UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2005

SAMPLE COSTS TO PRODUCE

EGGPLANT

AMERICAN EGGPLANT

SAN JOAQUIN VALLEY - South

Drip Irrigation

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INTRODUCTION

Sample costs to produce American 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.

ASSUMPTIONS

The assumptions refer to Tables 1 to 7 and pertain to sample costs to produce American eggplant in the southern San Joaquin Valley. The cultural practices described represent production operations and materials considered typical for a 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 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 300 contiguous acre farm owned and managed by the grower. The farm is planted to assorted vegetable crops and field crops. In this study 20 acres are planted to American eggplant. Roads and buildings occupy approximately five acres.

Production Operating Costs

Land Preparation. The grower rips the land one time, discs two times, rolls the ground and lists the beds in February. In a single operation after listing, the beds are shaped, and the black plastic mulch and drip tape laid. Besides the tractor driver, two people follow the shaper to handle the plastic and drip tape. Beds are fumigated for weed and soil borne pests through the dripline with metam sodium.

Plant. The purchased eggplant seedlings are transplanted in the field in March. The variety planted is Black Bell. The grower transplants on six 60-inch beds, leaving every seventh and eighth bed unplanted, 3,267 plants per acre at a two-foot in-row spacing. Holes for the plants are punched in the plastic by a mechanical punch machine. Rows with drip tape are 300-400 feet long from the header lay-flay main lines. Ten people (50 man hours) plant one acre in five-hours. To extend the harvest, the grower mows the plants back to about 18-inches in July and allows them to grow out again.

Irrigation. Irrigation includes the water costs per irrigation and irrigation labor. The drip line is buried approximately 2-inches deep in the center of the bed at bed shaping. Irrigation begins in late March after planting and the field is irrigated once a week during the season up to the week prior to the last harvest in October. The crop uses approximately 36 acre-inches per season. Three acre-inches are applied preplant with the metam sodium fumigation for a total of 39 acre-inches. Irrigation labor is calculated as 0.05 hours per acre per irrigation.

Fertilization. An NPK fertilizer, 15-15-15, is broadcast at 500 pounds per acre prior to listing. Beginning in April through the drip line, nitrogen (N) as UN32 is applied weekly at five pounds per acre in April during the vegetative stage, at 15 pounds per acre in May during flowering, and at 10 pounds per acre from June through September during fruit enlargement.

Pest Management. If insects or diseases appear, contract your local farm advisor or pest control adviser. For information on pesticide use permits, contact the local county agricultural commissioner's office. Adjuvants are recommended for many pesticides for effective control, but are not included in this study. Pesticide costs vary by location and grower volume. Pesticides costs in this study are taken from a single dealer and shown as full retail.

Weeds. Mulch is laid on the bed prior to planting, in addition to conserving moisture and warming the soil, it controls weeds. Metam sodium (Vapam) for weed/disease control is applied with water through the drip line prior to planting

Insects. The field is sprayed 4 to 5 times for worms from June through August with Success, and/or Pounce. Lygus and aphids are treated with Pounce, Thiodan, or Vydate. Whiteflies are controlled with Admire. Mites are treated with Trilogy, Vendex or Vydate. In this study, Pounce is applied in June for worm, aphid, and lygus control. Success for worms and Vendex for mites is applied in early July. A second spray is applied in July with Pounce for worms, aphid, and lygus, and Vydate for mites. Two worm control applications are made in August, one with Success and one with Pounce. The grower makes the spray applications. Admire is applied through the drip line in August for whitefly control. Insect pressure will vary between years and not all insecticide operations will be needed every year, but also in some years, additional applications may be necessary.

Diseases. Verticillium wilt can be a problem if the ground is not fumigated or solarized. Metam sodium (Vapam) is applied through the drip line prior to planting.

Cleanup. After harvest the plants are mowed, the plastic mulch, and drip tape removed and discarded by hauling to the landfill. Landfill fees are based on the weight of the discarded material.

Pickup. Costs for a 1/2-ton pickup are included in the study. The pickup is used by the grower to inspect the fields and general ranch business. The calculations in the study do not represent results from any collected data.

Harvest. The crop is harvested an average of twice a week from June to mid-October, except for a three week non-harvest period after the plants are cut back in mid-July. The crop is hand harvested and the fruit is packed in the field. A self propelled packer (12 rows wide) travels down the unplanted beds. The harvest crew consists of the driver for the packer unit, 12 cutters that cut the stems on the plants and pick the eggplant, and 4 packers on the packing unit. In addition a forklift and truck, each with operators, load and transport the boxes to the growers storage.

