

Sample Costs to Establish and Produce OLIVES



**Glenn and Tehama
Counties
1989**



1989 OLIVE ORCHARD
SAMPLE ESTABLISHMENT AND PRODUCTION COSTS
GLENN AND TEHAMA COUNTIES

by

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This cost study provides detailed economic information on the sample costs of producing olives in Glenn and Tehama Counties. A hypothetical 40 acre grove on 42 acres of land is considered for the purposes of this study. The 2 non-producing acres are for buildings, roads, ditches, burn area, etc.

This study contains a List of General Assumptions and four tables including a Cost of Production Worksheet, a Monthly Summary of Sample Costs, an Equipment List, and a Ranging Analysis. Costs given in this sample study are for those of a typical well-managed grove and are not intended to reflect an average of all groves in the Upper 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 1989 figures. Some costs or practices listed in this study may not be applicable to your situation. Production costs for olives can vary based on a number of factors including size of operation, 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 to enter your actual costs on the Cost of Production Worksheets.

For explanation of calculations used for the study refer to the attached list of General Assumptions or call Agricultural Economics Extension, University of California, Davis, California (916) 752-2745 or the farm advisors listed above.

GENERAL ASSUMPTIONS FOR ESTABLISHING AND PRODUCING OLIVES

Glenn and Tehama Counties - 1989

The following is a description of some general assumptions pertaining to the sample costs of establishing and producing olives in Glenn and Tehama Counties. The establishment assumptions apply to the current sample costs for establishing a new orchard. The production assumptions apply to typical sample costs for a well managed 25 to 40 year old grove in full production.

1. Land and trees:

Bare land value (42 acres) for establishment study:	\$1,800/acre
Establishment costs (90 Trees/acre - 22' X 22'):	\$4,000/acre
Bare land for production study (1965)	\$1,200/acre

Since only 40 of the 42 total acres are in production, the land value per acre needs to be adjusted to \$1,890 per producing acre in the establishment study and \$1,260 per acre in the production study. Land is not depreciated. Interest on the investment in land and trees is calculated by multiplying the interest rate (12%) 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. Varieties:

Sevillano variety is used in the production model because it is the variety with the most producing acreage in Glenn and Tehama counties and the costs for this variety are similar to the costs for others. Manzanillo variety is used in the establishment model because acreage of recent plantings are divided between Manzanillo and Ascolano varieties and costs are similar.

3. Labor rates: (include 27% for SDI ,FICA, insurance, & other benefits)

Machinery operators:	\$7.25/hr
Irrigators & misc. labor:	\$5.40/hr

To account for maintenance and repair time, labor hours for operations involving machinery are 10% higher than the machine hours.

4. Equipment costs:

In allocating the equipment costs per acre, the following calculations were made: (a) "Original Cost" of equipment is the new cost including sales tax. (b) "Depreciation" is straight line with no Salvage Value. It is calculated by dividing new cost per acre by the years to trade. (c) "Interest" on investment is figured as one-half of the new cost per acre multiplied by the interest rate. One-half of the new cost is the average value of the equipment during its useful life. (d) The investment per acre used in the cost study is calculated at 60% of the depreciation and interest costs for all new equipment to reflect a mix of new and used equipment.

5. Fuel and Repair costs:

The cost of production worksheets contain numbers in two columns with the headings Tracter/Implement No. and Implement No. which refer to the item number on the equipment table. The far right-hand column on the equipment table shows the fuel and repair costs per hour which is multiplied by the hours used per acre for each piece of equipment to obtain the cost per acre for fuel and repairs.

