

2005
SAMPLE COSTS TO PRODUCE
CUCURBITS
Moqua/Opo



Asian Vegetables

SAN JOAQUIN VALLEY - South

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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

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INTRODUCTION

Sample costs to produce oriental cucurbits - moqua / ope in the San Joaquin Valley are shown in this study. The study is intended as a guide only, and can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. The practices described are based on production operations considered typical for this crop and region, but will not apply to every farm. Sample costs for labor, materials, equipment and custom services are based on current figures. “Your Costs” columns in Tables 1 and 2 are provided for entering your farm costs.

The hypothetical farm operations, 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, California, (530) 752-3589 or the local UC Cooperative Extension office.

Sample Cost of Production Studies for many commodities can be downloaded at <http://coststudies.ucdavis.edu>, requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-4424 or obtained from the local county UC Cooperative Extension offices. Some archived studies are also available on the website.

ASSUMPTIONS

The assumptions refer to Tables 1 to 7 and pertain to sample costs to produce oriental cucurbits - moqua / opo in the San Joaquin Valley. The cultural practices described represent production operations and materials considered typical for a small farm in the region. Costs, materials, and practices in this study will not apply to all farms. Timing of and types of establishment and cultural practices will vary among growers within the region and from season to season due to variables such as weather, soil, and insect and disease pressure. **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. This report is based on a 10 contiguous acre farm. The land is rented and planted to Asian vegetables. In this study two acres are planted to cucurbits – moqua and/or opo – and the remaining acres to other Asian vegetables. The grower and family do the majority of the labor for the operations, but a labor cost (opportunity cost) is shown for each operation.

Production Operating Costs

Land Preparation. A custom operator plows the land one time, discs two times and lists the beds in January. After listing, the bed peaks are flattened using the grower's tractor and a nine-foot pipe (3 rows) towed behind the tractor. Black plastic is then laid by hand (2 persons), or with a mulch machine, on alternate beds.

Plant. The cucurbit seed – Moqua, Opo - is saved from the previous year and planted in the greenhouse sometime during December to January. The plant trays hold 50 plants per tray and take about 20 minutes per tray to plant. The germinated plants are planted in the field around March 15. Opo and moqua are planted on alternate 36-inch beds with a six-foot in row spacing at 1,210 plants per acre. Holes for the plants are burned or punched in the plastic as the person plants. Rows are usually 250 to 300 feet long. Two people (16 man hours) plant one acre per day.

Irrigation. Irrigation includes the water costs and irrigation labor. Lay-flat poly pipe is laid at the end of the rows and the water is run down the furrows. Irrigation begins in March two to three days after planting. The field is irrigated every five days during March, April and May, every three days during June, July, August, and September and once a week during October. Water at \$2.50 per irrigation is assumed to be a typical cost. Water costs were provided from the growers pumping charges for the summer months. Assuming the crop uses 30 acres-inches per season, this equates to a cost of \$4.83 per acre-inch. Irrigation labor is calculated as one-half hour per acre per irrigation.

Fertilization. The crop is fertilized at planting with 20-20-20 dissolved in water at three ounces of liquid fertilizer per plant or one 25-pound bag per two to three acres. (10 pounds per acre in this study). The fertilizer is placed in the planting hole at planting. Labor costs for applying the fertilizer are included in the planting labor. One or two more fertilizations with UN32 at 5 gallons (55 lbs) per acre per application is typical – May and July. Labor costs for UN32 fertilization are included in the irrigation costs.

Trellis System. Six-foot stakes (reusable) are pounded in the ground at six-foot spacing; netting is attached to the stakes to form a trellis that the plants will grow up. It takes two persons one day (8 hours) per acre to pound the stakes and an equal amount of time to install the net. The trellis is removed at the end-of-the season. See Field Cleanup.

Pollination. Bees are required for pollination, but for the small acreage involved, the grower relies on wild/native bees for pollination.

