

2005

**SAMPLE COSTS TO PRODUCE
ORIENTAL EGGPLANT**



SAN JOAQUIN VALLEY - SOUTH

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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

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STUDY CONTENTS

INTRODUCTION.....	2
ASSUMPTIONS.	3
Production Operating Costs.....	3
Cash Overhead	5
Non-Cash Overhead	6
REFERENCES	8
Table 1. COSTS PER ACRE to PRODUCE ORIENTAL EGGPLANT	9
Table 2. COSTS AND RETURNS PER ACRE to PRODUCE ORIENTAL EGGPLANT	10
Table 3. MONTHLY CASH COSTS PER ACRE to PRODUCE ORIENTAL EGGPLANT	11
Table 4. RANGING ANALYSIS.....	12
Table 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT and OVERHEAD COSTS.	13
Table 6. HOURLY EQUIPMENT COSTS	13
Table 7. OPERATIONS WITH EQUIPMENT.....	14

INTRODUCTION

Sample costs to produce oriental eggplant 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.

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ASSUMPTIONS

The assumptions refer to Tables 1 to 7 and pertain to sample costs to produce oriental eggplant 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 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 study is intended as a guide only. **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 hypothetical 10 contiguous acre farm. The land is rented and planted to Asian vegetables. Two acres are planted to oriental eggplant 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. In January, a custom operator plows the land one time, discs two times and lists the beds. 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) on alternate beds.

Plant. The purchased oriental eggplant seedlings (transplants) are planted in the field in February. The grower plants on 36-inch beds, alternate beds, 2,420 plants per acre at a three-foot in-row spacing. Holes for the plants are burned or punched in the plastic on the bed as the planter plants. Rows are usually 250 to 300 feet long. Two people (16 man hours) plant one acre per day. Some growers grow their own seedlings or transplants by planting the seed in their greenhouse in November. Growers who grow their own seedlings, will plant seed saved from their crop and most likely purchase virus free seed in alternate years.

Irrigation. Irrigation includes the water costs and irrigation labor. Lay flat vinyl pipe is laid at the end of the rows or furrows where the water is run down the furrows. Irrigation begins in March two to three days after planting. The field is irrigated twice a week from March through September. 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. At planting 15-15-15 fertilizer at 75 pounds per acre is banded along the plants. The fertilizer is applied by hand alongside the plants by making a hole near the plant with a hoe and dropping in the fertilizer. The 15-15-15 is also sidedressed twice in March and once in April at 75 pounds per acre each time (every 15 days until flowering). The fertilizer is applied by hand at the edge of the bed or plastic and irrigated in.

Crop Protection. The grower builds tunnels over the new transplants (February transplants). Wire-hoops (reusable) are spaced down the row every six-feet. Three-foot wide plastic is laid over each side of the hoop and attached to each other with a clothespin at the top or stapled. They are opened as needed to allow the plants to grow through. It takes one person per acre per day to set out the hoops and two persons per acre per day to stretch the plastic over the hoops. The tunnels are removed in mid-May and it takes two-hours per acre with two persons. If the

plants are set out later in March or a second planting made in May, tunnels are not necessary and should be subtracted from the cultural costs to establish the planting costs.

Support System. In June, five-foot stakes are pounded in the ground at 10-foot down-the-row spacing; nylon twine is attached to the stakes (reusable) on each side of the plant to support the plants. It takes two persons a day per acre to pound the stakes. Soon after staking, the twine is attached to the stakes to form a trellis or support system to hold the plants up in the air. Some growers will make two to three additional passes during the season attaching each twine higher on the stake than the previous stringing; the costs are not accounted for in this study. It takes two people two-hours per acre to pull the twine each time. The support system is removed at the end-of-the season. See Field Cleanup below.

Pruning. The leaves are thinned two to three times during the season to improve fruit color and increase yield. In this study, contract labor thins the leaves in April and July at \$10 per row per pass. The plants are assumed to be planted on alternate 250-foot rows or 29 passes or planted rows per acre.

Pest Management. If insects or diseases appear, contract your local farm advisor or pest control adviser.

Weeds. The furrows are hand sprayed with Roundup using a backpack sprayer in April or May and in August. The plastic mulch laid on the beds prior to planting provides weed control on the beds.

Insects. The field is hand sprayed in June with Vydate and/or Asana for worms and lygus bugs. Vydate or Vendex for mites is applied by hand in July. The grower uses a backpack sprayer and proper protective gear.

