UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2004

SAMPLE COSTS TO PRODUCE

TABLE OLIVES

Manzanillo Variety

SACRAMENTO VALLEY – Glenn/Tehama Counties

Flood Irrigation

Prepared by:

William H. Krueger	UC Cooperative Extension Farm Advisor, Glenn County
Joseph H. Connell	UC Cooperative Extension Farm Advisor, Butte County
Karen M. Klonsky	UC Cooperative Extension Economist, Department of Agricultural and Resource Economics, UC Davis
Pete Livingston	UC Cooperative Extension Staff Research Associate, Department of Agricultural and Resource Economics, UC Davis
Richard L. De Moura	Research Associate, Department of Agricultural and Resource Economics, UC Davis

INTRODUCTION

Sample costs to produce table olives using flood irrigation 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 1 and 2 is provided for your convenience.

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.

STUDY CONTENTS

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 olives using flood irrigation in the Sacramento Valley. 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. Establishment and 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. The owner farms the orchard.

Trees. Although Sevillano is the olive variety that historically accounted for the majority of the acreage and currently makes up about 50% of the acreage in Glenn and Tehama Counties, the Manzanillo is the current table variety being planted in the area and used in this study. 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. 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 other year. Since pruning is performed on a bi-annual basis, one-half of the cost incurred is included each year. Prunings are stacked in the row middles and shredded. Pruning is critical to production and is dependent on several factors such as olive cultivar and planting density.

Irrigation. District water plus irrigation labor and any pumping cost to deliver the water to the underground alfalfa valve irrigation system accounts for the water cost of $2.16 per acre-inch or $26.00 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. No assumption is made about effective rainfall.

Fertilization. Nitrogen as Urea (46-0-0) is broadcast to the tree rows in February or March. The fertilizer is applied with the grower's tractor and rented fertilizer spreader. 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 www.ipm.ucdavis.edu. 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 PCA'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 fall (October). Two spot sprays of a foliar herbicide (Roundup) are applied each year during the growing season. Vegetation in the row middles is mowed six times, April through September.

Insects. Treatment for the olive fruit fly is done from July through harvest in October. Eight pesticide (GF 120) applications are made for control of the olive fruit fly.

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

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

Thinning. Chemical fruit thinning is usually done two to two and one-half weeks 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 once olives begin setting 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 $275 per ton is used.

Yields. A five-ton yield is estimated as the average annual yield over the orchard life.

Returns. An estimated price of $425 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 $10.58 per hour for machine operators and $9.52 for general labor includes payroll overhead of 41%. The basic hourly wages are $7.50 for machine operators and $6.75 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 January 1, 2004 (California Department of Insurance). Labor for operations involving machinery are 20% higher than the operation time given in Table 1, 2, and 3 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 returns above total costs are considered a return to management.

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 $1.11 and $1.58 per gallon, respectively. The fuel prices are a January 2004 average based on four California delivery locations plus $0.24 per gallon, which is one-half of the high – low price range for regular gasoline in 2003 from the California State Automobile Association Monthly Survey. The cost includes a 2.25% sales tax (effective September 2001) on diesel fuel and 7.25% sales tax on gasoline. Gasoline also includes federal and state excise tax, which can be refunded for on-farm use when filing your income tax. The fuel, lube, and repair cost per acre for each operation in the "Cost Per Acre to Produce" table is determined by multiplying the total hourly operating cost in the "Hourly Equipment Costs" table for each piece of equipment used from the Operation Time (Hrs/A) column 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 6.89% 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 table olives are planted and brought into production. 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 0.676% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs $516 for the entire farm.

Office. Office and business expenses are estimated at $142.86 per producing acre or $5,000 for the farm. 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 $218 annually. This cost includes delivery and servicing of toilets. Cash overhead costs are included in Tables 1-5.

Investment Repairs. Annual maintenance is calculated as 2% 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 ((Purchase Price – Salvage Value) x Capital Recovery Factor) + (Salvage Value x Interest Rate).

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 6.23% used to calculate capital recovery cost is the USDA-ERS's ten-year average of California's agricultural sector long-run 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.

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

Land. Land is valued at $3,000 per acre. Because only 35 of the 40 acres are planted with olives, the land is valued at $3,429 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. Flood irrigation is the irrigation method used. District water delivered to the property is then delivered through an underground pipeline with alfalfa valves for flooding the orchard.