Yields. The eggplants are picked and sold by size, 18 or 24 eggplants per box averaging approximately 20 pounds per box. The crop yields an average of 1.5 twenty-pound boxes per plant or 2,450 boxes per acre.

Returns. Based on county crop reports and 70% of the June to October 2004 USDA wholesale prices, the overall grower returns are estimated at $6 to $7 per box.

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 takeoff (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 $836 for the entire farm.

Office Expense. Office and business expenses are estimated at $30 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.

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 ((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 6.01% used to calculate capital recovery cost is the USDA-ERSs 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 metal building(s) are on a cement slab and total approximately 2,400 square feet. The buildings are used for shops and/or storage.

Land. Cropland in the region ranges from $1,500 per acre to $5,500 per acre. Land values are affected by location in the county and water availability. Land in this study is valued at $3,500 per acre and is assumed to receive surface or district water.

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/Laterals. The grower purchases drip tape for the beds annually and owns the lateral lines (vinyl flat pipe) that connect to the drip tape. The rows are assumed to be 400 feet long and require 2,178 feet of lateral lines for the 20 acres.

Irrigation System. Water is purchased from the local water district. The irrigation system consists of a booster pump, filters, and chemigation equipment. The cost is estimated and not based on any specific system.

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 EGGPLANT

SAN JOAQUIN VALLEY 2005

Operation	Operation Machine (Hrs/A)	Field Labor	Cash and Labor Costs per Acre					
			Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:								
Land Prep: Rip	0.32		5	8	0	0	13	
Land Prep: Disc 2X	0.28		4	7	0	0	11	
Land Prep: Roll (Cultipacker)	0.08		1	1	0	0	2	
Land Prep/Fertilize: 15-15-15	0.13		2	1	99	0	102	
Land Prep: List Beds	0.20		3	2	0	0	5	
Land Prep: Shape Beds, Lay Mulch + Drip Tape	6.00	12.00	201	57	223	0	481	
Irrigation: Install Laterals/Connect Drip	0.20	3.50	36	1	0	0	36	
Fumigate: through Drip System (Vapam)	0.00	0.30	3	0	172	0	175	
Plant: Make Planting Holes	0.32		5	1	0	0	6	
Plant: Transplants.	0.00	50.00	466	0	87	0	553	
Irrigate: (water & labor)	0.00	1.30	12	0	174	0	186	
Fertilize: N through drip (UN32)	0.00		0	0	97	0	97	
Insect: Worms, Lygus, Aphid (Pounce)	0.18		3	2	9	0	14	
Insect: Worms, Mites (Success, Vendex)	0.18		3	2	126	0	130	
Plant: Mow Plants	0.17		3	2	0	0	5	
Insect: Worms Aphid, Lygus, Mites (Pounce, Vydate)	0.18		3	2	43	0	48	
Insect: Worms (Success)	0.18		3	2	40	0	44	
Insect: Worms (Pounce)	0.18		3	2	9	0	14	
Insect: Whiteflies (Admire)	0.00		0	0	132	0	132	
Field Cleanup: Mow, Discard Mulch/Tape	0.27	4.00	41	3	0	3	47	
Miscellaneous Pickup Use	2.50		37	30	0	0	67	
TOTAL CULTURAL COSTS	11.37	71.10	832	121	1,212	3	2,168	
Harvest:								
Harvest: Field Pick and Pack	36.40	583.00	5,976	600	2,450	0	9,027	
Load and Haul	72.80		1,085	559	0	0	1,644	
TOTAL HARVEST COSTS	109.20	583.00	7,061	1,160	2,450	0	10,671	
Interest on operating capital @ 7.65%							289	
TOTAL OPERATING COSTS/ACRE			7,893	1,281	3,662	3	13,128	
Cash Overhead:								
Liability Insurance							3	
Office Expense							30	
Sanitation-Field							47	
Property Taxes							68	
Property Insurance							23	
Investment Repairs							20	
TOTAL CASH OVERHEAD COSTS							190	
TOTAL CASH COSTS/ACRE							13,319	
Non-Cash Overhead (Capital Recovery)			Per Producing Acre		Annual Cost Capital Recovery			
Irrigation Laterals			27		10		10	
Miscellaneous Field/Shop Tools			20		5		5	
Irrigation System (filters, pump)			686		60		60	
Land			3,559		214		214	
Buildings			271		19		19	
Equipment			4,396		484		484	
TOTAL NON-CASH OVERHEAD COSTS			8,942		786		786	
TOTAL COSTS/ACRE							14,111	

