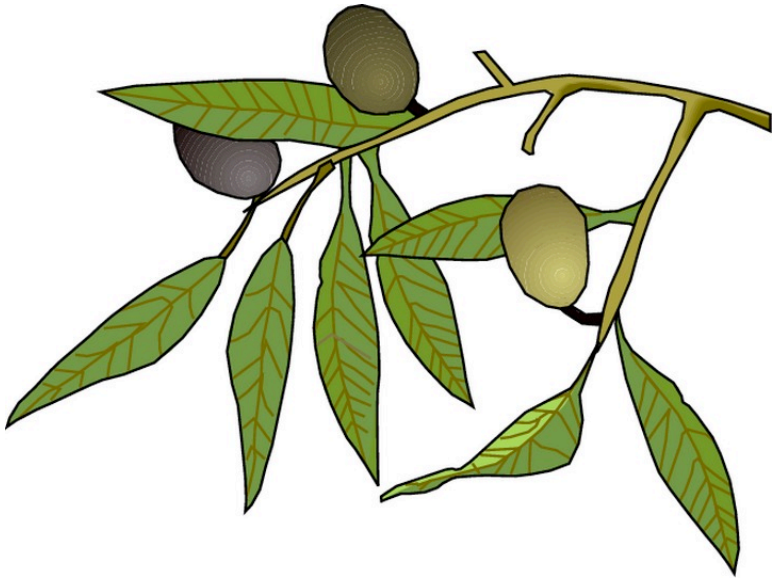
UNIVERSITY OF CALIFORNIA - COOPERATIVE EXTENSION

2009

SAMPLE COSTS TO PRODUCE

TABLE OLIVES



MANZANILLO VARIETY

In the SACRAMENTO VALLEY - DRIP IRRIGATION

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INTRODUCTION

Sample costs to produce table olives in the Sacramento Valley are presented in this study. This study is intended as a guide only, and can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. Practices described are based on production practices considered typical for the crop and area, but will not apply to every situation. Sample costs for labor, materials, equipment, and custom services are based on current figures. A blank column, "Your Costs", in Tables 2 and 3 is provided to enter your costs.

The hypothetical farm operation, production practices, overhead, and calculations are described under the assumptions. For additional information or an explanation of the calculations used in the study call the Department of Agricultural and Resource Economics, University of California, Davis, 530-752-2414 or your local UC Cooperative Extension office.

Sample Cost of Production Studies for many commodities are available and can be requested through the Department of Agricultural and Resource Economics, UC Davis, 530-752-2414. Current studies can be obtained from selected county UC Cooperative Extension offices or downloaded from the department website at http://coststudies.ucdavis.edu.

ASSUMPTIONS

The assumptions refer to Tables 1 to 8 and pertain to sample costs to produce table olives in the Sacramento Valley – Glenn, Tehama, and Butte counties. Practices described represent production practices and materials considered typical of a well-managed orchard in the region. Costs, materials, and practices in this study will not apply to all situations. Production cultural practices vary among growers within the region. **The use of trade names and cultural practices 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 or cultural practices.**

Farm. The farm consists of 40 contiguous acres. Thirty-five acres are planted to olives and five acres include roads, irrigation systems and farmstead. It is assumed that the orchard is already developed and producing. Therefore, establishment practices and materials are not described or individually costed in this study, although an establishment cost for the entire orchard is listed in the Non-cash Overhead cost sections in the appropriate tables. The owner farms the orchard.

Trees. The Manzanillo variety is the current table variety being planted in the area, although Sevillano is the olive cultivar that historically accounted for the majority of the acreage and currently makes up about 50% of the acreage in Glenn and Tehama Counties. In Butte County the predominant variety is Mission. Production costs should not vary significantly between varieties with the exception of chemical thinning costs that are rarely if ever used for Sevillano. The trees are planted at 22' X 22' spacing, 90 trees per acre. Although the orchard is considered Manzanillo about 10% of the trees are the Sevillano variety and serve as pollinators. Olive trees have a long production life and in this study, the life is estimated to be 40 years.