6. Office and business costs include phone, office supplies, accounting fees, etc.
7. County taxes are calculated at 1% of land at acquisition plus 1% of the average value of trees, equipment, buildings and improvements. Taxes on these are not charged the first four years of establishment.
8. Equipment insurance is calculated at 0.8% of equipment costs.
9. Pickup costs are based on 7,500 miles/year of farm operation for the new truck. Some non-farm use is assumed at \$.15 per mile.
10. Supervisory fees are not included in the cost study, but are estimated to be between \$30 - \$100/acre.
11. Irrigation assumptions:

The basic design assumes a flood irrigation system utilizing only surface water. If water is pumped from a well the material costs for irrigation (pumping costs) and the ownership costs of a well and pump should be included. There are 15 irrigations a year applying 48 acre inches/acre /year with a water cost of \$10 per acre foot. For the first few years when establishing an orchard the flood irrigation system is used as a furrow system, watering only the soil around the trees. This reduces the total amount of water used per acre while providing ample water for tree growth.
12. Interest on operating capital is based on cultural costs and assumes a 9 month loan.
13. A fall fungicide spray is included to control peacock spot and to suppress olive knot. Costs are lower during the early years of establishment because less time and material are required for a treatment. An olive scale and black scale spray is not included since these pests are under reasonable biological and cultural control and only occasionally require chemical control. Contract applications of spray materials are charged at \$12 per acre for application and actual costs for chemicals.
14. Orchard floor management includes pre-emergent strip herbicides applied in the fall, mowed centers (5 times), and spot treatment with post-emergent herbicides in the summer. Costs during the first two years of establishment are higher because of the more expensive materials which must be used.
15. Harvest costs are based on custom or contract rates.
16. Pruning mature olive trees is done every other year. These costs are shown as an annual cost which is one half of the actual cost per operation.

SAMPLE COSTS TO ESTABLISH OLIVES (MANZANILLO)

Glenn and Tehama Counties - 1989

Skilled labor: \$7.25 per hour Interest rate: 12%
 Field labor: \$5.40 per hour 90 Trees per acre, 22' X 22'

YEAR	Costs per Acre						
	1st	2nd	3rd	4th	5th	6th	7th
YIELD (Tons/acre)					1.0	2.0	4.0
Planting costs							
Rip 2X, laser level (contract)	\$150						
Survey, mark, plant, stake & tie @ \$2.00	180						
Trees (including delivery) - 90 @ \$3.75	338						
TOTAL PLANTING COSTS	\$668						
Cultural costs:							
Prune, train, sucker & remove brush	\$0	\$25	\$25	\$25	\$25	\$25	\$25
Mowing 7X	33	33	33	33	33	33	33
Irrigation labor	14	14	14	14	14	14	14
Irrigation water @ \$10/ac. ft. + R&M	12	12	12	12	48	48	48
Fertilizer	0	8	15	22	31	38	45
Strip weed spray	43	43	27	27	27	27	27
Fall fungicide	5	8	12	25	33	33	33
Thinning spray	0	0	0	0	25	25	25
Replants	0	16	8	0	0	0	0
Costs for pick-up truck	28	28	28	28	28	28	28
TOTAL CULTURAL COSTS	\$135	\$186	\$174	\$186	\$264	\$271	\$278
Harvesting Costs:							
Contract harvest @ \$200/ton					200	400	800
TOTAL HARVEST COSTS					\$200	\$400	\$800
Overhead Costs:							
Office and business costs	100	100	100	100	100	100	100
County Taxes	25	25	25	25	34	37	40
Insurance	6	6	6	6	6	6	6
TOTAL OVERHEAD COSTS	\$130	\$130	\$130	\$130	\$140	\$143	\$146
TOTAL CASH COSTS	\$932	\$317	\$304	\$317	\$604	\$814	\$1,224
ACCUMULATED CASH COSTS	\$932	\$1,249	\$1,554	\$1,870	\$2,474	\$3,289	\$4,513