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 represents the establishment cost per acre. For the flood irrigated orchard, the cost is $3,551 per acre or $124,285 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.

REFERENCES

American Society of Agricultural Engineers. (ASAE). 1994. *American Society of Agricultural Engineers Standards Yearbook*. St. Joseph, Missouri.

American Society of Farm Managers and Rural Appraisers. 2003. *Trends in Agricultural Land & Lease Values*. California Chapter of the American Society of Farms Managers and Rural Appraisers. Woodbridge, CA.

Barker, Doug. April 22, 2003. *California Workers' Compensation Rating Data for Selected Agricultural Classifications as of January 1, 2004.* California Department of Insurance, Rate Regulation Branch.

Boehlje, Michael D., and Vernon R. Eidman. 1984. *Farm Management*. John Wiley and Sons. New York, New York

Doanes. *Facts and Figures for Farmers.* 1984. Doane Publishing. St. Louis MO.

Klonsky, Karen, Bill Krueger and Pete Livingston. 1997. *Sample Costs to Establish an Olive Orchard and Produce Olives, Tehama and Glenn Counties, Manzanillo Variety – Flood Irrigated*. University of California, Cooperative Extension. Department of Agricultural and Resource Economics. Davis, CA.

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

University of California. 1994. Olive Production Manual. Pub. 3353. University of California, Division of Agriculture and Natural Resources. Oakland, CA.

USDA-ERS. 2000. *Farm Sector: Farm Financial Ratios*. Agriculture and Rural Economics Division, ERS. USDA. Washington, DC http://www.ers.usda.gov/data/farmbalancesheet/fbsdmu.htm; Internet; accessed January 5, 2004.

For information concerning the above mentioned University of California publications contact UC DANR Communications Services (1-800-994-8849) or your local county Cooperative Extension office.

UC COOPERATIVE EXTENSION

Table 1. COSTS PER ACRE TO PRODUCE OLIVES

SACRAMENTO VALLEY – 2004

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:							
Fertilizer: Nitrogen (UN32)	0.18	2	1	37	4	44	
Irrigate	2.00	19	0	104	0	123	
Mow Centers - 6X	2.09	27	19	0	0	45	
Pruning & Sucker 1X/2 Yrs	15.00	143	0	0	0	143	
Brush Disposal	0.37	14	3	0	0	17	
Disease: Peacock Spot/Olive Knot - 2X (Kocide)	0.50	6	4	58	0	68	
Weed: Spot Spray (Roundup)	0.67	8	5	12	0	26	
Thinning: 1X/2 Yrs (Liqui-Stik)	0.13	2	1	44	0	47	
Insect: Olive Fly - 8X (GF 120)	0.40	5	1	75	0	81	
Weed: Winter Strip (Princep)	0.25	3	2	5	0	10	
Pickup Truck Use	2.28	29	21	0	0	50	
ATV Use	2.86	36	6	0	0	43	
Leaf Analysis	0.06	1	0	0	2	2	
TOTAL CULTURAL COSTS	26.78	295	63	335	6	699	
Harvest:							
Pick Fruit	0.00	0	0	0	1,375	1,375	
TOTAL HARVEST COSTS	0.00	0	0	0	1,375	1,375	
Interest on operating capital @ 6.89%						28	
TOTAL OPERATING COSTS/ACRE		295	63	335	1,381	2,102	
CASH OVERHEAD:							
Office Expense						143	
Sanitation Fees						6	
Liability Insurance						15	
Property Taxes						68	
Property Insurance						46	
Investment Repairs						26	
TOTAL CASH OVERHEAD COSTS						301	
TOTAL CASH COSTS/ACRE						2,403	
NON-CASH OVERHEAD:							
Investment		Per producing Acre		-- Annual Cost -- Capital Recovery			
Flood Irrigation System		450		31		31	
Land		3,429		214		214	
Orchard Establishment		3,551		248		248	
Fuel Tank: 1 - 100 Gallon		43		4		4	
Buildings		714		53		53	
Shop/Field Tools		86		11		11	
Equipment		1,309		153		153	
TOTAL NON-CASH OVERHEAD COSTS		9,581		715		715	
TOTAL COSTS/ACRE						3,118	