Pest Management. The pesticides, rates, and application practices mentioned in this cost study are listed in the *UC IPM Pest Management Guidelines – Cucurbits*. **Pesticides mentioned in this study are not recommendations, but those commonly used in the region.** For information and pesticide use permits, contact the local county Agricultural Commissioner’s office. For information on other pesticides available, pest identification, monitoring, and management, visit the UC IPM website at www.ipm.ucdavis.edu. **Pest control costs can vary considerably each year depending upon local conditions and pest populations in any given year.** Adjuvants are recommended for many pesticides for effective control and are an added cost. The adjuvants in this study are not included as a cost in all applications.

Weeds. The furrows are hand sprayed using a backpack sprayer with Roundup in April or May and in August. To mix and apply the herbicide takes about 1.5 hours per acre per application for a total of three hours. The field is hand weeded in March and May at 1.5 hours per weeding to remove the weeds not controlled by the spray and /or black plastic.

Insects. Lannate, Dipel or some other insecticide is applied in May and August to control worms and/or aphids. Spider mites are treated with oil or soap sprays in July. The material is applied with a backpack sprayer and takes about two-hours per acre to apply. Nematodes can be a problem, but are usually not treated.

Diseases. None

Harvest. The crop is harvested June 15 through October 30. The moqua and opo vegetables are packed in 40-pound boxes. The field is harvested twice a week for deliveries to the packinghouse and once per week for farmer’s market deliveries. It is assumed that one person can pick 2.5 forty-pound boxes per hour. The grower in this study delivers the product to the packinghouse using a pickup and trailer.

Yields. Yields for moqua and opo are very similar. The crop yields an average of 2.4 boxes per week per row or 69 boxes per acre per week per row. The crop yield used in this study is 1,250 forty-pound boxes per acre; however yields can be as high as 2,320 forty-pound boxes.

Returns. The returns in this report are an average based on mid-month USDA Agricultural Marketing Service Wholesale Fruit and Vegetable Reports for the months of June through October. The average return less 30% for various costs above grower returns over the five months is \$8.75 per 40-pound box for moqua and opo. A price of \$6.00 per box is used in this study to show various prices over a range of yields. At the above price and yield, the grower shows a loss. It is typical for the grower and family to provide most of the labor; therefore, deducting grower labor costs assumed to equate to \$6,000 will provide the grower with a net profit.

Field Cleanup. In October after the last harvest, the plants are chopped by hand, and the stakes, netting, and mulch are removed. One person can chop the plants and remove the mulch at the rate of three 250-foot rows per eight-hour day (approximately 80 hours per acre).

Pickup/ATV. Costs for a 1/2-ton pickup are included in the study. The pickup and a trailer are used for hauling the harvested cucurbits to the packing shed and are included in that cost. In addition, the grower drives another 250 miles per acre for farming purposes.

Labor. Labor rates of \$12.42 per hour for machine operators and \$9.32 for general labor includes payroll overhead of 38%. The basic hourly wages are \$9.00 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 for truck crops (code 0172), and a percentage for other possible benefits. Workers' compensation costs will vary among growers, but for this study the cost is based upon the average industry final rate as of January 1, 2005 (California Department of Insurance). 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 field repair.

Equipment Operating Costs. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum Power Take Off (PTO) horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are \$1.51 and \$2.05 per gallon, respectively. 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. The fuel, lube, and repair cost per acre for each operation in Table 1 is determined by multiplying the total hourly operating cost in Table 6 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 7.65% 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. Production risks 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.

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, and investment 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.

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 0.69% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$429 for the entire farm.

Office Expense. Office and business expenses are estimated at \$10 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, and legal fees. The cost is a general estimate and not based on any actual data.

Land Rent. The 10 acres are rented for cash at \$300 per acre. The rented land includes the irrigation system that is maintained by the landlord. Land rents range from \$250 to \$350 per acre.

Investment Repairs. Annual maintenance except for the greenhouse (20%) is calculated as two percent of the purchase price.

Non-cash Overhead

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

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 6.01% 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.