PRODUCTION CULTURAL PRACTICES AND MATERIAL INPUTS

Pruning. In this study, pruning is done in the spring by hand every year. Prunings are stacked in the row middles and shredded. Opening the tree canopy by pruning helps to control black scale. Pruning is critical to production and is dependent on several factors such as olive cultivar and planting density. Pruning is normally done in the spring by hand every other year, but can also be performed every three years.

Irrigation. A mature Manzanillo orchard will use 48 acre-inches of water annually and this study assumes that 12 acre-inches is from effective rainfall. Total applied water through the irrigation system is 36 acre-inches. District water at $2.48 per acre-inch, plus irrigation labor and the pumping cost at $3.15 per acre-inch for pressurizing the drip irrigation system accounts for the water cost of $5.63 per acre-inch or $67.56 per acre-foot. Price per acre-foot for water will vary from grower to grower in this region depending on the irrigation district and pumping costs.

Fertilization. Nitrogen as UN-32 is split equally and applied through the drip system in April and June. In this study, it is assumed that each tree needs 1.5 pounds of nitrogen (N) or 135 pounds of N per acre. Mature tree nutrition is determined by leaf analysis in July.

Pest Management. The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Olives*. For more information on other pesticides available, pest identification, monitoring, and management visit the above UC IPM website at http://www.ipm.ucdavis.edu/PMG/crops-agriculture.html. For information and pesticide use permits, contact the local county agricultural commissioner's office. Many pesticides require or suggest the use of various adjuvants, but these costs are not included in the study.

Pest Control Adviser (PCA). Written recommendations are required for many pesticides and are made by licensed Pest Control Advisors. In addition the PCA will monitor the field for agronomic problems including pests and nutrition. Growers may hire private Pac's or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. A PCA cost is not allocated in this study.

Weeds/Orchard Floor Management. Weeds in the tree rows (an eight foot strip) are controlled with herbicides. A residual herbicide (Princep) is applied in the spring and fall (March and October). Two spot sprays using a foliar herbicide (Roundup) are applied each year during the growing season. Vegetation in the row middles is mowed six times from April through September.

Insects. Because the olives are destined for the table market protective sprays are applied to prevent any olive fruit fly damage. In this study, olive fruit fly is sprayed 14 times during the growing season, June through September. The liquid insecticide for olive fruit fly is applied to every other row in each week. A McPhail trap baited with Torula yeast tablets is also used at a density of one trap per ten acres. The traps are checked every week for the pest during the same 14 weeks that the insecticide is used.

Black scale, an insect pest, requires an occasional chemical treatment. In orchards where the trees are pruned adequately and do not allow the canopy to become dense, chemical control is seldom necessary. Treatment may be required following cool years or in orchards that have canopies that have become too crowded. This study does not include any treatment for black scale.

Disease. The fungal disease, peacock spot damages leaves and the bacterial disease, olive knot damage shoots and branches. Their prevention requires two copper (Kocide) sprays - the first in March for olive knot and the second following harvest and prior to fall rains for peacock spot.

Thinning. Chemical fruit thinning is usually done twelve to eighteen days after full bloom. Naphthalene acetic acid (Liqui-Stik) is applied in May or early June. Thinning is generally not needed every year, therefore this study includes a treatment once every two years with one-half of the cost allocated to the crop each year. Fruit thinning is needed when olives set fruit in large quantities. Thinning improves fruit size, quality, uniformity, and promotes regular bearing each year. Application timing is critical to achieve the best results.

Harvest. Olives are hand harvested and in this study, a contractor harvests the crop. All costs for contracted harvest operations are on a tonnage basis. A charge of $350 per ton is used.

Yields. Manzanillo olives are assumed to be at full bearing from the eighth year on. The mature yield is estimated as the average annual yield over the remaining orchard life. Typical annual yields for olives are measured in tons per acre and are shown in Table C.

Table C. Annual Yields

Year	Tons per acre
8+	5.0

Returns. An estimated price of $825 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 6, will vary and the yields and prices used in this study are estimated, based on current markets.

Assessments. The California Olive Committee (COC) under a federal marketing order collects a mandatory assessment fee. These assessments are charged to the processor to pay for olive marketing order administration, research, and market development. Growers do not directly pay the assessment.

