UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

SAMPLE COSTS TO ESTABLISH

A MANZANILLO OLIVE ORCHARD AND PRODUCE

~OLIVES~

IN THE SOUTHERN SAN JOAQUIN VALLEY - 1997

Prepared by:

Karen Klonsky	U.C. Cooperative Extension Economist, Department of Agricultural and Resource Economics, U.C. Davis
G. Steven Sibbett	U.C. Cooperative Extension Farm Advisor, Tulare County
Mark Freeman	U.C. Cooperative Extension Farm Advisor, Fresno County
Pete Livingston	Staff Research Associate, Department of Agricultural and Resource Economics, U.C. Davis

U.C. COOPERATIVE EXTENSION

SAMPLE COSTS FOR ESTABLISHING A MANZANILLO OLIVE ORCHARD AND PRODUCING OLIVES In The Southern San Joaquin Valley - 1997

INTRODUCTION

Detailed costs of establishing a Manzanillo olive orchard and production of Manzanillo olives in Southern San Joaquin Valley are presented in this study. The hypothetical farm used in this report is 40 acres, 35 of which are in olive production.

This study consists of General Assumptions for Establishing a Manzanillo Olive Orchard and Producing Manzanillo Olives and seven tables. It is intended as a guide only. It can be used to make production decisions, determine potential returns, prepare budgets, and evaluate production loans. Sample costs given for labor, materials, equipment and contract services are based on current figures. Some costs and practices detailed in this study may not be applicable to every situation. A blank, *Your Cost,* column is provided to enter your actual costs on Table 2, Sample Costs To Produce Manzanillo Olives and Table 3, Costs And Returns Per Acre to Produce Manzanillo Olives.

Tables included:

This and other studies can be obtained through the Department of Agricultural Economics, U.C. Davis (530 752-1515), or from selected county Cooperative Extension offices. For an explanation of calculations or assumptions used in this study refer to the attached General Assumptions or call the Department of Agricultural Economics, Cooperative Extension, University of California, Davis, California, (530) 752-3589 or the farm advisor in the county of interest.

U.C. COOPERATIVE EXTENSION

SAMPLE COSTS FOR ESTABLISHING A MANZANILLO OLIVE ORCHARD AND PRODUCING OLIVES In The Southern San Joaquin Valley - 1997

GENERAL ASSUMPTIONS

The following is a description of some general assumptions pertaining to sample costs of establishing a Manzanillo olive orchard and producing olives in the Southern San Joaquin Valley. Practices described are not recommendations by the University of California, but represent production procedures and materials considered typical of a well managed orchard for the Southern San Joaquin Valley. Some costs, practices, and materials may not be applicable to your situation nor used during every year. Additional ones not indicated may be needed. Establishment and cultural practices vary by grower and region; variations can be significant. These costs are on an annual, per acre basis. **The use of trade names in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products.**

Land. The farm consists of 40 acres of land. Thirty five acres are planted to olives and five acres include roads, irrigation systems and farmstead. Property costs $4,000 per acre. Because only 35 of the 40 acres is planted with olives, land is valued at $4,571 per producing acre. Land is not depreciated.

Trees. The olive cultivar is Manzanillo. A few of the cultivars representing the remainder of the olive acreage in this area that might also be planted include Sevillano, Ascolano, or Mission. The trees are planted at 12' X 24' spacing, 151 trees per acre. In the seventh or eighth year half of the trees are removed so the orchard density is 75 trees per acre. Typically, trees are removed, pushed out of the orchard, and burned. However, mature olive trees can be sold to a limited landscape market. Olive trees have a long production life if they are well maintained. The life of the orchard at the time of planting in this study is estimated to be 60 years.

Irrigation. Water cost for irrigation is a blend of district and pumped water. Price per acre foot for water will vary from grower to grower in this region depending on particular irrigation district, and/or various well characteristics, and other irrigation factors. In this study, water is calculated to cost $37.80 per acre foot. Irrigation rates increase each year as the orchard matures. It is assumed that one acre-foot of water is available from rainfall. The amount of water applied to the orchard during its life varies and are shown for the establishment and production years in Table A below.

Table A. Water Use For Establishment And Production Years

Year	Acre Feet/Year	Annual Water Cost/Acre
1	0.3	$11.34
2	0.7	$26.46
3	1.5	$56.70
4+	2.5	$94.50

Water is delivered to the orchard by microsprinklers in the tree row. The irrigation system is installed and completed before the trees are planted. It is considered an improvement to the property and cost is shown in the investments section of Table 5. The pump, filter station, mainlines, laterals, and risers have an expected useful life of 40 years. The life of the microsprinklers are estimated at 10 years.