YEAR	Costs per Acre						
	1st	2nd	3rd	4th	5th	6th	7th
Depreciation:							
Building & equipment	118	118	118	118	118	118	118
TOTAL DEPRECIATION	\$118	\$118	\$118	\$118	\$118	\$118	\$118
Interest on Investment							
Building & equipment	83	83	83	83	83	83	83
Land \$1890/acre	227	227	227	227	227	227	227
Interest on accumulated cash costs	112	150	186	224	297	395	542
TOTAL INTEREST ON INVESTMENT	\$422	\$460	\$496	\$534	\$607	\$704	\$851
TOTAL COST FOR THE YEAR	\$1,472	\$895	\$919	\$969	\$1,329	\$1,637	\$2,194
CREDIT FROM HARVEST @ \$500/TON					\$500	\$1,000	\$2,000
NET COST FOR THE YEAR	\$1,472	\$895	\$919	\$969	\$829	\$637	\$194
TOTAL ACCUMULATED NET COST	\$1,472	\$2,367	\$3,286	\$4,254	\$5,083	\$5,720	\$5,913

SAMPLE COSTS TO PRODUCE OLIVES (Sevillano)
Glenn and Tehama Counties - 1989

Labor Rate: \$7.25/hr. skilled labor Interest Rate: 12%
\$5.40/hr. field labor Yield (Tons/acre): 4.0

Operation	Tractor/ Implement No.	Implement No.	Hours	----- Cash and Labor Costs per Acre -----				Total Cost	Your Cost
				Labor Cost/A	Fuel & Repairs	Material Cost	Custom /Rent		
Cultural costs:									
Prune, 90 trees/A, 1 of 2 yrs		6		\$85.00				\$85	
Brush Removal (1 of 2 yrs.)	1	4	.5	6.33	\$3.55			10	
Fertilize (1.5 # N/tree)	1		.2	1.60	.96	\$41.85	\$2.00	46	
Fall fungicide (contract)						18.40	15.00	33	
Mow (7X)	1	3	1.8	13.96	12.43			26	
Strip weed spray 2X	1	2	.5	4.15	3.69	19.15		27	
Irrigation (15 X 3.2")	8				8.00	40.00		48	
Labor			3.0	16.20				16	
Costs for pick up truck					28.13			28	
Interest on operating capital @ 12%								24	
TOTAL CULTURAL COSTS				6	\$127	\$57	\$119	\$17	\$345
Harvest Costs:									
Contract harvest		\$200 per ton					\$800	\$800	
TOTAL HARVEST COSTS							\$800	\$800	
Cash overhead:									
Office and business costs								\$100	
County Taxes								40	
Equipment Insurance								6	
TOTAL CASH OVERHEAD COSTS								\$145	
TOTAL CASH COSTS								\$1,290	
TOTAL CASH COST/TON:				4	Tons/acre				\$322

Investment	Per production Acre	----- Annual Cost -----		Depreciation	Interest @ 12%				
		-----	-----						
Land @ \$1,200/acre (bare)	\$1,260					\$151		\$151	
Equipment & buildings	1,380			\$118		83		200	
Trees (40 yr. depreciation)	4,000			100		240		340	
TOTAL INVESTMENT COSTS				\$6,640		\$218		\$474	\$692
TOTAL COSTS PER ACRE									\$1,981
TOTAL COST/TON:				4	Tons/acre				\$495

MONTHLY SUMMARY OF
SAMPLE COSTS TO PRODUCE OLIVES (Sevillano)

Glenn and Tehama Counties - 1989

Operation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Cultural costs:													
Prune,90 trees/A,1/2				42.5	42.5								\$85
Brush Removal-1/2 yrs				4.9	4.9								10
Fertilize-1.5# N/tree		46.4											46
Fall fung. (contract)											33.4		33
Mow (7X)				3.8	3.8	3.8	3.8	3.8	3.8	3.8			26
Strip weed spray 2X							10.6				16.4		27
Irrigation-15 X 3.5"				3.2	6.4	9.6	9.6	9.6	6.4	3.2			48
Labor				1.1	2.2	3.2	3.2	3.2	2.2	1.1			16
Pick-up truck costs	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	28
Int.operating capital		.6	.5	1.1	1.8	2.0	2.3	2.5	2.7	10.8			24
TOTAL CULTURAL COSTS	\$2	\$49	\$3	\$59	\$64	\$21	\$32	\$21	\$17	\$21	\$52	\$2	\$345
Harvest Costs:													
Contract harvest										800.0			800
TOTAL HARVEST COSTS										\$800			\$800
Cash overhead:													
Office and business	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3		92
County Taxes				19.8								19.8	40
Equipment Insurance	5.5												6
TOTAL CASH OVERHEAD	\$14	\$8	\$8	\$28	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$20	\$137
TOTAL CASH COSTS	\$16	\$58	\$11	\$87	\$72	\$29	\$40	\$30	\$26	\$830	\$61	\$22	\$1,281