Tools. This includes shop tools, hand tools, and miscellaneous field tools. The tools are an estimated value and not taken from any specific data.

Irrigation. The grower purchases lay flat vinyl pipe to deliver the water to the furrows.

Greenhouse. The grower builds a greenhouse with PVC pipe and plastic to start the plants and for some plant storage. The greenhouse is 20 feet x 20 feet. The plastic cover may need to be replaced in one or two years. The replacement cost is accounted for under Cash Overhead – Investment Repairs.

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. Annual ownership costs for equipment and other investments are shown in the Whole Farm Annual Equipment, Investment, and Business Overhead Costs table. 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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For information concerning University of California publications contact UC DANR Communications Services (1-800-994-8849), online at <http://anrcatalog.ucdavis.edu> or your local county Cooperative Extension office.

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Table 1. COST PER ACRE TO PRODUCE CUCURBITS - MOQUA / OPO
 SAN JOAQUIN VALLEY 2005

Operation	Operation	Cash and Labor Costs per Acre					Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/Rent			
Cultural:								
Plant: Greenhouse	8.30	77	0	25	0	102		
Land Prep: Plow, Disc, List	0.00	0	0	0	100	100		
Land Prep: Flatten Bed Tops	0.33	5	1	0	0	6		
Land Prep: Lay Black Plastic on Beds. Alternate Rows	8.00	75	0	116	0	191		
Plant: Transplants. Fertilize: (20-20-20)	16.00	149	0	6	0	155		
Irrigate: (water & labor)	27.00	252	0	135	0	387		
Trellis: Install	32.00	298	0	1,326	0	1,624		
Weed: Hand	3.00	28	0	0	0	28		
Weed: Hand Spray Furrow (Roundup)	3.00	28	0	16	0	44		
Fertilize: UN32	0.00	0	0	14	0	14		
Insect: Worm/Aphid (Lannate)	4.00	37	0	44	0	81		
Insect: Mites (M-Pede)	2.00	19	0	5	0	23		
Field Cleanup: Remove Trellis, Netting, Mulch	0.50	753	6	0	7	766		
Miscellaneous Pickup Use	5.00	75	59	0	0	134		
TOTAL CULTURAL COSTS	109.13	1,795	67	1,686	107	3,655		
Harvest:								
Harvest: Hand Pick	500.00	4,660	0	1,375	0	6,035		
Haul	18.00	268	226	0	0	494		
TOTAL HARVEST COSTS	518.00	4,928	226	1,375	0	6,529		
Interest on operating capital @ 7.65%						246		
TOTAL OPERATING COSTS/ACRE		6,724	293	3,061	107	10,430		
CASH OVERHEAD:								
Liability Insurance						42		
Office Expense						10		
Land Rent						300		
Property Taxes						12		
Property Insurance						8		
Investment Repairs						10		
TOTAL CASH OVERHEAD COSTS						382		
TOTAL CASH COSTS/ACRE						10,812		
Non-Cash Overhead (Capital Recovery)								
		Per Producing Acre		Annual Cost				
				Capital Recovery				
Plastic Greenhouse 20x20'		35		8		8		
Flat Irrigation Pipe		46		25		25		
Miscellaneous Field Tools		100		24		24		
Equipment		1,659		235		235		
TOTAL NON-CASH OVERHEAD COSTS		1,840		292		292		
TOTAL COSTS/ACRE						11,104		

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Table 2. COSTS AND RETURNS PER ACRE TO PRODUCE CUCURBITS - MOQUA / OPO
SAN JOAQUIN VALLEY - 2005