Orchard Establishment Cultural Practices and Material Inputs

This orchard is established on ground that has been previously planted to other crops. The land is assumed to be well drained and either a class I or II soil

Site Preparation. Land preparation begins with deep ripping the soil profile to 5 to 6 feet in order to break up any underlying hardpan which would affect root and water penetration. Ripping is performed by contract operators. The ground is not leveled since microsprinklers are used for irrigation nor is it fumigated. The ground is disced several times to break up large clods of soil and smooth the soil in advance of planting the trees. All operations that prepare the orchard for planting are done in the year prior to planting. However, for this study, these costs are included with those incurred in the first year as shown in Table 1.

Planting. Planting the orchard starts by marking tree sites with a small stake. Then holes are dug and trees planted. Later trunks are wrapped with white, water-resistant guards so trees are protected from sunburn and herbicides. Regular pruning, other than sucker removal, begins in the fourth year and hours required to perform this task, as well as costs, increase annually. Pruning is performed in spring months. In the second year, one tree per acre will have to be replanted.

Fertilization. Nitrogen is the major nutrient required for proper tree growth and optimum yields. Nitrogen fertilizer is applied in a liquid form, UN 32 (32% nitrogen), at increasing rates during orchard establishment. Annual rates of actual N are shown in Table B.

Table B. Applied Nitrogen During Establishment Years

Year	Pounds Of N/Acre	Gallons Of UN 32/Acre
1	6	1.6
2	11	3.0
3	23	6.2
4	23	6.2
5+	45	12.1

Pest Management. Chemical weed control in the orchard begins in spring and summer with a contact herbicide applied as a spot spray twice. In the third fall a residual herbicide is sprayed on the entire orchard floor.

During the developmental years, pest and disease controls are minimal in this study, and not needed until the third year. Peacock spot and olive knot are major diseases, causing defoliation and shoot death. These infect leaves and shoots. In this study, copper is used to prevent peacock spot and olive knot.

There are no insect problems that need control during the period of orchard establishment. Occasional control may be needed for black scale, but is not shown for the immature orchard in this report.

Establishment Cost. The cost to establish the orchard is used to determine non-cash overhead expenses, depreciation, and interest on investment for production years. The establishment cost is the sum of cash costs for land preparation, planting, trees, production expenses, and cash overhead for growing olive trees from planting until the end of the first year fruit is harvested. The *Accumulated Net Cash Cost/Acre* in the third year shown in Table 1, represents the establishment cost per acre. For this study, this cost is $3,000 per acre or $105,000 for the 35 acre orchard. Establishment cost is depreciated beginning in the fourth year over the remaining 57 of the 60 years that the orchard is assumed to be in production.

Production Cultural Practices and Material Inputs

Pruning. Pruning strategy is critical to production. It is dependent on several factors such as olive cultivar and planting density. In this study, pruning is done in the spring by hand. Prunings are placed in the row middles and shredded. Thinning is required, but is spread out over the years by selective pruning prior to tree removal.

Fertilization. Mature tree nutrition is determined by leaf analysis in July. Nitrogen is applied at a rate of 1 pound of N per tree annually. Fertilizer is in a liquid form (UN 32 - 32% nitrogen) and applied in January.

Weed Control. Weeds in mature orchards are controlled with chemicals. Annual weeds are controlled with residual herbicides. These two herbicides are used alternately each year. Perennial weeds receive 2 spot sprays of a contact herbicide each year.

Insect and Disease Management. One insect and two disease pests are treated. Black scale, an insect pest, requires occasional insecticide treatment. For trees that are pruned adequately and not allowed to become dense this cultural practice controls this pest well. Only following cool years or in those orchards that have become too dense would insecticide treatment be required to reduce the population to manageable levels. This study assumes that black scale is a problem and is treated with a mix of insecticide and oil.

The fungal disease, peacock spot and the bacterial disease, olive knot damage leaves, shoots, and branches. Their prevention requires an annual spray of copper following harvest and prior to fall rains.

Pesticides, rates, and cultural practices mentioned in this cost study are a few of those listed in the UC IPM Olive Pest Management Guidelines. Written recommendations are required for many pesticides and are made by licensed pest control advisors. For information and pesticide use permits, contact the local county Agricultural Commissioner's office. Contact your county farm advisor for additional production information.