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Table 2. COST PER ACRE TO PRODUCE EGGPLANT

SAN JOAQUIN VALLEY - 2005

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
American Eggplant	2,450.00	box	7.00	17,150	
OPERATING COSTS					
Irrigation:					
Drip Tape 5 mil	7,920.00	foot	0.01	95	
Water (includes 3 acin applied preplant with Vapam)	39.00	acin	4.83	188	
Crop Materials:					
Plastic Black 5'x 4000'/roll	8,000.00	foot	0.02	128	
Land Fill Fees – Discard Plastic	125.00	lb	0.02	3	
Fumigant:					
Vapam	45.00	gal	3.50	158	
Seed:					
Transplants - eggplant	3.27	thou	26.55	87	
Fertilizer:					
15-15-15	500.00	lb	0.20	99	
UN32	240.00	lb N	0.41	97	
Insecticide:					
Pounce 3.2 EC	18.00	floz	1.56	28	
Success	12.00	floz	6.60	79	
Vendex 50WP	2.50	lb	34.59	86	
Vydate L	3.00	pint	11.36	34	
Admire 2F	20.00	floz	6.62	132	
Carton:					
Boxes 20 lb	2,450.00	each	1.00	2,450	
Labor (machine)	144.68	hrs	12.42	1,797	
Labor (non-machine)	654.10	hrs	9.32	6,096	
Fuel - Gas	10.41	gal	2.05	21	
Fuel - Diesel	494.38	gal	1.51	747	
Lube				115	
Machinery repair				398	
Interest on operating capital @ 7.65%				289	
TOTAL OPERATING COSTS/ACRE				13,128	
NET RETURNS ABOVE OPERATING COSTS				4,022	
CASH OVERHEAD COSTS:					
Liability Insurance				3	
Office Expense				30	
Sanitation-Field				47	
Property Taxes				68	
Property Insurance				23	
Investment Repairs				20	
TOTAL CASH OVERHEAD COSTS/ACRE				190	
TOTAL CASH COSTS/ACRE				13,319	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Irrigation Laterals				10	
Miscellaneous Field/Shop Tools				5	
Irrigation System (filters, pump)				60	
Land				214	
Buildings				19	
Equipment				484	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				792	
TOTAL COSTS/ACRE				14,111	
NET RETURNS ABOVE TOTAL COSTS				3,039	

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Table 3. COST PER ACRE TO PRODUCE EGGPLANT

SAN JOAQUIN VALLEY - 2005

Beginning JAN 05 Ending DEC 05	JAN 05	FEB 05	MAR 05	APR 05	MAY 05	JUN 05	JUL 05	AUG 05	SEP 05	OCT 05	NOV 05	DEC 05	TOTAL 05
Cultural:													
Land Prep: Rip		13											13
Land Prep: Disc 2X		11											11
Land Prep: Roll (Cultipacker)		2											2
Land Prep/Fertilize: 15-15-15		102											102
Land Prep: List Beds		5											5
Land Prep: Shape Beds, Lay Mulch + Drip Tape		481											481
Irrigation: Install Laterals/Connect Drip		36											36
Fumigate: through Drip System (Vapam)		175											175
Plant: Make Planting Holes			6										6
Plant: Transplants.			553										553
Irrigate: (water & labor)			5	21	21	33	33	33	33	5			186
Fertilize: N through drip (UN32)				8	24	16	16	16	16				97
Insect: Worms, Lygus, Aphid (Pounce)						14							14
Insect: Worms, Mites (Success, Vendex)							130						130
Plant: Mow Plants							5						5
Insect: Worms Aphid, Lygus, Mites (Pounce, Vydate)							48						48
Insect: Worms (Success)								44					44
Insect: Worms (Pounce)								14					14
Insect: Whiteflies (Admire)								132					132
Field Cleanup: Mow, Discard Mulch/Tape										47			47
Miscellaneous Pickup Use	7	7	7	7	7	7	7	7	7	7			67
TOTAL CULTURAL COSTS	7	832	571	36	52	70	239	246	56	59	0	0	2,168
Harvest:													
Field Pick and Pack						1,392	1,392	2,078	2,774	1,392			9,027
Load and Haul						253	253	379	506	253			1,644
TOTAL HARVEST COSTS	0	0	0	0	0	1,645	1,645	2,457	3,280	1,645	0	0	10,671
Interest on operating capital @ 7.65%	0	5	9	9	10	20	32	50	71	82	0	0	289
TOTAL OPERATING COSTS/ACRE	7	837	580	45	62	1,735	1,916	2,753	3,407	1,785	0	0	13,128
Cash Overhead:													
Liability Insurance			3										3
Office Expense	3	3	3	3	3	3	3	3	3	3			30
Sanitation-Field							47						47
Property Taxes				34								34	68
Property Insurance				11								11	23
Investment Repairs	2	2	2	2	2	2	2	2	2	2	2	2	20
TOTAL CASH OVERHEAD COSTS	5	5	7	50	5	5	52	5	5	5	2	47	190
TOTAL CASH COSTS/ACRE	11	842	588	95	66	1,740	1,968	2,758	3,412	1,790	2	47	13,319

