

1980 AVOCADO ORCHARD DEVELOPMENT COSTS - SAN DIEGO COUNTY

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The tremendous interest in the planting of new avocado orchards in San Diego County during the last few years has brought many requests for development costs and the procedure to follow in developing an avocado orchard.

The cost figures given in this study are based on assumed conditions. Typical practices are listed, with sample costs given for labor, materials, and equipment required. *These are not presented as "standard" costs*, but are intended as guidelines. Individual orchards may vary considerably from these figures in their cost and return experience, and whether they are operated by the grower or a farm management company. The figures in this study are based upon a farm management company managing the orchard.

Orchards on steep slopes with inadequate roadways and drives for fruit hauling and grove work will cost more to operate. The type of irrigation system selected may have lower initial costs, but higher labor requirements and maintenance costs result in higher irrigation costs as the orchard matures. Poor or untimely farming and management practices commonly cause costs to be higher than necessary.

Weed control is an operation that can be costly if treatments are delayed or poorly done. If weed control has been neglected, or weed control adjacent to the planted area is included, costs will be much higher. Elimination of a weed problem is more costly than maintenance of a normal weed control program. Delayed weed control is often the cause of costs being higher than expected.

Sample costs in this study are on the basis of the following: 1) a ten-acre avocado orchard, planted 20' x 20' tree distance, and 100 trees per acre; 2) hillside planting and relatively frost-free; 3) orchard located within a water district furnishing Colorado River water; 4) utilizing a permanent, underground, plastic (PVC rigid pipe) conventional irrigation system, adaptable to fixed and rotating sprinklers and drip/trickle systems, with a riser to each tree; and 5) all costs are on a per acre basis.

Varieties commonly planted and the suggested planting distances are: Fuerte (20' x 20'=108 trees/acre,) Hass and Reed (15' x 20' = 145 trees/acre), and Zutano and Bacon (15' x 15' = 190 trees/acre). *The study costs are for 100 trees per acre.* Estimates indicate costs could increase 35% on greater than 30° slopes.

Water costs will vary depending upon the source (wells or water district), district assessments, water meter charge, back flow check valves, water availability charge, etc. Water costs range from \$85 to \$300/acre foot, and more if pumping charges are added. Check with your water district for all charges.

County taxes are assessed when the trees reach five years of age from the date of

planting. There will be a variation in tax charges, depending upon the area location of the orchard.

Fruit credits vary depending upon the variety planted, tree yields (production), and market prices.

Harvest costs range from \$0.04 to \$0.10 per pound. Total harvest costs include transportation, supervision, fuel for equipment, poles, clippers, bags, ladders, bins, boxes; and other items such as steepness of slope, height of trees, size of crops, etc. Marketing order assessment for Production Research is 0.2%, Avocado Commission assessment for advertising and promotion is 4.5%. The total percentage figure of 4.7% is determined on the value of the crop at the packing house door.

The study shows figures for the first, second, third, fourth, and fifth years. Included are the labor and field power necessary, the materials, cash overhead, fruit credits, and the allocation of monies for land, trees, irrigation system, building, and equipment.

The labor and field power includes the following: Land preparation, orchard layout, planting (holes and protectors), irrigation, fertilization, weed control (hoe and spray), mulching (wood chips), tree care and pruning, pest control (gophers, rabbits, squirrels, etc.), and miscellaneous (repairs, erosion control). The first year's total labor and power cost is \$1,990. The big item in this first year was the land preparation, consisting of subsoiling to a depth of two to three feet, disking, land movement where necessary, and finally, floating of the land. In the second year, land preparation and orchard layout were not needed expenditures, so the total was \$695 an acre. In the third year, land preparation, orchard layout, and planting of replacement trees were items eliminated, which gave a total of \$592 an acre. The fourth year, \$560 was the cost, and the fifth year ended up at \$535 an acre. The total labor and power for the five years was \$4,372 per acre.

Total materials for the first year cost \$1,390, and included trees at \$8 per tree, water, mulching, materials, fertilizer, pest control, baits, poison and traps, tree wraps, weed oil, and miscellaneous parts and supplies. The largest item, of course, in the first year was the purchase of 100 trees.

In the second year, the materials cost \$550 an acre; and the third year, \$635 an acre; the fourth year, \$630 an acre; and the fifth year, \$775 an acre, for the total of \$3,980 per acre.