Pickup/ATV. The grower uses the pickup for business and personal use. It is assumed that 4,000 miles are for business use. The All Terrain Vehicle (ATV) is used for inspecting and monitoring the orchard. It is also used for irrigating and checking the system, but is not included in the irrigation cost. It is assumed that the ATV travels 2,500 miles per year.

Labor. Labor rates of $13.65 per hour for machine operators and $12.29 for general labor includes payroll overhead of 37%. The basic hourly wages are $9.97 for machine operators and $8.97 for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance (code 0016), and a percentage for other possible benefits. Workers' compensation insurance costs will vary among growers, but for this study the cost is based upon the average industry final rate as of March 1, 2009 (California Department of Insurance). Labor for operations involving machinery are 20% higher than the operation time given in Table 2 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

Management. Wages for management are not included as a cash overhead cost. The owner farms the orchard and the returns above total costs are considered a return to management. Additional management costs ranging from $75 to $125 per acre may occur if practices are contracted.

Equipment Operating Costs. 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 horsepower and fuel type.

Prices for on-farm delivery of diesel and gasoline are $3.70 and $3.36 per gallon, respectively. Fuel costs are derived from American Automobile Association (AAA) and Energy Information Administration (EIA) 2009 monthly data. The cost includes a 2% local sales tax on diesel fuel and 8% sales tax on gasoline. Gasoline also includes federal and state excise tax, which are refundable for on-farm use when filing your income tax. Diesel and gasoline are stored above ground in 100-gallon tanks on risers in a spill containment pad, but uses gravity flow to fill equipment.

The fuel, lube, and repair cost per acre for each operation in Table 1, 2, 5, and 6 is determined by multiplying the total hourly operating cost in Table 4 and 9 for each piece of equipment used for the selected operation by the hours per acre. Tractor time is 10% higher than implement time for a given operation to account for setup, travel and down time.

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 5.75% per year. A nominal interest rate is the typical market cost of borrowed funds. The interest cost of post harvest operations is discounted back to the last harvest month using a negative interest charge.

Risk. The risks associated with producing and marketing table 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 table olive production. A market channel should be determined before a table olive orchard is purchased. Though not used in this study, crop insurance is a risk management tool available to growers through the Farm Service Agency (FSA) office.

CASH OVERHEAD COSTS

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, equipment repairs, and management.

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.

Insurance. Insurance for farm investments varies depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.820% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs $621 for the entire farm.

Office Expense. Office and business expenses are estimated at $6,552 for the 35 acres planted to olives or $187.20 per producing acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, shop and office utilities, and miscellaneous administrative charges.

Sanitation Services. Sanitation services provide portable toilets for the orchard and cost the farm $632 annually. This cost includes delivery and servicing of toilets.

Investment Repairs. Annual maintenance is calculated as 5% of the purchase price.

NON-CASH OVERHEAD COSTS

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments.

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). It is equivalent to the annual payment on a loan for the investment with the down payment 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 (Boehlje and Eidman). The formula for the calculation of the annual capital recovery costs is:

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

Salvage Value. Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements) the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the American Society of Agricultural Engineers (ASAE) based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASAE by the annual hours of use in this operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value for land is the purchase price because land does not depreciate. The purchase price and salvage value for equipment and investments are shown in the tables.

Capital Recovery Factor. Capital recovery factor is the amortization factor or annual payment whose present value at compound interest is 1. The amortization factor is a table value that corresponds to the interest rate used and the life of the machine.

Interest Rate. The interest rate of 4.75% used to calculate capital recovery cost is an interest rate from an agricultural lender. 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.

Building. The shop building is a 1,800 square foot metal building or buildings on a cement slab.

Land. Land is valued at $6,500 per acre. Because only 35 of the 40 acres are planted with olives, the land is valued at $7,429 per producing acre.

Field/Shop. This includes shop and field tools.

Fuel Tanks. A single 100-gallon fuel tank using gravity feed is on a metal stands. The tank is setup in a cement containment pad that meets federal, state, and county regulations.