Harvest. Harvest starts in the third year after the orchard is planted. Olives are hand harvested and in this study, the crop is harvested by a contracted harvesting company. All costs for contracted harvest operations are based on fresh tons. Yield maturity is reached in the eighth year.

Assessments. Under a federal marketing order, mandatory assessment fees are collected by the California Olive Committee (COC). These assessments are charged to the processor to pay for olive administration, research, and market development. Growers do not pay for the assessment.

Yields and Returns. As noted in the previous section, Manzanillo olives begin bearing an economic crop in the third year after planting. Typical annual yields for olives are measured in tons per acre and are shown in Table C. These yields are from the third year of orchard establishment to maturity.

Table C. Annual Yield Per Acre For Establishment And Production Years

Year	Tons Per Acre
3	1.0
4	2.0
5	3.5
6	4.0
7+	5.0

An estimated price of a $600 per ton of Manzanillo olives is used in this study so that a ranging analysis for different yields and price can be calculated. Returns, shown in Table 7, will vary and the yields and prices used in this cost study are an estimate taking into consideration current situations.

Risk. The risks associated with producing and marketing olives should not be minimized. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks which affect the profitability and economic viability of olive production.

The market for olives can be unstable in both price and demand. Growers do not have control over either of these market components. Additionally, establishment of olive orchards is capital intensive. Risk is caused by uncontrollable factors such as a decrease in the demand, an oversupply or crop losses. Due to the risk involved, access to a processor is crucial. A contract with a processor should be determined before any olive orchards are planted and brought into production.

Labor. Hourly wages for workers are $8.00, and $5.00 per hour for skilled, and field workers respectively. Adding 34% for Workers Compensation, Social Security, Medicare insurance, and other possible benefits gives the labor rates shown of $10.72 per hour for skilled labor, and $6.70 per hour for field labor. Labor for operations involving machinery are 20% higher than the operation time given in Table 1 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and repair.

Wages for management are not included as a cash overhead cost. The orchard is farmed by the owner; additional management costs ranging from $60 to $100 per acre, occur if practices are contracted. Any return above total costs is considered a return to management and risk.

Cash Overhead. Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm and not to a particular operation. These costs include property taxes, interest on operating capital, office expense, liability and property insurance, sanitation services, and equipment repairs.

Property Taxes. Counties charge a base property tax rate of 1% on the assessed value of the property. In some counties special assessment districts exist and charge additional taxes on property including equipment, buildings, and improvements. For this study, county taxes are calculated as 1% of the average value of the property. Average value equals (new cost plus salvage value) divided by 2 on a per acre basis. Salvage value for investments will vary.

Interest On Operating Capital. Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 10.00% per year. A nominal interest rate is the going market cost of borrowed funds.

Management Fees. Professional management services are contracted by the orchard owner. A fee of $75 per acre is charged

Insurance. Insurance for farm investments vary depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.713% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs $469 for the entire farm.

Office Expense. Office and business expenses are estimated at $85 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, etc. Cash overhead costs are found in Tables 1-4.

Non-Cash Overhead. Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments. Although farm equipment on olives orchards in the Southern San Joaquin Valley might be purchased new or used, this study shows the current purchase price for new equipment. The new purchase price is adjusted to 60% to indicate a mix of new and used equipment. Annual ownership costs (Equipment and Investments) are shown in Tables 1-3, and 5. They represent the capital recovery cost for investments on an annual per acre basis.

Capital Recovery Costs. Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). Put another way, it is equivalent to the annual payment on a loan for the investment with the downpayment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but more accurately represents the annual costs of ownership because it takes the time value of money into account. The calculation for annual capital recovery costs is as follows.

$$\left(\text{Purchase Price} - \text{Salvage Value}\right) \times \left(\text{Capital Recovery Factor}\right) + \left(\text{Salvage Value} \times \text{Interest Rate}\right)$$

Salvage Value. Salvage value is an estimate of the remaining value of an investment at the end of its life. For farm machinery (e.g., tractors and implements) the remaining value is a percentage of the new cost

of the investment (Boehlje and Eidman). The life in years is estimated by dividing the wear-out life, as given by the ASAE by the annual use in hours. Salvage value is calculated as:

$$New\ Price \times \%\ Remaining\ Value$$

Salvage value for other investments including irrigation systems, buildings, and miscellaneous equipment is zero. The salvage value for land is equal to the purchase price because land does not depreciate. Salvage value for investments can vary. The purchase price and salvage value for certain equipment and investments are shown in Table 5.