The total cash cultural costs, including labor, field power, and materials for the first year were \$3,380; for the second year \$1,245; for the third year \$1,227; for the fourth year \$1,190; and for the fifth year \$1,310, a total of \$8,352.

The cash overhead includes general expense items (postage, telephone, insurance, magazines, etc.), management charge (a fee paid to a grove manager supervising the development of a grove for a grower), taxes and maintenance and repair. The total cash overhead for the first year is \$802; second year \$557; third \$567; fourth \$563; and fifth \$577, for a five-year total of \$3,066.

The total pre-harvest costs per acre the first year were \$4,182; the second year \$1,802; the third year \$1,794; the fourth year \$1,753, and the fifth year \$1,887.

For the Fuerte variety, there should be some fruit credit obtained in the fourth and fifth years, and in some rare cases, the third year. For the Hass variety, fruit credits may be obtained the second and third years. Fruit credit varies, depending upon tree yields and

market prices. Harvesting costs are between 4c and 10c per pound. Marketing order assessment for advertising, promotion, and production research of the avocado is 4.7% of crop value at roadside.

Investment

Capital outlay is estimated to be \$10,350 per acre based upon an assumed land cost of \$7,000 per acre, and \$3,350 per acre for the irrigation system, equipment, and buildings. Permanent plastic irrigation system fixed sprinkler (spitter) heads are installed the first year at a cost of \$1,800. During the fourth to fifth year, the spitter heads can be converted to revolving sprinklers at an additional cost. For drip irrigation systems, the same basic permanent rigid PVC plastic system can be used. Flexible PVC hoses are attached to each tree riser with four one-gallon-per-hour emitters per tree. Sand and screen filters and a fertilizer tank are installed when a drip irrigation system is used.

To simplify calculations in the table, the initial capital outlay of \$3,350 per acre includes a charge for the complete irrigation system.

Interest on investment for the first year equals 12% of the first year total pre-harvest cash cost per acre (line 5), plus 12% of land value (line 14), and plus the undepreciated balance of irrigation system equipment and buildings (line 16).

Calculations

Pre-harvest Cost (line 5) = \$4,182 x 12% =	\$502
Land Value (line 14) = \$7,000 x 12% =	840
Undepreciated Balance - Total Value - \$3,350	342

Irrigation System \$1,800 1st year undepreciated	
Equipment 1,400	Balance \$2,855 x 12% = \$342
Buildings 150	
\$3,350	

Line 10 total	\$1,684
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Interest for remaining years equals 12% of prior year total investment costs (line 17). This amount is placed in line 10 to be added to non-cash costs (line 11).

Calculations

Total Investment Cost - 1st year - \$16,216 x 12%=\$1,946. \$1,946 is placed in second year column, line 10, and added to Depreciation, line 9, and the two items, lines 9 and 10, become the Total Non-Cash Costs, line 11.

Investment in trees at end of year equals accumulated total net costs (line 13) of prior years. Investment costs for items are original cost of \$3,350 less annual depreciation of \$495.

The net cash costs which includes labor and field power, materials, and cash overhead, come to \$4,182 the first year; \$1,802 the second; \$1,794 for the third year; \$1,253 for the fourth year; and \$1,087 for the fifth year.

The total investment value at the end of the first year (including labor and field power,

materials, overhead cost, land at \$7,000 per acre, trees, irrigation system, buildings, and equipment) is \$16,216; for the second year \$19,964; \$24,154 at the end of the third year; \$28,772 at the end of the fourth year; and at the end of the fifth year, a total of \$34,037.

**SAMPLE COSTS TO DEVELOP AN AVOCADO ORCHARD
IN SAN DIEGO COUNTY 1980**

DOLLARS PER ACRE

<u>LABOR AND EQUIPMENT</u>	<u>1st Year</u>	<u>2nd Year</u>	<u>3rd Year</u>	<u>4th Year</u>	<u>5th Year</u>
Land Preparation*	\$800	\$ -	\$ -	\$ -	\$ -
Orchard Layout	125	-	-	-	-
Plant (dig hole, plant, mulch, wrap, stake)	300	25	12	-	-
Irrigation (sprinkler/drip)	250	250	250	250	250
Fertilization	35	35	35	35	35
Weed Control (hoe & spray)	200	200	120	75	75
Pest Control (rodent, ants, deer, squirrels, predators)	100	75	50	50	50