Irrigation System. The drip irrigation system is laid out prior to planting and the labor cost is included in the system cost. The irrigation system consists of a pump, filtration and pressure system connected to drip irrigators.

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. For this study, the 2004 table olive orchard establishment cost is adjusted by using the USDA-NASS index to change the investment value to an approximate 2009 establishment cost. This cost is $4,554 per acre or $159,377 for the 35-acre orchard. Establishment cost is depreciated beginning in the fourth year over the remaining 37 of the 40 years that the orchard is assumed to be in production.

Equipment. Farm equipment is purchased new or used, but the 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. 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 repairs, fuel, and lubrication and are discussed under operating costs.

Table Values. Due to rounding, the totals may be slightly different from the sum of the components.

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Table 1.

UC COOPERATIVE EXTENSION
COSTS PER ACRE TO PRODUCE OLIVES
SACRAMENTO VALLEY – 2009
MANZANILLO VARIETY – DRIP IRRIGATION

Labor Rate: $13.65/hr. machine labor
$12.29/hr. non-machine labor

Interest Rate: 5.75%
Yield per Acre: 5.0 Tons

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:							
Pruning & Sucker	35.00	430	0	0	0	430	
Shred Prunings	0.29	5	5	0	0	10	
Disease Control - Spring Fungicide Spray	0.00	0	0	22	38	60	
Fertilizer - Nitrogen	0.00	0	0	76	0	76	
Irrigate	0.70	9	0	203	0	211	
Weed Control – Mow Middles 6X	1.50	25	26	0	0	51	
PCA Activities	0.00	0	0	0	15	15	
Thinning Spray (1 Out Of 2 Years)	0.00	0	0	41	38	79	
Weed Control - Spot Spray 2X	0.29	5	4	21	0	30	
Insect Monitoring - McPhail Trap & Bait 14X	2.35	29	0	25	0	54	
Insect Control - Olive Fly 14X	0.35	6	2	76	0	83	
Pickup Truck Use	1.90	31	20	0	0	51	
ATV Use	2	31	9	0	0	40	
TOTAL CULTURAL COSTS	44.28	570	66	464	91	1,191	
Harvest:							
Hand Pick Fruit	0	0	0	0	1,750	1,750	
TOTAL HARVEST COSTS	0	0	0	0	1,750	1,750	
Postharvest:							
Weed Control - Fall Residual Spray	0	4	4	8	0	16	
Disease Control - Fall Fungicide Spray	0	0	0	22	38	60	
TOTAL POSTHARVEST COSTS	0	4	4	30	38	76	
Interest on Operating Capital @ 5.75%						41	
TOTAL OPERATING COSTS/ACRE		574	70	494	1,879	3,058	
CASH OVERHEAD:							
Office Expense						187	
Sanitation Fees						18	
Liability Insurance						18	
Property Taxes						122	
Property Insurance						100	
Investment Repairs						70	
TOTAL CASH OVERHEAD COSTS						515	
TOTAL CASH COSTS/ACRE						3,573	
NON-CASH OVERHEAD:							
Investment		Per producing Acre		-- Annual Cost -- Capital Recovery			
Drip Irrigation System		1,421		107		107	
Land		7,429		353		353	
Orchard Establishment Cost		4,554		233		233	
Fuel Tank: 1-100 Gallon		57		4		4	
Buildings		918		69		69	
Shop Tools		75		9		9	
Pruning Tools		37		4		4	
Ladders - 10		54		6		6	
Equipment		1,679		184		184	
TOTAL NON-CASH OVERHEAD COSTS		16,223		970		970	
TOTAL COSTS/ACRE						4,544	

Table 2.