Capital Recovery Factor. Capital recovery factor is the amortization factor or annual payment whose present value at compound interest is 1. It is the function of the interest rate and years of life of the equipment.

Interest Rate. The interest rate of 8.25% used to calculate capital recovery cost is the USDA-ERS's ten year average of California's agricultural sector longrun rate of return to production assets from current income. It is used to reflect the long-term realized rate of return to these specialized resources that can only be used effectively in the agricultural sector. In other words, the next best alternative use for these resources is in another agricultural enterprise.

Equipment Cash Costs. Equipment costs are composed of three parts; non-cash overhead, cash overhead, and operating costs. Both of the overhead factors have been discussed in previous sections. The operating costs consist of fuel, lubrication, and repairs.

In allocating equipment costs on a per acre basis, the following hourly charges are calculated first and shown in Table 6. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by the American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum PTO hp, and type of fuel used. The fuel and repair cost per acre for each operation in Table 2 is determined by multiplying the total hourly operating cost in Table 6 for each piece of equipment used for the cultural practice by the number of hours per acre for that operation. Tractor time is 10% higher than implement time (Operation Time) for a given operation to account for fueling, moving equipment, and setup time. Prices for on-farm delivery of diesel and gasoline are $0.97 and $1.30 per gallon, respectively.

REFERENCES

Statewide IPM Project. 1990. UC Pest Management Guidelines, Olive. *In* M. L. Flint (ed.) UC IPM pest management guidelines. Pub. 3339. IPM Education and Publ. University of California, Division of Agriculture and Natural Resources. Oakland, CA.

University of California. 1995. Olive Production Manual. Pub. 3353. University of California, Division of Agriculture and Natural Resources. Oakland, CA.

For information concerning the above mentioned references
contact Tulare County or your local county Cooperative Extension office.

Table 1.

U.C. COOPERATIVE EXTENSION
SAMPLE COSTS PER ACRE TO ESTABLISH AN OLIVE ORCHARD
SAN JOAQUIN VALLEY - 1997

Labor Rate: $10.72/hr. machine labor
$6.70/hr. non-machine labor

Trees Per Acre: 151
Long Term Interest Rate: 8.25%

Year	Cost Per Acre 1st	2nd	3rd	4th	5th	6th
Tons Per Acre			1.0	2.0	3.5	4.0
Planting Costs:						
Land Preparation - Subsoil	$275					
Land Preparation - Disc 2X	$12					
Land Preparation - Float	$6					
Trees: 151 Per Acre (1% in 2nd year)	$635	$8				
Survey, Mark, Dig Holes & Plant	$234	3				
Stake And Wrap Trees	$187					
TOTAL PLANTING COSTS	$1,349	$11	$0	$0	$0	$0
Cultural Costs:						
Pruning And Suckering	$7	$10	$10	$90	$135	$180
Brush Disposal				$21	21	21
Fertilizer - Nitrogen	$5	5	9	9	18	17
Weed Control - Spot Spray 3X	$18	18	18	18	18	18
Weed Control - Residual Herbicide	$34	51	23	23	23	23
Irrigate	$17	32	62	100	100	100
Disease Control - Peacock Spot & Olive Knot				$94	94	94
Pickup Truck Use	$138	138	138	138	138	138
TOTAL CULTURAL COSTS	$219	$254	$260	$493	$547	$591
Harvest Costs:						
Hand Pick			$300	$600	$910	$1,040
TOTAL HARVEST COSTS	$0	$0	$300	$600	$910	$1,040
Interest On Operating Capital @ 10.00%	$152	$12	$12	$22	$28	$62
TOTAL OPERATING COSTS/ACRE	$1,720	$277	$572	$1,115	$1,485	$1,693
Cash Overhead Costs:						
Office Expense	$85	$85	$85	$85	$85	$85
Liability Insurance	$13	13	13	13	13	13
Management Fees	$75	75	75	75	75	75
Property Taxes	$64	63	63	63	63	63
Property Insurance	$46	45	45	45	45	45
Investment Repairs	$62	62	62	62	62	62
TOTAL CASH OVERHEAD COSTS	$345	$343	$343	$343	$343	$343