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Cucurbits: Moqua, Opo	1,250.00	40 lb box	8.00	10,000	
OPERATING COSTS					
Carton:					
Trays - Planting 50 Cell	25.00	each	1.00	25	
Boxes 40 lb	1,250.00	each	1.10	1,375	
Custom:					
Land Preparation	1.00	acre	100.00	100	
Landfill Fee	325.00	lb	0.02	7	
Crop Protect:					
Plastic Black 3 ft x 2000 ft/roll. 1mil	7,250.00	foot	0.02	116	
Stakes - 6 ft	1,200.00	each	0.99	1,188	
Netting for Trellis 320 ft/roll	7,250.00	foot	0.02	138	
Fertilizer:					
20-20-20	10.00	lb	0.57	6	
UN32 (11 lbs/gal)	110.00	lb	0.13	14	
Irrigation:					
Water	54.00	each	2.50	135	
Herbicide:					
Roundup Ultra Max	32.00	floz	0.49	16	
Insecticide:					
Lannate LV	4.50	pint	9.72	44	
M-Pede	1.60	pint	2.95	5	
Labor (machine)	28.60	hrs	12.42	355	
Labor (non-machine)	683.30	hrs	9.32	6,368	
Fuel - Gas	97.90	gal	2.05	201	
Fuel - Diesel	0.63	gal	1.51	1	
Lube				30	
Machinery repair				61	
Interest on operating capital @ 7.65%				246	
TOTAL OPERATING COSTS/ACRE				10,430	
NET RETURNS ABOVE OPERATING COSTS				-430	
CASH OVERHEAD COSTS:					
Liability Insurance				42	
Office Expense				10	
Land Rent				300	
Property Taxes				12	
Property Insurance				8	
Investment Repairs				10	
TOTAL CASH OVERHEAD COSTS/ACRE				382	
TOTAL CASH COSTS/ACRE				10,812	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Plastic Greenhouse 20x20'				8	
Flat Irrigation Pipe				25	
Miscellaneous Field Tools				24	
Equipment				235	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				292	
TOTAL COSTS/ACRE				11,104	
NET RETURNS ABOVE TOTAL COSTS				-1,104	

Note: Deducting \$6,000 for grower labor = Net Return of \$5,104 per acre

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Table 3. MONTHLY CASH COST PER ACRE TO PRODUCE CUCURBITS - MOQUA / OPO
SAN JOAQUIN VALLEY - 2005

Beginning JAN 05	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending DEC 05	05	05	05	05	05	05	05	05	05	05	05	05	
Cultural:													
Plant: Greenhouse	102												102
Land Prep: Plow, Disc, List	100												100
Land Prep: Flatten Bed Tops		6											6
Land Prep: Lay Black Plastic on Beds. Alternate Rows		191											191
Plant: Transplants. Fertilize: (20-20-20)			155										155
Irrigate: (water & labor)			14	29	29	72	72	72	72	29			387
Trellis: Install			1,624										1,624
Weed: Hand			14		14								28
Weed: Hand Spray Furrow (Roundup)				22				22					44
Fertilize: UN32					7		7						14
Insect: Worm/Aphid (Lannate)					41			41					81
Insect: Mites (M-Pede)							23						23
Field Cleanup: Remove Trellis, Netting, Mulch											766		766
Miscellaneous Pickup Use	12	12	12	12	12	12	12	12	12	12	12		134
TOTAL CULTURAL COSTS	215	209	1,819	63	102	84	114	146	84	41	778	0	3,655
Harvest:													
Harvest: Hand Pick						664	1,328	1,388	1,328	1,328			6,035
Haul						55	110	110	110	110			494
TOTAL HARVEST COSTS						719	1,438	1,497	1,438	1,438			6,529
Interest on operating capital	1	3	14	15	15	20	30	41	51	60	-5	0	245
TOTAL OPERATING COSTS/ACRE	216	212	1,834	77	118	824	1,582	1,684	1,572	1,538	773	0	10,429
OVERHEAD:													
Liability Insurance			42										42
Office Expense	1	1	1	1	1	1	1	1	1	1	1		10
Land Rent												300	300
Property Taxes	11												11
Property Insurance	8												8
Investment Repairs	1	1	1	1	1	1	1	1	1	1	1	1	10
TOTAL CASH OVERHEAD COSTS	21	2	44	2	2	2	2	2	2	2	2	301	382
TOTAL CASH COSTS/ACRE	237	213	1,877	79	120	825	1,584	1,686	1,573	1,540	775	301	10,811