UC COOPERATIVE EXTENSION
COSTS AND RETURNS PER ACRE TO PRODUCE OLIVES
SACRAMENTO VALLEY – 2009
MANZANILLO VARIETY – DRIP IRRIGATION

Labor Rate: $13.65/hr. machine labor
$12.29/hr. non-machine labor

Interest Rate: 5.75%
Yield per Acre: 5.0 Tons

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Table Olives	5.0	Ton	825	4,125	
TOTAL GROSS RETURNS FOR TABLE OLIVES				4,125	
OPERATING COSTS					
Fungicide:					
Kocide	16.00	Lb	2.76	44	
Contract:					
Ground Application	3.00	Acre	38.00	114	
Fertilizer:					
UN-32	135.00	Lb N	0.56	76	
Irrigation:					
Water	36.00	AcIn	5.63	203	
Custom:					
PCA Fees	1.00	Acre	15.00	15	
Harvest Olives	5.00	Ton	350.00	1,750	
Thinning Agent:					
Liqua-stik	36.00	Oz	1.15	41	
Herbicide:					
Roundup Weathermax	44.00	FlOz	0.486	21	
Princep 4L	4.00	Pint	1.98	8	
Olive Fly Trap:					
McPhail Trap	1.00	Each	1.35	1	
Bait:					
Torula Yeast	0.95	Lb	25.00	24	
Insecticide:					
Spinosad	140.00	Oz	0.54	76	
Labor (machine)	7.78	Hrs	13.65	106	
Labor (non-machine)	38.05	Hrs	12.29	468	
Fuel - Gas	6.06	Gal	3.70	22	
Fuel - Diesel	6.90	Gal	3.36	23	
Lube				7	
Machinery repair				17	
Interest on Operating Capital @ 5.75%				41	
TOTAL OPERATING COSTS/ACRE				3,058	
NET RETURNS ABOVE OPERATING COSTS				1,067	
CASH OVERHEAD COSTS:					
Office Expense				187	
Sanitation Fees				18	
Liability Insurance				18	
Property Taxes				122	
Property Insurance				100	
Investment Repairs				70	
TOTAL CASH OVERHEAD COSTS/ACRE				515	
TOTAL CASH COSTS/ACRE				3,573	
NON-CASH OVERHEAD COSTS (CAPITAL RECOVERY):					
Drip Irrigation System				107	
Land				353	
Orchard Establishment Cost				233	
Fuel Tank: 1-100 Gallon				4	
Buildings				69	
Shop Tools				9	
Pruning Tools				4	
Ladders - 10				6	
Equipment				184	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				970	
TOTAL COSTS/ACRE				4,544	
NET RETURNS ABOVE TOTAL COSTS				-419	

Table 3.

UC COOPERATIVE EXTENSION
MONTHLY CASH COSTS PER ACRE TO PRODUCE OLIVES
SACRAMENTO VALLEY - 2009
MANZANILLO VARIETY – DRIP IRRIGATION

Beginning MAR 09 Ending FEB 10	MAR 09	APR 09	MAY 09	JUN 09	JUL 09	AUG 09	SEP 09	OCT 09	NOV 09	DEC 09	JAN 10	FEB 10	TOTAL
Cultural:													
Pruning & Sucker	430												430
Shred Prunings	10												10
Disease Control - Spring Fungicide Spray	60												60
Fertilizer - Nitrogen		38		38									76
Weed Control – Mow Middles 6X		8	8	8	8	8	8						51
Irrigate		18	27	34	38	36	35	24					211
PCA Activities			15										15
Thinning Spray (1 Out Of 2 Years)			79										79
Weed Control - Spot Spray 2X				15			15						30
Insect Monitoring - McPhail Trap & Bait 14X				16	15	15	8						54
Insect Control - Olive Fly 14X				12	24	24	24						83
Pickup Truck Use	4	4	4	4	4	4	4	4	4	4	4	4	51
ATV Use	3	3	3	3	3	3	3	3	3	3	3	3	40
TOTAL CULTURAL COSTS	508	72	137	131	93	91	98	31	8	8	8	8	1,191
Harvest:													
Hand Pick Fruit								1,750					1,750
TOTAL HARVEST COSTS								1,750					1,750
Postharvest:													
Weed Control - Fall Residual Spray								16					16
Disease Control - Fall Fungicide Spray								60					60
TOTAL POSTHARVEST COSTS								76					76
Interest on Operating Capital @ 5.75%	2	3	3	4	5	5	5	14	0	0	0	0	41
TOTAL OPERATING COSTS/ACRE	510	75	140	135	97	96	103	1,871	8	8	8	7	3,058
CASH OVERHEAD:													
Office Expense	23	23	23	23	23	23	23	23					187
Sanitation Fees	18												18
Liability Insurance	2	2	2	2	2	2	2	2					18
Property Taxes					61						61		122
Property Insurance					50						50		100
Investment Repairs	6	6	6	6	6	6	6	6	6	6	6	6	70
TOTAL CASH OVERHEAD COSTS	50	31	31	31	142	31	31	31	6	6	117	6	515
TOTAL CASH COSTS/ACRE	559	106	172	166	240	128	135	1,903	13	13	124	13	3,573