Table 1. Continued

Year	Cost Per Acre 1st	2nd	3rd	4th	5th	6th
Dry Tons Per Acre			1.0	2.0	3.5	4.0
TOTAL CASH COSTS/ACRE	$2,065	$620	$915	$1,458	$1,828	$2,036
INCOME/ACRE FROM PRODUCTION			$600	$1,200	$2,100	$2,400
NET CASH COSTS/ACRE FOR THE YEAR	$2,065	$620	$315	$258		
PROFIT/ACRE ABOVE CASH COSTS					$272	$364
ACCUMULATED NET CASH COSTS/ACRE	$2,065	$2,685	**$3,000**	$3,258	$2,986	$2,622
Non-Cash Overhead Costs (Capital Recovery):						
Land @ $4,571/Producing Acre	$377	$377	$377	$377	$377	$377
Shop Building	$116	116	116	116	116	116
Irrigation System	$99	99	99	99	99	99
Shop Tools	$16	16	16	16	16	16
Pruning Tools	$2	2	2	2	2	2
Equipment	$125	106	106	106	106	106
TOTAL NON-CASH OVERHEAD	$735	$716	$716	$716	$716	$716
TOTAL COST/ACRE FOR THE YEAR	$2,800	$1,336	$1,631	$2,174	$2,544	$2,752
INCOME/ACRE FROM PRODUCTION			$600	$1,200	$2,100	$2,400
TOTAL NET COST/ACRE FOR THE YEAR	$2,800	$1,336	$1,031	$974	$444	$352
TOTAL ACCUMULATED NET COST/ACRE	$2,800	$4,136	$5,167	$6,141	$6,585	$6,937

Table 2. COSTS PER ACRE TO PRODUCE OLIVES
SOUTHERN SAN JOAQUIN VALLEY - 1997

Labor Rate: $10.72/hr. machine labor — Interest Rate: 10.00%
$6.70/hr. non-machine labor — Yield per Acre: 5.00 Ton

Operation	Operation Time (Hrs/A)	Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
		Cash and Labor Costs per Acre					
Cultural:							
Pest Control - Black Scale	0.00	0	0	66	24	90	
Pruning & Sucker	0.00	0	0	0	234	234	
Brush Disposal	0.00	0	0	0	21	21	
Irrigate	0.80	5	0	95	0	100	
Weed Control - Spot Spray 2X	0.50	6	3	6	0	15	
Fertilizer - Nitrogen	0.00	0	0	18	0	18	
Weed Control - Residual	0.25	3	1	18	0	23	
Disease Control - Peacock Spot Spray	0.00	0	0	74	20	94	
Pickup Truck Use	8.17	105	32	0	0	138	
TOTAL CULTURAL COSTS	9.72	120	37	276	299	732	
Harvest:							
Hand Pick	0.00	0	0	0	1300	1300	
TOTAL HARVEST COSTS	0.00	0	0	0	1300	1300	
Interest on operating capital @ 10.00%						44	
TOTAL OPERATING COSTS/ACRE		120	37	276	1599	2076	
CASH OVERHEAD:							
Office Expense						85	
Liability Insurance						13	
Management Fee						75	
Property Taxes						78	
Property Insurance						56	
Investment Repairs						61	
TOTAL CASH OVERHEAD COSTS						368	
TOTAL CASH COSTS/ACRE						2444	
NON-CASH OVERHEAD:	Per producing Acre	-- Annual Cost -- Capital Recovery					
Investment							
Buildings	1122	116				116	
Shop Tools	143	16				16	
Pruning Equipment	37	5				5	
Drip Irrigation System	1152	99				99	
Land	4571	377				377	
Olive Orchard Establishment	3000	250				250	
Equipment	793	106				106	
TOTAL NON-CASH OVERHEAD COSTS	10817	970				970	
TOTAL COSTS/ACRE						3415	