Diseases. None

Field Cleanup. In November after the last harvest the support (stakes, twine) and the plastic mulch are removed. Non-reusable materials are discarded by hauling to the local landfill. It takes three persons one day per acre (24 man-hours) to remove the materials.

Pickup/Trailer. Costs for a 1/2-ton pickup are included in the study. The pickup and the trailer are used for hauling the harvested oriental eggplant to the packing shed and the costs are included in that operation. The pickup and trailer are also used to haul the discarded tunnels and the mulch from the field cleanup to the landfill. The costs are included in each of those operations. In addition, the grower drives another 250 miles per acre for farming purposes.

Harvest. The crop is harvested once a week during July and twice a week from August through October. The stems on the fruit are cut with a sharp knife rather than being pulled from the plant and placed in the packing box. Picking time ranges from 30 to 45 minutes per 250-foot row or 14.5 to 21.75 hours per acre per picking. Although yields will affect picking rates, for this study each picking is assumed to take 20 hours per acre. The grower delivers the harvested product to a farmers market, packinghouse, or is picked up by a cash buyer. The delivery time/miles are estimated and included in the hauling costs.

Yields. The crop yields an average of 2,100 thirty-pound boxes per acre. In this study the grower harvest 200 boxes in July, 700 boxes each in August and September, and 500 boxes in October.

Returns. Based on grower and USDA Market reports grower's overall returns are estimated at \$7 to \$8 per box. The prices are used to show a range of returns over various yields in the Ranging Analysis Table.

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 0.690% 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. The owner also pays the land property taxes. Land rents range from \$250 to \$350 per acre.

Investment Repairs. Annual maintenance 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 owns 1,732 feet of vinyl flat pipe to deliver the water to the furrows. The pipe was purchased for the farm and the cost is allocated among the various crops.

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.

REFERENCES

- Aguiar, Jose, Richard Molinar, and Jesus Valencia. 1998. *Eggplant Production in California*. University of California, Division of Agriculture and Natural Resources. Publication 7235.
- American Society of Agricultural Engineers. 1994. *American Society of Agricultural Engineers Standards Yearbook*. Russell H. Hahn and Evelyn E. Rosentreter (ed.) St. Joseph, Missouri. 41st edition.
- Barker, Doug. 2005. *California Workers' Compensation Rating Data for Selected Agricultural Classifications as of January 1, 2005*. 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
- California State Automobile Association. 2005. *Gas Price Survey 2004*. AAA Public Affairs, San Francisco,
- USDA-ERS. 2005. *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, 2005.

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.

UC COOPERATIVE EXTENSION
Table 1. COST PER ACRE TO PRODUCE ORIENTAL EGGPLANT
 SAN JOAQUIN VALLEY 2005

Operation	Operation Time (Hrs/A)	Field Labor	Cash and Labor Costs per Acre				Total Cost	Your Cost
			Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent		
Cultural:								
Land Prep: Plow, Disc, List	0.00	0.00	0	0	0	100	100	
Land Prep: Flatten Bed Tops	0.33	0.00	5	1	0	0	6	
Land Prep: Lay Plastic Mulch on Beds. Alternate Rows	0.00	8.00	75	0	116	0	191	
Irrigate: (water & labor)	0.00	28.50	266	0	143	0	408	
Plant: Transplants.	0.00	40.00	373	0	182	0	554	
Fertilize: Band & Sidedress (15-15-15)	0.00	7.00	65	0	59	0	125	
Crop Protection: Install Tunnels	0.00	24.00	224	0	458	0	681	
Support System: Install	0.00	18.00	168	0	768	0	936	
Weed: Hand Spray Furrow (Roundup)	0.00	3.00	28	0	16	0	44	
Prune: Thin Leaves	0.00	0.00	0	0	0	580	580	
Crop Protection: Remove Tunnels	0.50	4.00	45	6	0	5	56	
Insect: Worms, Lygus (Asana)	0.00	1.50	14	0	8	0	22	
Insect: Mites (Vydate)	0.00	1.50	14	0	34	0	48	
Field Cleanup: Remove/Discard (twine, mulch)	0.50	24.00	231	6	0	2	240	
Miscellaneous Pickup Use	5.00	0.00	75	59	0	0	134	
TOTAL CULTURAL COSTS	6.33	159.50	1,581	73	1,783	687	4,124	
Harvest:								
Harvest: Hand Pick	0.00	560.00	5,219	0	2,100	0	7,319	
Haul	28.00	0.00	417	352	0	0	769	
TOTAL HARVEST COSTS	28.00	560.00	5,636	352	2,100	0	8,088	
Interest on operating capital							302	
TOTAL OPERATING COSTS/ACRE			7,217	425	3,883	687	12,514	
CASH OVERHEAD:								
Liability Insurance							43	
Office Expense							10	
Land Rent							300	
Property Taxes							13	
Property Insurance							9	
Investment Repairs							3	
TOTAL CASH OVERHEAD COSTS							378	
TOTAL CASH COSTS/ACRE							12,892	
NON-CASH OVERHEAD (Capital Recovery)								
			Per Producing		Annual Cost			
			Acre		Capital Recovery			
Lay Flat Irrigation Pipe			46		25		25	
Miscellaneous Field Tools			100		24		24	
Equipment			1,955		271		271	
TOTAL NON-CASH OVERHEAD COSTS			2,101		319		319	
TOTAL COSTS/ACRE							13,212	