Table 4.

UC COOPERATIVE EXTENSION
WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
SACRAMENTO VALLEY – 2009
MANZANILLO VARIETY – DRIP IRRIGATION

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	- Cash Overhead - Insur-ance	Taxes	Total
09	20 Gallon Sprayer-ATV	624	10	110	71	3	4	78
09	55 HP 2WD Tractor	43,465	12	10,867	4,142	223	272	4,637
09	ATV 4WD	7,865	7	2,983	978	44	54	1,076
09	Mower - Flail 10'	14,026	10	2,480	1,595	68	83	1,745
09	Pickup Truck - 1/2 Ton	28,500	7	10,811	3,543	161	197	3,901
09	Weed Sprayer - 100 Gallon	3,447	10	610	392	17	20	429
	TOTAL	97,927		27,861	10,721	516	629	11,866
	60% of New Cost *	58,756		16,717	6,433	309	377	7,119

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

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	------ Cash Overhead ------ Insur-ance	Taxes	Repairs	Total
INVESTMENT	32,130	20	3,213	2,424	145	177	884	3,630
Building: 1,800 SqFt	49,740	20	4,974	3,753	224	274	1,368	5,619
Drip Irrigation System	1,987	20	199	150	9	11	55	225
Fuel Tank: 1 – 100 Gallon	1,887	10	189	226	9	10	52	297
Hand /Field Tools	260,000	60	260,000	12,350	2,132	2,600	0	17,082
Land	159,377	57		8,149	653	797	0	9,599
Orchard Establishment Cost	1,310	10	131	157	6	7	36	206
TOTAL INVESTMENT	2,622	10	262	314	12	14	72	413

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	40	Acre	15.53	621
Office Expense	35	Acre	187.20	6,552
Sanitation Fees	35	Acre	18.07	632

Table 5.

UC COOPERATIVE EXTENSION
HOURLY EQUIPMENT COSTS
SACRAMENTO VALLEY – 2009
MANZANILLO VARIETY – DRIP IRRIGATION

		COSTS PER HOUR						
	Actual	- Cash Overhead -			-------- Operating --------			
Description	Hours Used	Capital Recovery	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
20 Gallon Sprayer-ATV	12.3	3.48	0.15	0.18	0.17	0.00	0.17	3.97
55 HP 2WD Tractor	89.5	27.78	1.49	1.82	1.99	10.44	12.43	43.53
ATV 4WD	78.9	7.44	0.34	0.41	0.58	4.25	4.83	13.02
Mower - Flail 10'	62.5	15.31	0.65	0.79	3.64	0.00	3.64	20.40
Pickup Truck - 1/2 Ton	66.6	31.91	1.45	1.77	2.11	8.51	10.62	45.75
Weed Sprayer - 100 Gallon	18.8	12.49	0.53	0.65	0.93	0.00	0.93	14.59

Table 6.