<u>LABOR AND EQUIPMENT</u>	<u>1st Year</u>	<u>2nd Year</u>	<u>3rd Year</u>	<u>4th Year</u>	<u>5th Year</u>
Tree Care (pruning, topping)	30	50	75	100	100
Miscellaneous (propping, erosion control, cover crop, straw)	150	60	50	50	50
(1) TOTAL LABOR & EQUIPMENT	\$1,990	\$695	\$592	\$560	\$535

*Land preparation costs include: Land clearing (hand and/or machine), burning, (check with local city, county, and state official for approval), culverts, roads, foot paths, and straw for erosion control cover. Where large rocks are present, dynamite costs will be involved.

MATERIALS

Trees (100T/ac at \$8)	800	50	-	-	-
Mulch	75	50	25	-	-
Tree Protectors & Stakes	125	-	-	-	-
Water	100	150	300	350	500
Fertilizer	40	50	60	80	100
Weed Oil & Herbicides	150	150	150	100	75
Pest Control	50	50	50	50	50
Miscellaneous (Supplies)	50	50	50	50	50
(2) TOTAL MATERIALS	\$1,390	\$550	\$635	\$630	\$775

(3) TOTAL CASH CULTURAL COSTS (Numbers 1 and 2)	\$3,380	\$1,245	\$1,227	\$1,190	\$1,310
CASH OVERHEAD					
General Expense (at 12% of # 3)	406	149	147	143	157
Management Charge (\$8/acre/month - amount increases yearly)	96	108	120	120	120
Taxes*	100	100	100	100	100
Maintenance & Repair (roads, fences, etc.)	200	200	200	200	200
(4) TOTAL CASH OVERHEAD	\$802	\$557	\$567	\$563	\$577
* Original owner before Proposition 13 — \$40; new owner after Proposition 13 — \$200.					
(5) TOTAL PRE-HARVEST CASH COSTS (Nos. 3 & 4)	\$4,182	\$1,802	\$1,794	\$1,753	\$1,887
(6) LESS FRUIT CREDITS	-	-	\$300*	\$500	\$800
* For Hass and Zutanos					
(7) NET CASH COSTS	\$4,182	\$1,802	\$1,494	\$1,253	\$1,087
(8) ACCUMULATED NET CASH COSTS	\$4,182	\$5,984	\$7,478	\$8,731	\$9,818
INVESTMENT COSTS					
(9) DEPRECIATION	\$495	\$495	\$495	\$495	\$495
(10) INTEREST ON INVESTMENT at 12%*	\$1,684	\$1,946	\$2,396	\$2,865	\$3,378
* All money for project assumed borrowed.					
(11) TOTAL NON-CASH COSTS	\$2,179	\$2,441	\$2,891	\$3,360	\$3,873
(12) TOTAL NET — ALL COSTS (numbers 11 & 5)	\$6,361	\$4,243	\$4,685	\$5,113	\$5,760
(13) ACCUMULATED TOTAL NET COSTS	\$6,361	\$10,604	\$15,289	\$20,402	\$26,162
(14) LAND — \$7,000/acre	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000
(15) TREE VALUE (from No. 13)	\$6,361	\$10,604	\$15,289	\$20,402	\$26,162
(16) Irrigation System	\$1,800				\$1,800
Equipment (pick-up, mowers, tools, etc.)	1,000				1,000
Buildings	400				400
	150				150
TOTAL VALUE	\$3,350	\$2,855	\$2,360	\$1,865	\$875
(17) TOTAL INVESTMENT COSTS	\$16,216	\$19,964	\$24,154	\$28,772	\$34,037

Depreciation and Interest Per Acre Calculated from the Following Investment Schedule

ITEM	EXPECTED LIFE	INVESTMENT PER ACRE	DEPRECIATION PER ACRE
Land \$7,000 (assumed value)	-	\$7,000	-
Trees (100/acre)	20 years	26,162	\$1,308
Irrigation System	10 years	1,800	180
Pickup (\$10,000 new)	5 years	1,000	200
Buildings (\$1,500)	20 years	150	75
Weed Sprayer, Mower, Hand Tools (\$4,000)	10 years	400	40
TOTAL INVESTMENT		\$36,512	\$1,803