UC COOPERATIVE EXTENSION
Table 2. COST PER ACRE TO PRODUCE ORIENTAL EGGPLANT
 SAN JOAQUIN VALLEY - 2005

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Oriental Eggplant	2,100.00	box	8.00	16,800	
OPERATING COSTS					
Carton:					
Boxes 30 lb	2,100.00	each	1.00	2,100	
Seed:					
Transplants	2,420.00	each	0.08	182	
Custom/Contract:					
Land Preparation	1.00	acre	100.00	100	
Land Fill (Discard Twine/Mulch materials)	345.00	lb	0.02	7	
Prune (leaf thin)	2.00	acre	290.00	580	
Crop Protect:					
Plastic Black 3 ft x 2000 ft/roll. 1mil	7,250.00	foot	0.02	116	
Plastic Clear 3 ft x 2000 ft/roll	14,500.00	foot	0.02	218	
Hoops (reusable)	1,200.00	each	0.20	240	
Stakes - 5 ft (reusable)	754.00	each	0.99	746	
Twine 350 size roll (10 lb, 3,500 ft) \$0.003/ft	7,250.00	foot	0.00	22	
Fertilizer:					
15-15-15	300.00	lb	0.20	59	
Irrigation:					
Water	57.00	irrig	2.50	143	
Insecticide:					
Asana XL	8.00	floz	1.06	8	
Vydate L	3.00	pint	11.36	34	
Herbicide:					
Roundup Ultra Max	32.00	floz	0.49	16	
Labor (machine)	41.20	hrs	12.42	512	
Labor Field (non-machine)	719.50	hrs	9.32	6,706	
Fuel - Gas	141.61	gal	2.05	290	
Fuel - Diesel	0.63	gal	1.51	1	
Lube				44	
Machinery repair				90	
Interest on operating capital @ 7.65%				302	
TOTAL OPERATING COSTS/ACRE				12,514	
NET RETURNS ABOVE OPERATING COSTS				4,286	
CASH OVERHEAD COSTS:					
Liability Insurance				43	
Office Expense				10	
Land Rent				300	
Property Taxes				13	
Property Insurance				9	
Investment Repairs				3	
TOTAL CASH OVERHEAD COSTS/ACRE				378	
TOTAL CASH COSTS/ACRE				12,893	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Lay Flat Irrigation Pipe				25	
Miscellaneous Field Tools				24	
Equipment				271	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				319	
TOTAL COSTS/ACRE				13,212	
NET RETURNS ABOVE TOTAL COSTS				3,588	