UC COOPERATIVE EXTENSION
RANGING ANALYSIS
SACRAMENTO VALLEY – 2009
MANZANILLO VARIETY – DRIP IRRIGATION

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE TABLE OLIVES

	YIELD(TON/ACRE)						
	3.5	4.0	4.5	5.0	5.5	6.0	6.5
OPERATING COSTS/ACRE:							
Cultural Cost	1,191	1,191	1,191	1,191	1,191	1,191	1,191
Harvest Cost	1,225	1,400	1,575	1,750	1,925	2,100	2,275
Postharvest Cost	76	76	76	76	76	76	76
Interest on operating capital	39	40	41	41	42	43	44
TOTAL OPERATING COSTS/ACRE	2,531	2,706	2,882	3,058	3,234	3,410	3,586
TOTAL OPERATING COSTS/TON	723	677	640	612	588	568	552
CASH OVERHEAD COSTS/ACRE	515	515	515	515	515	515	515
TOTAL CASH COSTS/ACRE	3,046	3,222	3,398	3,573	3,749	3,925	4,101
TOTAL CASH COSTS/TON	870	805	755	715	682	654	631
NON-CASH OVERHEAD COSTS/ACRE	970	970	970	970	970	970	970
TOTAL COSTS/ACRE	4,016	4,192	4,368	4,544	4,719	4,895	5,071
TOTAL COSTS/TON	1,147	1,048	971	909	858	816	780

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE (DOLLARS/TON)	YIELD (TON/ACRE)						
TABLE OLIVES	3.5	4.0	4.5	5.0	5.5	6.0	6.5
675	-168	-6	156	317	479	640	802
725	7	194	381	567	754	940	1,127
775	182	394	606	817	1,029	1,240	1,452
825	357	594	831	1,067	1,304	1,540	1,777
875	532	794	1,056	1,317	1,579	1,840	2,102
925	707	994	1,281	1,567	1,854	2,140	2,427
975	882	1,194	1,506	1,817	2,129	2,440	2,752
1,025	1,057	1,394	1,731	2,067	2,404	2,740	3,077
1,075	1,232	1,594	1,956	2,317	2,679	3,040	3,402

NET RETURNS PER ACRE ABOVE CASH COSTS FOR TABLE OLIVES

PRICE (DOLLARS/TON)	YIELD (TON/ACRE)						
TABLE OLIVES	3.5	4.0	4.5	5.0	5.5	6.0	6.5
675	-683	-521	-360	-198	-37	125	287
725	-509	-322	-136	52	239	425	612
775	-334	-122	90	302	514	725	937
825	-159	78	315	552	789	1,025	1,262
875	17	278	540	802	1,064	1,325	1,587
925	192	478	765	1,052	1,339	1,625	1,912
975	367	678	990	1,302	1,614	1,925	2,237
1,025	542	878	1,215	1,552	1,889	2,225	2,562
1,075	717	1,078	1,440	1,802	2,164	2,525	2,887

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR TABLE OLIVES

PRICE (DOLLARS/TON)	YIELD (TON/ACRE)						
TABLE OLIVES	3.5	4.0	4.5	5.0	5.5	6.0	6.5
675	-1,656	-1,494	-1,333	-1,169	-2,257	-2,208	-2,159
725	-1,481	-1,294	-1,108	-919	-732	-545	-359
775	-1,304	-1,092	-881	-669	-457	-245	-34
825	-1,129	-892	-656	-419	-182	55	292
875	-954	-692	-431	-169	94	355	617
925	-779	-492	-206	81	369	655	942
975	-604	-292	20	331	644	955	1,267
1,025	-429	-92	245	581	919	1,255	1,592
1,075	-254	108	470	831	1,194	1,555	1,917

Table 7.

UC COOPERATIVE EXTENSION
COSTS AND RETURNS / BREAKEVEN ANALYSIS
SACRAMENTO VALLEY - 2009
MANZANILLO VARIETY – DRIP IRRIGATION

COSTS AND RETURNS - PER ACRE BASIS

Crop	1. Gross Returns	2. Operating Costs	3. Net Returns Above Oper. Costs (1-2)	4. Cash Costs	5. Net Returns Above Cash Costs (1-4)	6. Total Costs	7. Net Returns Above Total Costs (1-6)
Table Olives	4,125	3,058	1,067	3,573	552	4,544	-419

COSTS AND RETURNS - TOTAL ACREAGE

Crop	1. Gross Returns	2. Operating Costs	3. Net Returns Above Oper. Costs (1-2)	4. Cash Costs	5. Net Returns Above Cash Costs (1-4)	6. Total Costs	7. Net Returns Above Total Costs (1-6)
Table Olives	144,375	107,032	37,343	125,071	19,304	159,027	-14,652