Table 3. COSTS AND RETURNS PER ACRE TO PRODUCE OLIVES
SOUTHERN SAN JOAQUIN VALLEY - 1997

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Olives	5.00	Ton	600.00	3000	
TOTAL GROSS RETURNS FOR OLIVES				3000	
OPERATING COSTS					
Insecticide:					
Sevin 80S	8.00	Lb	5.31	42	
Supreme Oil	7.50	Gal	3.13	23	
Fungicide:					
Kocide	8.00	Lb	2.24	18	
Acaracide:					
Supracide 2EC	1.00	Gal	55.91	56	
Contract:					
Ground Application	2.00	Acre	24.00	44	
Custom:					
Prune Trees	78.00	Tree	3.00	234	
Shred Brush	1.00	Acre	21.00	21	
Hand Pick	5.00	Ton	260.00	1300	
Irrigation:					
Water	30.00	AcIn	3.15	95	
Herbicide:					
Roundup	0.40	Qt	13.76	6	
Karmex DF	2.00	Lb	4.84	10	
Princep Caliber 90	2.00	Lb	4.22	8	
Fertilizer:					
UN-32	45.00	Lb N	0.41	18	
Labor (machine)	10.70	hrs	10.72	115	
Labor (non-machine)	0.80	hrs	6.70	5	
Fuel - Gas	15.33	gal	1.30	20	
Fuel - Diesel	2.23	gal	0.97	2	
Lube				3	
Machinery repair				11	
Interest on operating capital @ 10.00%				44	
TOTAL OPERATING COSTS/ACRE				2076	
NET RETURNS ABOVE OPERATING COSTS				924	

Table 3.Continued COSTS AND RETURNS PER ACRE TO PRODUCE OLIVES
SOUTHERN SAN JOAQUIN VALLEY - 1997

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
CASH OVERHEAD COSTS:					
Office Expense				85	
Liability Insurance				13	
Management Fee				75	
Property Taxes				78	
Property Insurance				56	
Investment Repairs				61	
TOTAL CASH OVERHEAD COSTS/ACRE				368	
TOTAL CASH COSTS/ACRE				2444	
NON-CASH OVERHEAD COSTS (CAPITAL RECOVERY):					
Buildings				116	
Shop Tools				16	
Pruning Equipment				5	
Drip Irrigation System				99	
Land				377	
Olive Orchard Establishment				250	
Equipment				106	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				970	
TOTAL COSTS/ACRE				3415	
NET RETURNS ABOVE TOTAL COSTS				-415	

U.C. COOPERATIVE EXTENSION

Table 4. MONTHLY CASH COSTS PER ACRE TO PRODUCE OLIVES

SOUTHERN SAN JOAQUIN VALLEY - 1997

Beginning JAN 97	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending DEC 97	97	97	97	97	97	97	97	97	97	97	97	97	
Cultural:													
Pest Control - Black Scal		90											90
Pruning & Sucker			234										234
Brush Disposal			21										21
Irrigate			7	9	13	15	20	18	11	7			100
Weed Control - Spot Spray 2X						7			7				15
Fertilizer - Nitrogen				18									18
Weed Control - Residual Strip										23			23
Disease Control - Peacock											94		94
Pickup Truck Use	11	11	11	11	11	11	11	11	11	11	11	11	138
TOTAL CULTURAL COSTS	11	101	274	39	24	34	31	29	30	41	105	11	732
Harvest:													
Hand Pick										1300			1300
TOTAL HARVEST COSTS										1300			1300
Interest on oper. capital	0	1	3	4	4	4	4	5	5	16	-1	-0	44
TOTAL OPERATING COSTS/ACRE	12	102	277	43	28	38	35	34	35	1357	104	11	2076
OVERHEAD:													
Office Expense	7	7	7	7	7	7	7	7	7	7	7	7	85
Liability Insurance	13												13
Management Fee	6	6	6	6	6	6	6	6	6	6	6	6	75
Property Taxes	39						39						78
Property Insurance	28						28						56
Investment Repairs	5	5	5	5	5	5	5	5	5	5	5	5	61
TOTAL CASH OVERHEAD COSTS	99	18	18	18	18	18	85	18	18	18	18	18	368
TOTAL CASH COSTS/ACRE	110	121	295	61	47	56	121	52	53	1376	123	30	2444

U.C. COOPERATIVE EXTENSION

Table 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
SOUTHERN SAN JOAQUIN VALLEY - 1997

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	- Cash Overhead - Capital Recovery	Insur-ance	Taxes	Total
97	55 HP 2WD Tractor	26782	12	6696	3252	119	167	3539
97	Pickup Truck - 1/2 Ton	16226	7	6155	2459	80	112	2650
97	Weed Sprayer - 100 Gal	3228	10	571	448	14	19	480
TOTAL		46236		13422	6159	213	298	6670
	60% of New Cost *	27742		8053	3695	128	179	4002

* Used to reflect a mix of new and used equipment.