UC COOPERATIVE EXTENSION

Table 2. COSTS AND RETURNS PER ACRE TO PRODUCE OLIVES

SACRAMENTO VALLEY – 2004

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Table Olives	5.00	ton	425	2,125	
TOTAL GROSS RETURNS FOR TABLE OLIVES				2,125	
OPERATING COSTS					
Fertilizer:					
Urea (46-0-0)	135.00	lb N	0.27	37	
Water:					
Water	48.00	acin	2.16	104	
Herbicide:					
Roundup Ultra Max	1.44	pint	8.56	12	
Princep Caliber 90	1.20	lb	4.56	5	
Growth Regulator:					
Liqui-Stik	36.00	oz	1.23	44	
Insecticide:					
GF 120 Fruit Fly Bait	112.00	oz	0.67	75	
Rent:					
Fertilizer Spreader	1	acre	4.00	4	
Custom:					
Harvest Olives	5.00	ton	275.00	1,375	
Leaf Analysis	1.00	acre	1.75	2	
Fungicide:					
Kocide DF	20.00	lb	2.89	58	
Labor (machine)	11.67	hrs	10.58	123	
Labor (non-machine)	18.06	hrs	9.52	172	
Fuel - Gas	10.34	gal	1.88	19	
Fuel - Diesel	12.43	gal	1.45	18	
Lube				6	
Machinery repair				20	
Interest on operating capital @ 6.89%				28	
TOTAL OPERATING COSTS/ACRE				2,102	
NET RETURNS ABOVE OPERATING COSTS				23	
CASH OVERHEAD COSTS:					
Office Expense				143	
Sanitation Fees				6	
Liability Insurance				15	
Property Taxes				68	
Property Insurance				46	
Investment Repairs				26	
TOTAL CASH OVERHEAD COSTS/ACRE				301	
TOTAL CASH COSTS/ACRE				2,403	
NON-CASH OVERHEAD COSTS (CAPITAL RECOVERY):					
Flood Irrigation System				31	
Land				214	
Olive Orchard Establishment				248	
Fuel Tank: 1 - 100 Gallon				4	
Buildings				53	
Shop/Field Tools				11	
Equipment				153	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				715	
TOTAL COSTS/ACRE				3,118	
NET RETURNS ABOVE TOTAL COSTS				-993	

UC COOPERATIVE EXTENSION

Table 3. MONTHLY CASH COSTS PER ACRE TO PRODUCE OLIVES

SACRAMENTO VALLEY - 2004

Beginning JAN 04 Ending DEC 04	JAN 04	FEB 04	MAR 04	APR 04	MAY 04	JUN 04	JUL 04	AUG 04	SEP 04	OCT 04	NOV 04	DEC 04	TOTAL
Cultural:													
Fertilizer: Nitrogen (Urea)			44										44
Irrigate				11	16	20	20	20	20	16			123
Mow Centers - 6X				8	8	8	8	8	8				45
Pruning & Sucker 1X/2Yrs				143									143
Disease: Olive/Peacock (Kocide)				34							34		68
Brush Disposal					17								17
Weed: Spot Spray (Roundup)					13		13						26
Thinning Spray 1X/2 Yr (Liqui-Stik)					47								47
Insect: Olive Fruit Fly 8X (GF 120)						20	20	20	20				81
Weed: Winter Strip (Princep)										10			10
Pickup Truck Use	4	4	4	4	4	4	4	4	4	4	4	4	50
ATV Use	4	4	4	4	4	4	4	4	4	4	4	4	43
Leaf Analysis							2						2
TOTAL CULTURAL COSTS	8	8	52	204	108	56	71	55	55	34	42	8	699
Harvest:													
Pick Fruit										1,375			1,375
TOTAL HARVEST COSTS										1,375			1,375
Interest on operating capital	0	0	0	2	2	3	3	4	4	12	0	0	30
TOTAL OPERATING COSTS/ACRE	8	8	52	205	110	58	74	59	59	1,420	42	8	2,102
OVERHEAD:													
Office Expense			16	16	16	16	16	16	16	16	16		143
Sanitation Fees		1	1	1	1	1	1	1	1	1	1		6
Liability Insurance	15												15
Property Taxes	33						33						67
Property Insurance	23						23						45
Investment Repairs	2	2	2	2	2	2	2	2	2	2	2	2	26
TOTAL CASH OVERHEAD COSTS	73	2	19	19	19	19	75	19	19	19	19	2	301
TOTAL CASH COSTS/ACRE	81	10	71	224	129	77	148	77	78	1,439	60	10	2,403