UC COOPERATIVE EXTENSION

Table 4. RANGING ANALYSIS

SAN JOAQUIN VALLEY - 2005

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE EGGPLANT

	YIELD (20 lb boxes/acre)						
	1,200	1,450	1,700	1,950	2,200	2,450	2,700
OPERATING COSTS/ACRE:							
Cultural Cost	2,168	2,168	2,168	2,168	2,168	2,168	2,168
Harvest Cost (Pick & Haul)	5,095	6,210	7,325	8,440	9,556	10,671	11,786
Interest on operating capital	183	204	225	246	267	289	310
TOTAL OPERATING COSTS/ACRE	7,446	8,582	9,718	10,854	11,991	13,128	14,264
TOTAL OPERATING COSTS/box	6.21	5.92	5.72	5.57	5.45	5.36	5.28
CASH OVERHEAD COSTS/ACRE	177	181	184	186	188	190	192
TOTAL CASH COSTS/ACRE	7,623	8,763	9,902	11,040	12,179	13,318	14,456
TOTAL CASH COSTS/box	6.35	6.04	5.82	5.66	5.54	5.44	5.35
NON-CASH OVERHEAD COSTS/ACRE	646	685	716	743	766	786	803
TOTAL COSTS/ACRE	8,269	9,448	10,618	11,783	12,945	14,104	15,259
TOTAL COSTS/box	6.89	6.52	6.25	6.04	5.88	5.76	5.65

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE	YIELD (20 lb boxes/acre)						
$/box	1,200	1,450	1,700	1,950	2,200	2,450	2,700
5.00	-1,446	-1,332	-1,218	-1,104	-991	-878	-764
7.00	954	1,568	2,182	2,796	3,409	4,022	4,636
9.00	3,354	4,468	5,582	6,696	7,809	8,922	10,036
11.00	5,754	7,368	8,982	10,596	12,209	13,822	15,436
13.00	8,154	10,268	12,382	14,496	16,609	18,722	20,836
15.00	10,554	13,168	15,782	18,396	21,009	23,622	26,236
17.00	12,954	16,068	19,182	22,296	25,409	28,522	31,636

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE	YIELD (20 lb boxes/acre)						
$/box	1,200	1,450	1,700	1,950	2,200	2,450	2,700
5.00	-1,623	-1,513	-1,402	-1,290	-1,179	-1,068	-956
7.00	777	1,387	1,998	2,610	3,221	3,832	4,444
9.00	3,177	4,287	5,398	6,510	7,621	8,732	9,844
11.00	5,577	7,187	8,798	10,410	12,021	13,632	15,244
13.00	7,977	10,087	12,198	14,310	16,421	18,532	20,644
15.00	10,377	12,987	15,598	18,210	20,821	23,432	26,044
17.00	12,777	15,887	18,998	22,110	25,221	28,332	31,444

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE	YIELD (20 lb boxes/acre)						
$/box	1,200	1,450	1,700	1,950	2,200	2,450	2,700
5.00	-2,276	-2,204	-2,125	-2,039	-1,951	-1,860	-1,766
7.00	124	696	1,275	1,861	2,449	3,040	3,634
9.00	2,524	3,596	4,675	5,761	6,849	7,940	9,034
11.00	4,924	6,496	8,075	9,661	11,249	12,840	14,434
13.00	7,324	9,396	11,475	13,561	15,649	17,740	19,834
15.00	9,724	12,296	14,875	17,461	20,049	22,640	25,234
17.00	12,124	15,196	18,275	21,361	24,449	27,540	30,634