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	------ Cash Overhead ------ Capital Recovery	Insur-ance	Taxes	Repairs	Total
INVESTMENT								
Buildings	39253	20		4073	140	196	785	5194
Irrigation System	40325	40		3473	144	202	1210	5028
Land	160000		160000	13200	1141	1600	0	15941
Olive Orhcard Establishment	109025	57		9094	389	545	0	10028
Pruning Equipment	1287	10	129	185	5	7	25	222
Shop Tools - Olive	5000	15	500	575	20	28	113	735
TOTAL INVESTMENT	354890		160629	30599	1838	2578	2133	37148

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	40.00	Acre	11.73	469
Management Fee	35.00	Acre	75.00	2625
Office Expense	35.00	Acre	85.00	2975

Table 6. HOURLY EQUIPMENT COSTS
SAN JOAQUIN VALLEY - 1997

Yr	Description	Actual Hours Used	COSTS PER HOUR - Capital Recovery	- Cash Overhead - Insurance	Taxes	Operating - Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
97	55 HP 2WD Tractor	28.9	67.58	2.48	3.48	1.14	3.01	4.15	77.69
97	Pickup Truck - 1/2 Ton	286.0	5.16	0.17	0.23	1.18	2.80	3.98	9.54
97	Weed Sprayer - 100 Gal	26.3	10.23	0.31	0.43	0.85	0.00	0.85	11.83

Table 7. U.C. COOPERATIVE EXTENSION
RANGING ANALYSIS
SOUTHERN SAN JOAQUIN VALLEY - 1997

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE OLIVES

	YIELD (TON/ACRE) 2.0	3.0	4.0	5.0	6.0	7.0	8.0
OPERATING COSTS/ACRE:							
Cultural Cost	732	732	732	732	732	732	732
Harvest Cost	520	780	1040	1300	1560	1820	2080
Interest on operating capital	38	40	42	44	46	48	51
TOTAL OPERATING COSTS/ACRE	1290	1552	1814	2076	2338	2600	2863
TOTAL OPERATING COSTS/TON	645	517	453	415	390	371	358
CASH OVERHEAD COSTS/ACRE	368	368	368	368	368	368	368
TOTAL CASH COSTS/ACRE	1658	1920	2182	2444	2707	2969	3231
TOTAL CASH COSTS/TON	829	640	546	489	451	424	404
NON-CASH OVERHEAD COSTS/ACRE	970	970	970	970	970	970	970
TOTAL COSTS/ACRE	2628	2890	3152	3415	3677	3939	4201
TOTAL COSTS/TON	1314	963	788	683	613	563	525

Table 7. Continued

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR OLIVES

PRICE (DOLLARS/TON)	YIELD (TON/ACRE)						
Olives	2.0	3.0	4.0	5.0	6.0	7.0	8.0
450.00	-390	-202	-14	174	362	550	737
500.00	-290	-52	186	424	662	900	1137
550.00	-190	98	386	674	962	1250	1537
600.00	-90	248	586	924	1262	1600	1937
650.00	10	398	786	1174	1562	1950	2337
700.00	110	548	986	1424	1862	2300	2737
750.00	210	698	1186	1674	2162	2650	3137

NET RETURNS PER ACRE ABOVE CASH COSTS FOR OLIVES

PRICE (DOLLARS/TON)	YIELD (TON/ACRE)						
Olives	2.0	3.0	4.0	5.0	6.0	7.0	8.0
450.00	-758	-570	-382	-194	-7	181	369
500.00	-658	-420	-182	56	293	531	769
550.00	-558	-270	18	306	593	881	1169
600.00	-458	-120	218	556	893	1231	1569
650.00	-358	30	418	806	1193	1581	1969
700.00	-258	180	618	1056	1493	1931	2369
750.00	-158	330	818	1306	1793	2281	2769

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR OLIVES

PRICE (DOLLARS/TON)	YIELD (TON/ACRE)						
Olives	2.0	3.0	4.0	5.0	6.0	7.0	8.0
450.00	-1728	-1540	-1352	-1165	-977	-789	-601
500.00	-1628	-1390	-1152	-915	-677	-439	-201
550.00	-1528	-1240	-952	-665	-377	-89	199
600.00	-1428	-1090	-752	-415	-77	261	599
650.00	-1328	-940	-552	-165	223	611	999
700.00	-1228	-790	-352	85	523	961	1399
750.00	-1128	-640	-152	335	823	1311	1799