UC COOPERATIVE EXTENSION

Table 4. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS

SACRAMENTO VALLEY – 2004

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	- Cash Overhead - Insur-ance	Taxes	Total
04	20 Gal ATV Sprayer	475	10	84	59	2	3	64
04	55 HP 2WD Tractor	33,142	12	8,286	3,523	140	207	3,871
04	ATV 4WD	6,000	7	2,276	815	28	41	885
04	Brush Rake - 10'	1,100	20	57	96	4	6	106
04	Front End Loader	4,500	15	432	453	17	25	494
04	Mower - Flail 10'	9,163	10	1,620	1,138	36	54	1,229
04	Orchard Sprayer - 500 Gallon	9,980	10	1,765	1,240	40	59	1,338
04	Pickup Truck - 1/2 Ton	26,000	7	9,863	3,533	121	179	3,833
04	Weed Sprayer - 100 Gallon	2,630	10	465	327	10	15	353
	TOTAL	92,990		24,848	11,184	398	589	12,172
	60% of New Cost *	55,794		14,909	6,711	239	354	7,303

* 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								
Building: 1,800 SqFt	25,000	30	0	1,865	84	125	500	2,575
Flood Irrigation System	15,570	40	0	1,080	53	79	315	1,527
Fuel Tank: 1 – 100 Gallon	1,500	20	150	129	6	8	30	173
Hand /Field Tools	3,000	10	300	390	11	17	60	477
Land	120,000	40	120,000	7,500	811	1,200	0	9,511
Orchard Establishment Cost	124,285	37		8,690	420	621	0	9,732
TOTAL INVESTMENT	289,535		120,450	19,654	1,386	2,050	905	23,995

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	40	acre	12.90	516
Office Expense	35	acre	142.86	5,000
Sanitation Fees	35	acre	6.23	218

UC COOPERATIVE EXTENSION

Table 5. HOURLY EQUIPMENT COSTS

SACRAMENTO VALLEY – 2004

		COSTS PER HOUR						
	Actual	- Cash Overhead -			-------- Operating --------			
Description	Hours Used	Capital Recovery	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
20 Gal ATV Sprayer	14.0	2.53	0.08	0.12	0.13	0.00	0.13	2.86
55 HP 2WD Tractor	160.9	13.14	0.52	0.77	1.47	4.50	5.97	20.40
ATV 4WD	114.0	4.29	0.15	0.22	0.44	1.80	2.24	6.89
Brush Rake - 10'	13.0	4.46	0.18	0.27	0.23	0.00	0.23	5.15
Front End Loader	13.0	20.98	0.77	1.14	0.67	0.00	0.67	23.56
Mower - Flail 10'	73.2	9.33	0.30	0.44	2.33	0.00	2.33	12.40
Orchard Sprayer - 500 Gallon	21.9	34.00	1.09	1.61	1.69	0.00	1.69	38.39
Pickup Truck - 1/2 Ton	222.0	9.55	0.33	0.48	1.91	7.21	9.12	19.48
Weed Sprayer - 100 Gallon	32.1	6.11	0.20	0.29	0.70	0.00	0.70	7.30

UC COOPERATIVE EXTENSION

Table 6. RANGING ANALYSIS

SACRAMENTO VALLEY – 2004

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE TABLE OLIVES

	YIELD (tons/acre)						
	3.00	3.50	4.00	4.50	5.00	5.50	6.00
OPERATING COSTS/ACRE:							
Cultural Cost	699	699	699	699	699	699	699
Harvest Cost	825	963	1,100	1,237	1,375	1,513	1,650
Interest on operating capital	25	25	26	27	28	28	29
TOTAL OPERATING COSTS/ACRE	1,548	1,687	1,825	1,963	2,102	2,240	2,378
TOTAL OPERATING COSTS/TON	516	482	456	436	420	407	396
CASH OVERHEAD COSTS/ACRE	301	301	301	301	301	301	301
TOTAL CASH COSTS/ACRE	1,850	1,988	2,127	2,265	2,403	2,541	2,680
TOTAL CASH COSTS/TON	617	568	532	503	481	462	447
NON-CASH OVERHEAD COSTS/ACRE	715	715	715	715	715	715	715
TOTAL COSTS/ACRE	2,565	2,703	2,841	2,979	3,118	3,256	3,394
TOTAL COSTS/TON	855	772	710	662	624	592	566