UC COOPERATIVE EXTENSION

Table 5. WHOLE FARM ANNUAL EQUPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS

SAN JOAQUIN VALLEY - 2005

ANNUAL EQUIPMENT COSTS

					Cash Overhead		
Yr Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
05 180HP 4WD Tractor	110,000	20	14,114	9,215	428	621	10,264
05 35HP 2WD Tractor	15,265	20	1,959	1,279	59	86	1,424
05 75HP 2WD Tractor	28,891	20	3,707	2,420	112	163	2,696
05 Bed Shaper 3 Row 15'	10,000	10	1,768	1,225	41	59	1,325
05 Blade Rear 3 point 6'	1,012	20	53	87	4	5	96
05 Boom Sprayer 300 gal	4,500	10	796	551	18	26	596
05 Cultipacker Roller 20'	4,000	20	208	343	15	21	379
05 Disk Offset 15'	21,000	20	1,095	1,803	76	110	1,989
05 Fertilizer Applicator	12,000	20	625	1,030	44	63	1,137
05 Forklift Field	21,000	10	2,695	1,759	82	118	1,959
05 Furrowing Shank 5'	150	20	8	13	1	1	14
05 Lister - 3 Row	3,336	12	462	371	13	19	403
05 Mower-Rotary 10'	9,500	15	912	940	36	52	1,028
05 Packing Unit Field 12 Row	150,000	10	44,308	17,030	670	972	18,672
05 Pickup 1/2 Ton	28,000	5	12,549	4,423	140	203	4,766
05 Punch Machine 5'	5,000	20	261	429	18	26	474
05 Ripper 15'	11,000	20	573	944	40	58	1,042
05 Truck with 20' bed	51,000	5	15,065	5,790	228	330	6,348
TOTAL	485,654		101,158	49,652	2,024	2,934	54,611
60% of New Cost *	291,392		60,695	29,791	1,215	1,760	32,767

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

					Cash Overhead			
Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Repairs	Total
Buildings 2,400 sqft	80,000	32		5,687	276	400	1,600	7,963
Irrigation System (filters, booster pump)	13,720	20		1,197	47	69	274	1,587
Land	1,050,000	25	1,050,000	63,105	0	10,500	0	73,605
Irrigation Laterals 8in, 2,178 ft	533	3		199	2	3	11	215
Miscellaneous Field/ShopTools	6,000	5		1,425	21	30	120	1,595
TOTAL INVESTMENT	1,150,253		1,050,000	71,613	346	11,001	2,005	84,965

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	300	acre	2.79	837
Office Expense	295	acre	30.00	8,850
Sanitation (4 months)	20	acre	47.00	940

UC COOPERATIVE EXTENSION

Table 6. HOURLY EQUIPMENT COSTS

SAN JOAQUIN VALLEY 2005

		Actual		Cash Overhead			Operating		
		Hours	Capital	Insur-			Fuel &	Total	Total
Yr	Description	Used	Recovery	ance	Taxes	Repairs	Lube	Oper.	Costs/Hr.
05	180HP 4WD Tractor	800	6.91	0.32	0.47	2.57	18.14	20.71	28.41
05	35HP 2WD Tractor	603	1.27	0.06	0.09	0.62	2.98	3.60	5.02
05	75HP 2WD Tractor	600	2.42	0.11	0.16	1.18	6.40	7.58	10.27
05	Bed Shaper 3 Row 15'	200	3.68	0.12	0.18	1.13	0.00	1.13	5.11
05	Blade Rear 3 point 6'	100	0.52	0.02	0.03	0.15	0.00	0.15	0.72
05	Boom Sprayer 300 gal	150	2.21	0.07	0.11	1.2	0.00	1.20	3.59
05	Cultipacker Roller 20'	100	2.07	0.09	0.13	0.44	0.00	0.44	2.73
05	Disk Offset 15'	100	10.87	0.46	0.67	3.13	0.00	3.13	15.13
05	Fertilizer Applicator	60	10.37	0.44	0.64	4.42	0.00	4.42	15.87
05	Forklift Field	1,200	0.88	0.04	0.06	0.86	5.71	6.57	7.55
05	Furrowing Shank 5'	100	0.08	0.00	0.00	0.03	0.00	0.03	0.11
05	Lister - 3 Row	166	1.34	0.05	0.07	0.68	0.00	0.68	2.14
05	Mower-Rotary 10'	133	4.24	0.16	0.24	4.28	0.00	4.28	8.92
05	Packing Unit Field 12 Row	1,600	6.39	0.25	0.36	3.91	11.09	15.00	22.00
05	Pickup 1/2 Ton	285	9.31	0.29	0.43	2.08	9.82	11.90	21.93
05	Punch Machine 5'	101	2.56	0.11	0.16	0.55	0.00	0.55	3.38
05	Ripper 15'	101	5.64	0.24	0.35	2.36	0.00	2.36	8.59
05	Truck with 20' bed	1,000	3.47	0.14	0.20	4.88	3.26	8.14	11.95