BREAKEVEN PRICES PER YIELD UNIT

			Breakeven Price to Cover		
CROP	Base Yield (Units/Acre)	Yield Units	Operating Costs	Cash Costs	Total Costs
			---------- $ per Yield Unit ----------		
Table Olives	5.0	Ton	611.61	714.69	908.73

BREAKEVEN YIELDS PER ACRE

			Breakeven Yield to Cover		
CROP	Yield Units	Base Price ($/Unit)	Operating Costs	Cash Costs	Total Costs
			---------- Yield Units/Acre ----------		
Table Olives	Ton	825.00	3.7	4.3	5.5

Table 8.

UC COOPERATIVE EXTENSION
DETAIL OF OPERATIONS
SACRAMENTO VALLEY - 2009
MANZANILLO VARIETY – DRIP IRRIGATION

Operation	Operation Month	Tractor/ Power Unit	Implement	Material	Broadcast Rate/acre	Material Unit
Cultural:						
Pruning & Sucker	March	Labor				
Brush Disposal - Mowing	March	55 HP 2WD Tractor	Mower - Flail 10'			
Disease Control - Spring Fungicide Spray	March	Ground Application		Contract	1.00	Acre
				Kocide 101	8.00	Lb
Fertilizer - Nitrogen	April	Labor		UN-32	67.50	Lb N
	June	Labor		UN-32	67.50	Lb N
Irrigate	April	Labor		Water	3.00	AcIn
	May	Labor		Water	4.50	AcIn
	June	Labor		Water	5.75	AcIn
	July	Labor		Water	6.50	AcIn
	August	Labor		Water	6.25	AcIn
	September	Labor		Water	6.00	AcIn
	October	Labor		Water	4.00	AcIn
Weed Control – Mow Middles 6X	April	55 HP 2WD Tractor	Mower - Flail 10'			
	May	55 HP 2WD Tractor	Mower - Flail 10'			
	June	55 HP 2WD Tractor	Mower - Flail 10'			
	July	55 HP 2WD Tractor	Mower - Flail 10'			
	August	55 HP 2WD Tractor	Mower - Flail 10'			
	September	55 HP 2WD Tractor	Mower - Flail 10'			
PCA Activities	May	Custom		PCA Fees	1.00	Acre
Thinning Spray - (1 Out of 2 Years)	May	Ground Application		Contract	1.00	Acre
				Liqua-stik	36.00	Oz
Weed Control - Spot Spray 2X	June	55 HP 2WD Tractor	Weed Sprayer - 100 Gal	Roundup Weathermax	22.00	FlOz
	September	55 HP 2WD Tractor	Weed Sprayer - 100 Gal	Roundup Weathermax	22.00	FlOz
Insect Monitoring - McPhail Trap	June	ATV 4WD		McPhail Trap	1.35	Acre
& Torula Yeast - 14X				Torula Yeast	0.10	Lb
	July	ATV 4WD		Torula Yeast	0.10	Lb
	August	ATV 4WD		Torula Yeast	0.10	Lb
	September	ATV 4WD		Torula Yeast	0.10	Lb
Insect Control - Olive Fly Spray 14X	June	ATV 4WD	20 Gallon Sprayer-ATV	Spinosad	20.00	Oz
	July	ATV 4WD	20 Gallon Sprayer-ATV	Spinosad	40.00	Oz
	August	ATV 4WD	20 Gallon Sprayer-ATV	Spinosad	40.00	Oz
	September	ATV 4WD	20 Gallon Sprayer-ATV	Spinosad	40.00	Oz
Harvest - Hand Pick Fruit	October	Custom		Harvest Olives	4.00	Ton
Weed Control - Winter Strip Spray	October	55 HP 2WD Tractor	Weed Sprayer - 100 Gal	Princep Caliber 90	4.00	Pint
				Karmex DF	2.00	Lb
Disease Control - Fall Fungicide Spray	October	Ground Application		Contract	1.00	Acre
				Kocide 101	8.00	Lb
Pickup Truck Use	All Months					
ATV Use	All Months					