

1972 COST TO PRODUCE AVOCADOS IN SAN DIEGO COUNTY

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In San Diego County the cost of producing avocados varies with the grower and the orchard. A recent study developed through the cooperative effort of growers, a University of California farm management specialist, farm managers, and the University of California farm advisor showed that the total pre-harvest costs, which include the cultural, non-cash and overhead costs, were \$1,597 per acre to produce avocados.

Sample costs in this study are based on a typical commercial 10-acre avocado orchard, Fuerte variety, 10- to 12-year-old trees, 100 trees per acre, planted on a hillside and utilizing a permanent, plastic sprinkler irrigation system. Costs will vary from orchard to orchard and from district to district. Costs will not vary too much when other varieties such as Hass, Zutano, Bacon and Reed are planted. Hass trees require up to twice as much nitrogen as Fuertes; Zutano, Bacon and Reed do not require more than Fuertes.

The operating cost figure includes irrigation, fertilization, weed control, pest control, pruning, orchard thinning, maintenance and operation of equipment, taxes, insurance, management fee, general expense, interest on investment, and depreciation. Investment per acre includes the sprinkler system, trees, building and equipment, and miscellaneous items such as hand and shop tools. Depreciation per acre is on the sprinkler system, trees (after 5 years of growth) and the miscellaneous items.

Irrigation constitutes the largest single expense of the agricultural operation totaling \$328 per acre. Water use averages 3½ acre feet per acre at \$65 an acre foot for a cost of \$228. Labor required to irrigate approximately 36 times during the year costs \$100. Not only is irrigation the largest single expense, but the most important operation the grower must do in the orchard.

Fertilization with nitrogen totals \$34 per acre. Nitrogen applied in the chemical form costs \$20. Approximately 150 pounds of actual nitrogen per acre is used. Labor for applying the material is \$14, giving a total for material and labor of \$34. Zinc may be needed from time to time. This may be applied to the leaves by aerial spraying (airplane or helicopter) or ground spraying, or applied on the ground. Zinc is applied once every five years to the soil. Soil application requires a larger dosage than a foliage spray in order to supply the tree with an adequate amount of this material. A large dosage therefore lasts for the period up to five years. The foliage spray will probably have to be done once every year or two. Phosphate and potassium may be applied periodically but not regularly like nitrogen. The fertilizer costs in this study include leaf analysis once a year.

Other operational costs are: weed control at \$22, using oil and monuron on a spot-spraying basis, and the use of a tractor mower for mowing the weeds or grass; pest control totals \$13 per acre, which is the cost of controlling ants, gophers, snails, and rodents; pruning costs, \$52 per acre, which consists of removing dead wood, lifting the skirts of the trees to permit better water distribution, and brush removal; orchard thinning, beginning between the 10th and 15th year, costs an average of \$10 per tree; maintenance and operation of equipment includes repairs, supplies, erosion control, etc. and totals \$50 per acre. Breakdown of the total cultural costs are as follows: materials and equipment \$285 and \$214 for labor, giving a total of \$499 per acre.

Harvest costs vary from 2¢ to 3½¢ per pound depending on tree size, size of crop, terrain, etc. A 4.9% assessment is made on the value of crop at roadside. This money is used for industry advertising, sales promotion, and production research.

Operating overhead costs include: taxes at \$100 an acre, general expenses (insurance, office supplies, telephone, and management fee) of \$50 an acre; and maintenance and repairs of \$30. Management fee is variable, but \$5-acre-month or \$60-acre-year is reasonable. This gives a total of \$240 an acre overhead cost. The management fee is placed in the study since many growers are now using grove managers and/or a grove management service. Whenever a grower utilizes an orchard management service he is paying a fee of so much a month per acre for supervision. The total pre-harvest cost (cultural and overhead costs) comes to a total of \$739 per acre. The non-cash cost, including depreciation at \$409 an acre and interest on investment of \$449, adds \$858 to the pre-harvest cost of \$739, giving a total pre-harvest cost of \$1,597. For growers who do not want to charge interest on investment as a cost against the orchard, they may subtract the \$449 from \$1,597 which will give a pre-harvest cost of \$1,148 per acre.

Yield per acre varies by different varieties, locations, cultural practices, type of tree and climatic conditions from year to year. Good commercial yields per acre for Fuerte and Bacon should range from 6,000 to 10,000 pounds; Hass and Zutano, 7,000 to 12,000 pounds.

The accompanying table shows the breakdown of costs which should be given consideration in figuring the cost of producing an acre of avocados.

INVESTMENT OVERHEAD PER ACRE

Depreciation and interest on investment are included as overhead costs of investment. An annual charge for interest on investment is calculated on the money invested in land, buildings, and equipment. The charge is at a rate of 7% on assumed land value of \$3,000 per acre plus half life value on trees, equipment and building.

The total economic cost of producing avocados includes a charge for interest since the value of your capital should not be ignored in measuring orchard income, and for comparison with alternate use of resources. For management analysis, non-cash costs including interest and owner's labor should be included, even though they are not included as business expenses in accounting practice.

Depreciation and interest per acre are calculated from the following investment schedule:

Item	Expected Life	Investment per Acre	Depreciation per Acre
Trees (100/acre)	20 years	\$5,692	\$ 285
Irrigation System	10 years	650	65
Pickup	5 years	125	25
Buildings	20 years	50	3
Weed sprayer, mower, hand tools	10 years	310	31
Total Investment Schedule		\$6,827	\$ 409

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. The following chart illustrates variability in gross on-tree returns due to yield and price changes for all varieties.

*On-Tree Price Cents/lb.	Yield Per Acre Pounds/Acre						
	3,000	5,000	6,000	7,000	8,000	10,000	12,000
\$0.10	\$ 300	\$ 500	\$ 600	\$ 700	\$ 800	\$1,000	\$1,200
0.15	450	750	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

* Deduct cost of harvesting - 2¢ - 3½¢/lb.

COST ANALYSIS

Cultural Operations

Fertilizer-2 times (Actual N-150 lbs/acre)	\$ 14	\$ 20	\$ 34
Irrigation-36 times (Water-3½ ac. ft./ ac. @ \$65)	100	228	328
Pest control-ants, gophers, snails (Baits, poisons, & predators) ...	8	5	13
Weed control-spot spraying and mowing (Oil)	12	10	22
Pruning (skirt, deadwood) and orchard thinning (tree removal 10-15th yr. @ \$10/tree) (Chain saw and brush disposal)	45	7	52
Misc.-tree care, erosion control supplies, tree stakes (Supplies and tools)	35	15	50
Total Cultural Costs	\$214	\$285	\$ 499

Overhead Costs

Taxes	100
Maintenance and repairs	30
General expenses	50
Management charge, variable (\$5/acre/mo.)	60
Total Cash Overhead Costs	240
Total Preharvest Cash Costs	\$ 739

Investment Overhead

Depreciation	409
TOTAL CASH COSTS PLUS DEPRECIATION	\$1,148
Interest on investment	449
TOTAL PREHARVEST COSTS	\$1,597