UC COOPERATIVE EXTENSION
Table 4. RANGING ANALYSIS FOR CUCURBITS - MOQUA / OPO
 SAN JOAQUIN VALLEY - 2005

COSTS PER ACRE AT VARYING YIELD TO PRODUCE CUCURBITS

	YIELD (40 lb boxes/acre)						
	750	1,000	1,250	1,500	1,750	2,000	2,250
OPERATING COSTS/ACRE:							
Cultural Cost	3,655	3,655	3,655	3,655	3,655	3,655	3,655
Harvest Cost (Pick & Haul)	3,992	5,261	6,529	7,798	9,066	10,335	11,603
Interest on operating capital	200	222	244	266	288	310	332
<i>TOTAL OPERATING COSTS/ACRE</i>	7,847	9,138	10,428	11,719	13,009	14,300	15,590
<i>TOTAL OPERATING COSTS/box</i>	10.46	9.14	8.34	7.81	7.43	7.15	6.93
CASH OVERHEAD COSTS/ACRE							
<i>TOTAL CASH COSTS/ACRE</i>	8,225	9,518	10,810	12,102	13,394	14,686	15,977
<i>TOTAL CASH COSTS/box</i>	10.97	9.52	8.65	8.07	7.65	7.34	7.10
NON-CASH OVERHEAD COSTS/ACRE							
<i>TOTAL COSTS/ACRE</i>	8,478	9,791	11,102	12,413	13,723	15,033	16,341
<i>TOTAL COSTS/box</i>	11.30	9.79	8.88	8.28	7.84	7.52	7.26

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE \$/box	YIELD (40 lb boxes/acre)						
	750	1,000	1,250	1,500	1,750	2,000	2,250
6.00	-3,347	-3,138	-2,928	-2,719	-2,509	-2,300	-2,090
7.00	-2,597	-2,138	-1,678	-1,219	-759	-300	160
8.00	-1,847	-1,138	-428	281	991	1,700	2,410
9.00	-1,097	-138	822	1,781	2,741	3,700	4,660
10.00	-347	862	2,072	3,281	4,491	5,700	6,910
11.00	403	1,862	3,322	4,781	6,241	7,700	9,160
12.00	1,153	2,862	4,572	6,281	7,991	9,700	11,410

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE \$/box	YIELD (40 lb boxes/acre)						
	750	1,000	1,250	1,500	1,750	2,000	2,250
6.00	-3,725	-3,518	-3,310	-3,102	-2,894	-2,686	-2,477
7.00	-2,975	-2,518	-2,060	-1,602	-1,144	-686	-227
8.00	-2,225	-1,518	-810	-102	606	1,314	2,023
9.00	-1,475	-518	440	1,398	2,356	3,314	4,273
10.00	-725	482	1,690	2,898	4,106	5,314	6,523
11.00	25	1,482	2,940	4,398	5,856	7,314	8,773
12.00	775	2,482	4,190	5,898	7,606	9,314	11,023

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE \$/box	YIELD (40 lb boxes/acre)						
	750	1,000	1,250	1,500	1,750	2,000	2,250
6.00	-3,978	-3,791	-3,602	-3,413	-3,223	-3,033	-2,841
7.00	-3,228	-2,791	-2,352	-1,913	-1,473	-1,033	-591
8.00	-2,478	-1,791	-1,102	-413	277	967	1,659
9.00	-1,728	-791	148	1,087	2,027	2,967	3,909
10.00	-978	209	1,398	2,587	3,777	4,967	6,159
11.00	-228	1,209	2,648	4,087	5,527	6,967	8,409
12.00	522	2,209	3,898	5,587	7,277	8,967	10,659

UC COOPERATIVE EXTENSION

Table 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
SAN JOAQUIN VALLEY - 2005