EQUIPMENT AND BUILDING LIST FOR OLIVES
Glenn and Tehama Counties - 1989

Interest Rate: 12%

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

ITEM #	DESCRIPTION	NEW COST	ANNUAL USE (ACRES)	COST PER ACRE	LIFE (HRS)	YEARS TO TRADE	----OVERHEAD*----		--- HOURLY COSTS ---			
							INTEREST*	TAR*	FUEL*	REPAIRS*	TOTAL	
Tractors:												
1	60 HP wheel diesel	\$22,000	40	\$550	12,000	10	55	\$33.00	120%	\$2.61	\$2.20	\$4.81
2	Weed sprayer, P.T.O.	2,750	40	69	1,200	10	6.88	4.13	100		2.29	2.29
5	Flail mower, 8'	5,500	40	138	2,000	10	13.75	8.25	120		3.30	3.30
6	Front end loader	4,500	40	113	3,000	10	11.25	6.75	60		.90	.90
7	20 - 14' ladders @ \$14	280	40	7		10	.70	.42				
8	Misc. pruning equip.	1,000	40	25		10	2.50	1.50				
11	Pick-up, 1/2 ton	14,000	40	350		5	70.00	21.00				
12	Flood irrigation system	13,000	40	325		40	8.13	19.50				
	Buildings	25,000	40	625		35	17.86	37.50				
	Miscellaneous shop tools	4,000	40	100		10	10.00	6.00				
TOTAL COST		\$92,030		\$2,301				\$196	\$138			
60% OF NEW COSTS*		\$55,218		\$1,380				\$118	\$83			

* 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.

PER ACRE COST TO PRODUCE OLIVES (Sevillano) AT VARYING PRICES AND YIELDS

	YIELD (Tons/acre)						
	2	3	4	5	6	7	8
Cultural Costs	345	345	345	345	345	345	345
Harvest Costs	400	600	800	1,000	1,200	1,400	1,600
Cash Overhead	145	145	145	145	145	145	145
Cash cost/acre	890	1,090	1,290	1,490	1,690	1,890	2,090
Cash cost/ton	445	363	322	298	282	270	261
Investment cost	692	692	692	692	692	692	692
TOTAL COST/ACRE	1,581	1,781	1,981	2,181	2,381	2,581	2,781
TOTAL COST/TON	791	594	495	436	397	369	348

PER ACRE INCOME ABOVE CASH COSTS AT VARYING PRICES AND YIELDS

\$ per Ton	YIELD (Tons/acre)						
	2	3	4	5	6	7	8
200	-490	-490	-490	-490	-490	-490	-490
300	-290	-190	-90	10	110	210	310
400	-90	110	310	510	710	910	1,110
500	110	410	710	1,010	1,310	1,610	1,910
600	310	710	1,110	1,510	1,910	2,310	2,710
700	510	1,010	1,510	2,010	2,510	3,010	3,510
800	710	1,310	1,910	2,510	3,110	3,710	4,310

PER ACRE INCOME ABOVE TOTAL COSTS AT VARYING PRICES AND YIELDS

\$ per Ton	YIELD (Tons/acre)						
	2	3	4	5	6	7	8
200	-1,181	-1,181	-1,181	-1,181	-1,181	-1,181	-1,181
300	-981	-881	-781	-681	-581	-481	-381
400	-781	-581	-381	-181	19	219	419
500	-581	-281	19	319	619	919	1,219
600	-381	19	419	819	1,219	1,619	2,019
700	-181	319	819	1,319	1,819	2,319	2,819
800	19	619	1,219	1,819	2,419	3,019	3,619