UC COOPERATIVE EXTENSION
Table 3. COST PER ACRE TO PRODUCE ORIENTAL EGGPLANT
 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:													
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
Irrigate: (water & labor)		7	57	57	57	57	57	57	57				408
Plant: Transplants.		554											554
Fertilize: Band & Sidedress (15-15-15)		38	58	29									125
Crop Protection: Install Tunnels		681											681
Support System: Install			936										936
Weed: Hand Spray Furrow (Roundup)				22				22					44
Prune: Thin Leaves				290			290						580
Crop Protection: Remove/Discard Tunnels					56								56
Insect: Worms, Lygus (Asana)						22							22
Insect: Mites (Vydate)							48						48
Field Cleanup: Remove/Discard (twine, mulch)											240		240
Miscellaneous Pickup Use	11	11	11	11	11	11	11	11	11	11	11	11	134
TOTAL CULTURAL COSTS	111	1,489	1,062	409	124	91	407	90	68	11	251	11	4,124
Harvest:													
Harvest: Hand Pick							946	2,191	2,191	1,991			7,319
Haul							110	220	220	220			769
TOTAL HARVEST COSTS	0	0	0	0	0	0	1,055	2,411	2,411	2,211	0	0	8,088
Interest on operating capital @ 7.65%	1	10	17	20	20	21	30	46	62	76	-2	0	302
TOTAL OPERATING COSTS/ACRE	112	1,499	1,079	429	144	112	1,492	2,547	2,541	2,298	249	11	12,514
OVERHEAD:													
Liability Insurance			43										43
Office Expense	1	1	1	1	1	1	1	1	1	1	1		10
Land Rent												300	300
Property Taxes	13												13
Property Insurance	9												9
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0	3
TOTAL CASH OVERHEAD COSTS	24	1	44	1	1	1	1	1	1	1	1	300	378
TOTAL CASH COSTS/ACRE	136	1,500	1,123	430	146	113	1,493	2,548	2,543	2,299	250	311	12,893

UC COOPERATIVE EXTENSION

Table 4. RANGING ANALYSIS

SAN JOAQUIN VALLEY - 2005

COSTS PER ACRE AT VARYING YIELD TO PRODUCE ORIENTAL EGGPLANT

	YIELD (30 lb boxes/acre)						
	1,500	1,700	1,900	2,100	2,300	2,500	2,700
OPERATING COSTS/ACRE:							
Cultural Cost	4,124	4,124	4,124	4,124	4,124	4,124	4,124
Harvest Cost (Pick & Haul)	5,831	6,583	7,336	8,088	8,841	9,593	10,346
Interest on operating capital	267	279	290	302	313	325	336
<i>TOTAL OPERATING COSTS/ACRE</i>	10,222	10,986	11,750	12,514	13,278	14,042	14,806
<i>TOTAL OPERATING COSTS/box</i>	6.81	6.46	6.18	5.96	5.77	5.62	5.48
CASH OVERHEAD COSTS/ACRE							
<i>TOTAL CASH COSTS/ACRE</i>	10,597	11,362	12,127	12,892	13,657	14,422	15,187
<i>TOTAL CASH COSTS/box</i>	7.06	6.68	6.38	6.14	5.94	5.77	5.62
NON-CASH OVERHEAD COSTS/ACRE							
<i>TOTAL COSTS/ACRE</i>	10,876	11,655	12,433	13,211	13,989	14,767	15,544
<i>TOTAL COSTS/box</i>	7.25	6.86	6.54	6.29	6.08	5.91	5.76

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE \$/box	YIELD 30lb boxes/acre)						
	1,500	1,700	1,900	2,100	2,300	2,500	2,700
6.00	-1,222	-786	-350	86	522	958	1,394
7.00	278	914	1,550	2,186	2,822	3,458	4,094
8.00	1,778	2,614	3,450	4,286	5,122	5,958	6,794
9.00	3,278	4,314	5,350	6,386	7,422	8,458	9,494
10.00	4,778	6,014	7,250	8,486	9,722	10,958	12,194
11.00	6,278	7,714	9,150	10,586	12,022	13,458	14,894
12.00	7,778	9,414	11,050	12,686	14,322	15,958	17,594

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE \$/box	YIELD (30 lb boxes/acre)						
	1,500	1,700	1,900	2,100	2,300	2,500	2,700
6.00	-1,597	-1,162	-727	-292	143	578	1,013
7.00	-97	538	1,173	1,808	2,443	3,078	3,713
8.00	1,403	2,238	3,073	3,908	4,743	5,578	6,413
9.00	2,903	3,938	4,973	6,008	7,043	8,078	9,113
10.00	4,403	5,638	6,873	8,108	9,343	10,578	11,813
11.00	5,903	7,338	8,773	10,208	11,643	13,078	14,513
12.00	7,403	9,038	10,673	12,308	13,943	15,578	17,213