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
05	35HP 2WD Tractor	15,265	20	1,959	1,279	58	86	1,423
05	Bed Shaper Pipe 9'	150	10	27	18	1	1	20
05	Pickup 1/2 Ton	28,000	5	12,549	4,423	140	203	4,766
05	Trailer 12x16	4,500	20	235	386	16	24	426
TOTAL		47,915		14,770	6,107	215	313	6,635
60% of New Cost *		28,749		8,862	3,664	129	188	3,981

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insur- ance	Taxes	Repairs	
Irrigation Flat Pipe	455	2		248	0	0	9	257
Miscellaneous Field Tools	1,000	5		237	3	0	20	261
Plastic Greenhouse 20' x 20'	350	5		83	1	2	70	156
TOTAL INVESTMENT	1,805		0	569	5	2	99	674

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land Rent	10	acre	300.00	3,000
Liability Insurance	10	acre	41.90	419
Office Expense	10	acre	10.00	100

UC COOPERATIVE EXTENSION

Table 6. HOURLY EQUIPMENT COSTS
SAN JOAQUIN VALLEY - 2005

Yr	Description	Actual Hours Used	Capital Recovery	Cash Overhead		Operating		Total Costs/Hr.	
				Insur- ance	Taxes	Repairs	Fuel & Lube		Total Oper.
05	35HP 2WD Tractor	100	7.69	0.36	0.52	0.62	2.98	3.60	12.17
05	Bed Shaper Pipe 9'	10	1.14	0.04	0.05	0.01	0.00	0.01	1.24
05	Pickup 1/2 Ton	307	8.64	.27	.40	2.08	9.82	11.90	21.21
05	Trailer 12x16	150	1.55	.07	.09	0.66	0.00	0.66	2.37

UC COOPERATIVE EXTENSION
Table 7. OPERATIONS WITH EQUIPMENT
 SAN JOAQUIN VALLEY - 2005

Operation	Operation			Non-Machine		Broadcast	
	Month	Tractor	Implement	Labor Hrs/acre	Material	Rate/acre	Unit
Cultural:							
Plant: Greenhouse	January			8.30	Planting Trays	25.00	ea
Land Prep: (plow, disc, list)	January	Custom					
Land Prep: Flatten Bed Tops	February	35 HP 2WD	Pipe				
Land Prep: Lay black plastic (alternate rows)	February			8.00	Black Plastic	7,250.00	ft
Plant: Transplants. Fertilize: 20-20-20	March			16.00	20-20-20	10.00	lb
Trellis: Install	March			32.00	Stakes	1,200.00	ea
					Netting	7,250.00	ft
Irrigate	March			1.00	Water	2.00	ea
Irrigate	April			2.00	Water	4.00	ea
Irrigate	May			2.00	Water	4.00	ea
Irrigate	June			5.00	Water	10.00	ea
Irrigate	July			5.00	Water	10.00	ea
Irrigate	August			5.00	Water	10.00	ea
Irrigate	September			5.00	Water	10.00	ea
Irrigate	October			2.00	Water	4.00	ea
Fertilize	May				UN32	55.00	lb
	July				UN32	55.00	lb
Insect: Worms/Aphid	May			2.00	Lannate	2.25	pt
	August			2.00	Lannate	2.25	pt
Insect: Mites	July			2.00	M-Pede	1.60	pt
Weed: Hand	March			1.50			
	May			1.50			
Weed: Hand Spray Furrows	April			1.50	Roundup	16.00	floz
	August			1.50	Roundup	16.00	floz
Field Cleanup: plants, netting, mulch	October	Pickup	Trailer	80.00	Landfill	325.00	lb
Harvest	June			55.00	Boxes	138.00	ea
	July			110.00	Boxes	275.00	ea
	August			110.00	Boxes	287.00	ea
	September			110.00	Boxes	275.00	ea
	October			110.00	Boxes	275.00	ea
Haul	June	Pickup	Trailer				
	July	Pickup	Trailer				
	August	Pickup	Trailer				
	September	Pickup	Trailer				
	October	Pickup	Trailer				