UC COOPERATIVE EXTENSION

Table 7. OPERATIONS WITH EQUIPMENT

SAN JOAQUIN VALLEY - 2005

Operation	Operation Month	Tractor	Implement	Non-Machine Labor Hours	Material	Broadcast Rate/acre	Unit
Cultural:							
Land Prep: Rip	Feb	180HP 4WD	Ripper				
Land Prep: Disc 2X	Feb	180HP 4WD	Disc				
Land Prep: Roll	Feb	75HP 2WD	Cultipacker/Roller				
Land Prep/Fertilize: Preplant	Feb	35HP 2WD	Fertilizer Applicator		15-15-15	500.00	lb
Land Prep: List Beds	Feb	75HP 2WD	Lister				
Land Prep: Bedshape/Install Dripline	Feb	75HP 2WD	Bedshaper	12.00	Drip Tape	7,920.00	ft
					Black Plastic	8,000.00	ft
Irrigation: Install lateral lines	Feb	35HP 2WD	Furrow Shank	3.00			
	Feb	35HP 2WD	Blade	0.50			
Fumigate: through drip	Feb			0.30	Vapam	45.00	gal
					Water	3.00	acin
Plant: Make planting holes	Mar	35HP 2WD	Punch Machine				
Plant: Transplant	Mar			50.00	Transplants	3.27	thou
Plant: Mow plants	July	75HP 2WD	Mower-Rotary				
Irrigation:	Mar			0.05	Water	1.00	acin
	Apr			0.20	Water	4.00	acin
	May			0.20	Water	4.00	acin
	June			0.20	Water	6.50	acin
	July			0.20	Water	6.50	acin
	Aug			0.20	Water	6.50	acin
	Sept			0.20	Water	6.50	acin
	Oct			0.05	Water	1.00	acin
Fertilize: N through dripline	Apr				UN32	20.00	lb N
	May				UN32	60.00	lb N
	June				UN32	40.00	lb N
	July				UN32	40.00	lb N
	Aug				UN32	40.00	lb N
	Sept				UN32	40.00	lb N
Insect: Worms, Lygus, Aphid	June	75HP 2WD	Boomsprayer		Pounce	6.00	floz
Insect: Worms, Mites	July	75HP 2WD	Boomsprayer		Success	6.00	floz
					Vendex	2.50	lb
Insect: Worms, Lygus, Aphid, Mites	July	75HP 2WD	Boomsprayer		Pounce	6.00	floz
					Vydate L	3.00	pt
Insect: Worms	Aug	75HP 2WD	Boomsprayer		Success	6.00	floz
Insect: Worms	Aug	75HP 2WD	Boomsprayer		Pounce	6.00	floz
Insect: Whiteflies (through drip)	Aug				Admire	20.00	floz
Field Cleanup	Oct	75HP 2WD	Mower-Rotary				
	Oct	Truck		4.00	Discard Plastic	125.00	lb
Harvest:	June	Pack Unit		90.00	Boxes	377.00	each
	July	Pack Unit		90.00	Boxes	377.00	each
	Aug	Pack Unit		134.00	Boxes	565.00	each
	Sept	Pack Unit		179.00	Boxes	754.00	each
	Oct	Pack Unit		90.00	Boxes	377.00	each
Harvest: Load on Truck	June	Forklift					
	July	Forklift					
	Aug	Forklift					
	Sept	Forklift					
	Oct	Forklift					
Harvest: Haul	June	Truck					
	July	Truck					
	Aug	Truck					
	Sept	Truck					
	Oct	Truck					