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE \$/box	YIELD (30 lb boxes/acre)						
	1,500	1,700	1,900	2,100	2,300	2,500	2,700
6.00	-1,876	-1,455	-1,033	-611	-189	233	656
7.00	-376	245	867	1,489	2,111	2,733	3,356
8.00	1,124	1,945	2,767	3,589	4,411	5,233	6,056
9.00	2,624	3,645	4,667	5,689	6,711	7,733	8,756
10.00	4,124	5,345	6,567	7,789	9,011	10,233	11,456
11.00	5,624	7,045	8,467	9,889	11,311	12,733	14,156
12.00	7,124	8,745	10,367	11,989	13,611	15,233	16,856

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	59	86	1,424
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	216	313	6,636
60% of New Cost *		28,749		8,862	3,664	130	188	3,982

*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
TOTAL INVESTMENT	1,455		0	486	3	0	29	518

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land Rent	10	acre	300.00	3,000
Liability Insurance	10	acre	42.90	429
Office Expense	10	acre	10.00	100

UC COOPERATIVE EXTENSION

Table 6. HOURLY EQUIPMENT COSTS
SAN JOAQUIN VALLEY - 2005

Yr	Description	Actual Hours Used	Cash Overhead				Operating		Total Costs/Hr.
			Capital Recovery	Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
05	35HP 2WD Tractor	600	1.28	0.06	0.09	0.62	2.98	3.60	5.03
05	Bed Shaper Pipe 9'	100	0.11	0.00	0.01	0.01	0.00	0.01	0.13
05	Pickup 1/2 Ton	400	6.63	0.21	0.30	2.08	9.82	11.90	19.04
05	Trailer 12x16	150	1.55	0.07	0.09	0.65	0.00	0.66	2.37

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

Operation	Operation Month	Equipment		Non-Mach			Broadcast Unit	Material Cost \$/acre
		Tractor	Implement	Labor hrs/acre	Material	Rate/acre		
Cultural:								
Land Prep: (plow, disc, list)	January	Custom						100.00
Land Prep: Flatten Bed Tops	February	35HP 2WD	Bed Shaper Pipe					
Land Prep: Lay Mulch (alternate rows)	February			8.00	Black Plastic	7,250.00	ft	116.00
Irrigate 1X	February			0.50	Water	1.00	irrig	2.50
Irrigate 8X	March			4.00	Water	8.00	irrig	20.00
Irrigate 8X	April			4.00	Water	8.00	irrig	20.00
Irrigate 8X	May			4.00	Water	8.00	irrig	20.00
Irrigate 8X	June			4.00	Water	8.00	irrig	20.00
Irrigate 8X	July			4.00	Water	8.00	irrig	20.00
Irrigate 8X	August			4.00	Water	8.00	irrig	20.00
Irrigate 8X	September			4.00	Water	8.00	irrig	20.00
Plant: Transplant	February			40.00	Transplants	2,420.00	ea	181.50
Fertilize: Hand	February			2.50	15-15-15	75.00	lb	14.85
	March			1.50	15-15-15	75.00	lb	14.85
	March			1.50	15-15-15	75.00	lb	14.85
	April			1.50	15-15-15	75.00	lb	14.85
Crop Protection: Tunnels	February			24.00	Hoops	1,200.00	ea	240.00
					Plastic Clear	14,500.00	ft	217.50
Support system: Install	March			18.00	Stakes	754.00	ea	746.46
					Twine	7,250.00	ft	21.75
Weed: Hand Spray Furrow	April			1.50	Roundup	16.00	floz	7.81
	August			1.50	Roundup	16.00	floz	7.81
Prune: Thin Leaves	April	Custom						290.00
	July	Custom						290.00
Crop Protection: Remove/Discard								
Tunnels	May	Pickup	Trailer	4.00	Landfill	230.00	lb	4.60
Insect: Worms, Lygus	June			1.50	Asana	8.00	floz	8.48
Insect: Mites	July			1.50	Vydate	3.00	pt	34.08
Field Cleanup: Trellis/Mulch	November	Pickup	Trailer	24.00	Landfill	115.00	lb	2.30
Harvest*	July			80.00	Boxes	200.00	each	200.00
	August			160.00	Boxes	700.00	each	700.00
	September			160.00	Boxes	700.00	each	700.00
	October			160.00	Boxes	500.00	each	500.00
Haul	July	Pickup	Trailer					
	August	Pickup	Trailer					
	September	Pickup	Trailer					
	October	Pickup	Trailer					

* Total labor hours are hours per acre per picking x number of pickings, regardless of yield. See text.