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE	YIELD (tons/acre)						
$/ton	3.00	3.50	4.00	4.50	5.00	5.50	6.00
275	-723	-724	-725	-726	-727	-727	-728
350	-498	-462	-425	-388	-352	-315	-278
425	-273	-199	-125	-51	23	98	172
500	-48	63	175	287	698	510	622
575	177	326	475	624	773	923	1,072
650	402	588	775	962	1,148	1,335	1,522
725	627	851	1,075	1,299	1,523	1,748	1,972

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE	YIELD (tons/acre)						
$/ton	3.00	3.50	4.00	4.50	5.00	5.50	6.00
275	-1,025	-1,026	-1,027	-1,027	-1,028	-1,029	-1,030
350	-800	-763	-727	-690	-653	-616	-580
425	-575	-501	-727	-652	-278	-204	-130
500	-350	-238	-127	-15	97	209	320
575	-125	24	173	323	472	621	770
650	100	287	473	660	547	1,034	1,220
725	325	549	773	998	1,222	1,446	1,670

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE	YIELD (tons/acre)						
$/ton	3.00	3.50	4.00	4.50	5.00	5.50	6.00
275	-1,740	-1,740	-1,741	-1,742	-1,743	-1,743	-1,744
350	-1,515	-1,478	-1,441	-1,404	-1,368	-1,331	-1,294
425	-1,290	-1,215	-1,141	-1,067	-993	-918	-844
500	-1,065	-953	-841	-729	-618	-506	-394
575	-840	-690	-541	-392	-243	-93	56
650	-615	-428	-241	-54	132	319	506
725	-390	-165	59	283	507	732	956

UC COOPERATIVE EXTENSION
Table 7. COSTS AND RETURNS / BREAKEVEN ANALYSIS
SACRAMENTO VALLEY - 2004
MANZANILLO VARIETY

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	2,125	2,102	23	2,403	--278	3,118	-993

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	74,375	73,558	817	84,110	-9,735	109,119	-34,744

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	420	481	624

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	425	4.9	5.7	7.3

UC COOPERATIVE EXTENSION
Table 8. DETAIL OF OPERATIONS
SACRAMENTO VALLEY - 2004
MANZANILLO VARIETY

Operation	Operation Month	Tractor/ Power Unit	Implement	Material	Broadcast Rate/acre	Material Unit
Cultural:						
Fertilizer: Nitrogen	March	55 HP 2WD Tractor	Rental Spreader	Urea	135	lbs
Irrigate	April			Water	4.0	acin
	May			Water	6.0	acin
	June			Water	8.0	acin
	July			Water	8.0	acin
	August			Water	8.0	acin
	September			Water	8.0	acin
	October			Water	6.0	acin
Weed Control - Mow Middles 7X	April	55 HP 2WD Tractor	Mower - Flail 10'			
	May	55 HP 2WD Tractor	Mower - Flail 10'			
	June	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'			
	October					
Prune & Sucker	April	Labor				
Brush Disposal	May	55 HP 2WD Tractor	Brush Rake - 10' Front End Loader			
Leaf Analysis	July			Contract		
Weed Control - Spot Spray	May	ATV 4WD	20 Gal ATV Sprayer	Roundup	0.72	pint
	July	ATV 4WD	20 Gal ATV Sprayer	Roundup	0.72	pint
Thinning Spray 1X/2 Yr	May	55 HP 2WD Tractor	Orchard Sprayer - 500 Gal	Liqui-Stik	36.00	oz
Insect Control - Olive Fruit Fly 8X	June	ATV 4WD	20 Gal ATV Sprayer	GF 120	28.00	oz
	July	ATV 4WD	20 Gal ATV Sprayer	GF 120	28.00	oz
	August	ATV 4WD	20 Gal ATV Sprayer	GF 120	28.00	oz
	September	ATV 4WD	20 Gal ATV Sprayer	GF 120	28.00	oz
Harvest	October			Contract		
Weed Control - Winter Strip Spray	October	55 HP 2WD Tractor	Weed Sprayer - 50 Gal	Princep	1.20	lbs
Disease: Olive Knot/Peacock Spot	April	55 HP 2WD Tractor	Orchard Sprayer - 500 Gal	Kocide DF	10.0	lbs
	November	55 HP 2WD Tractor	Orchard Sprayer - 500 Gal	Kocide DF	10.0	lbs
Pickup Truck Use	Annual	Pickup 1/2 ton				
ATV Use	Annual	ATV 4WD				