)
plus TOTAL NET CASH COSTS (10) for the following year.

TOTAL INVESTMENT VALUE (12) \$14,617

For sake of uniformity, most farm advisors developing cost data for avocados use an assumed land value of \$7,000 per acre. We realize, of course, land will vary depending on area and other factors. The total investment value (including land at \$7,000 and field power, labor, materials, overhead costs, trees, irrigation system, pickup, weed sprayers and equipment and building) for the first 5 years is as follows:

1st -	\$14,617
2nd -	17,566
3rd -	20,171
4th -	22,699
5th -	25,270

Similar data is shown for the 2nd, 3rd, 4th and 5th years.

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AVOCADO ORCHARD DEVELOPMENT COSTS

VENTURA COUNTY - 1982

Sample costs have been estimated on the basis of a new 10-acre planting in Ventura County. Hass variety, planted 18 x 22 feet or 110 trees per acre, relatively frost-free site, drip irrigation system and nontilled.

Water costs vary, depending on source. Range is from \$40 to \$220 per acre-foot. The average cost used for this study is \$100 per acre-foot.

Assessed values and tax rates vary by districts. Range is from \$80 to \$120 per acre. Tree values are usually added after the fourth year. Taxes on land in the Land Conservation Act is based on income rather than the market value under Proposition 13.

Fruit credit varies each year, depending on yield and price. Assumed yields are 10, 20 and 40 pounds per tree for third, fourth and fifth years respectively. An average on-tree price of 35 cents per pound is applied to fruit harvested.

Initial capital outlay is estimated at \$9,500 per acre, based on an assumed land cost of \$7,000 per acre and \$2,500 per acre for the irrigation system, pickup, building and equipment. The initial cost of the irrigation system is estimated at \$1,100 per acre installed. At the beginning of the second and fifth years, one and two additional emitters per tree or a mini-sprinkler is added at an additional cost of \$100 and \$150 per acre respectively. For simplification, irrigation system costs are shown as an initial cost only. The cost of sprinkler irrigation would be approximately the same.

Interest on investment for the first year equals 12 percent of the total cost per acre (line 5) plus 12 percent of land value and undepreciated balance of irrigation system, equipment and building. Interest for remaining years equals 12 percent of prior-year total investment value (line 12).

Investment in trees at end of year equals accumulated net costs (line 11) of prior years.

Investment value for items is original cost less accumulated depreciation.

Trees have been depreciated under the new accelerated depreciation schedules (ACRS) provided under the 1981 Tax Recovery Act.

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AVOCADO ORCHARD DEVELOPMENT COSTS

VENTURA COUNTY - 1982

	Dollars per Acre				
	1st yr.	2nd yr.	3rd yr.	4th yr.	5th yr.
<u>Labor and Field Power</u>					
* Land preparation	\$ 600	\$ -	\$ -	\$ -	\$ -
Orchard layout	110	-	-	-	-
Plant (dig, plant, mulch, wrap)	330	33	16	-	-
Irrigation	120	120	120	120	120
Fertilization (N)(zinc 4 & 5 yrs-2x ea)	30	30	30	43	43
Weed control (hoe, oil, herbicide) . .	150	150	75	75	75
Pest and rodent control	75	60	30	30	30
Tree care, pruning, suckering, skirting	90	90	90	90	90
Miscellaneous (erosion control, etc.).	90	90	45	45	45
(1) Total Labor and Power	\$ 1,595	\$ 573	\$ 406	\$ 403	\$ 403
<u>Materials</u>					
Trees (110 T/ac @ \$9.00 inc. tax & del.	\$ 990	\$ 104	\$ 19	\$ -	\$ -
Mulch	55	6	1	-	-
Tree stakes, wraps	110	11	2	-	-
Water	8	17	25	34	77
Fertilizer (N) (zinc 4, 5 yrs.)	3	6	9	30	44
Weed oil, herbicides	60	60	50	40	40
Pesticides	30	20	20	20	20
Miscellaneous (supplies)	40	40	30	30	30
(2) Total Materials	\$ 1,296	264	156	154	211
(3) Total Cash Cultural (1 + 2)	\$ 2,891	\$ 837	\$ 562	\$ 557	\$ 614
<u>Cash Overhead</u>					
General expense (10% #3)	\$ 289	\$ 84	\$ 56	\$ 56	\$ 61
Management charge \$7/month/acre . . .	252	84	84	84	84
**Taxes	80	80	80	80	120
Maintenance and repair	100	100	100	100	100
(4) Total Cash Overhead	\$ 721	\$ 358	\$ 320	\$ 320	\$ 365
(5) Total Preharvest Cash Costs (3+4)	\$ 3,612	\$1,195	\$ 882	\$ 877	\$ 979
(6) Less Fruit Credits	\$ -	\$ -	\$ (385)	\$ (770)	\$ (1,540)
(7) Net Cash Costs (5 + 6)	\$ 3,612	\$1,195	\$ 497	\$ 107	\$ 561)
(8) Accumulated Net Cash Costs	\$ 3,612	\$4,807	\$5,304	\$ 5,411	\$ 4,850
<u>Investment Costs</u>					
Depreciation	\$ 567	\$ 567	\$ 567	\$ 567	\$ 587
Interest on Investment	1,505	1,754	2,108	2,421	2,724
(9) Total Investment Costs	\$ 2,072	\$ 2,321	\$ 2,675	\$ 2,988	\$ 3,311
(10) Total Net All Costs (7 + 9)	\$ 5,684	\$ 3,516	\$ 3,172	\$ 3,095	\$ 2,750
(11) Accumulated Total Net Costs	\$ 5,684	\$ 9,200	\$12,372	\$15,467	\$18,270

INVESTMENT VALUE AT END OF YEAR

Land	\$ 7,000	\$ 7,000	\$ 7,000	\$ 7,000	\$ 7,000
Trees	5,684	9,200	12,372	\$15,467	\$18,270
Irrigation System \$1100					
Pickup (1/2 ranch) 500					
Weed Sprayer & Equipment 400) \$2500	\$ 1,933	\$ 1,366	\$ 799	\$ 232	\$ 0
Buildings 400					
Hand Tools 100					
(12) Total Investment Value	\$14,617	\$17,566	\$20,171	\$22,699	\$25,270

Item	Expected Life	ACRS	Investment/Acre	Depreciation (ACRS)
Land \$7,000	-	-	\$ 7,000	-
Trees	20 yrs	5 yrs	18,270	3,654
Irrigation system (\$1100)	10 yrs	5 yrs	1,100	220
Pickup truck (\$5,000)	5 yrs	3 yrs	500	167
Weed sprayer (\$4,000)	10 yrs	5 yrs	400	80
Buildings (\$4,000)	20 yrs	5 yrs	400	80
Hand tools (\$1,000)	10 yrs	5 yrs	100	20
			\$27,770	4,221

** LCA - Taxes

* If development is governed by Hillside Ordinance, costs could be considerably greater.