UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2002

SAMPLE COSTS TO PRODUCE
PROCESSING
TOMATOES

Transplanted

SAN JOAQUIN VALLEY-South

Fresno County

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UC COOPERATIVE EXTENSION

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San Joaquin Valley South - Fresno County 2002

STUDY CONTENTS

INTRODUCTION

Sample costs to produce transplanted processing tomatoes in the San Joaquin Valley – Fresno County 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 procedures considered typical for this crop and area, but will not apply to every situation. Sample costs for labor, materials, equipment and custom services are based on current figures. Some costs and practices presented in this study may not be applicable to your situation. A blank column, "*Your Costs*", is provided in Tables 1 and 2 to enter your costs.

The hypothetical farm operation, production practices, overhead, and calculations are described under the assumptions. For additional information or an explanation of the calculations used in the study call the Department of Agricultural and Resource Economics, University of California, Davis, (530) 752-3589.

Sample Cost of Production studies for many commodities are available and can be requested through the Department of Agricultural Economics, UC Davis, (530) 752-3589. Current studies can be obtained from selected county UC Cooperative Extension offices or downloaded from the department website http://coststudies.ucdavis.edu

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ASSUMPTIONS

The following assumptions refer to Tables 1 to 6 and pertain to sample costs to produce transplanted processing tomatoes in the Southern San Joaquin Valley – Fresno County. Practices described are not University of California recommendations, but represent typical production practices for this crop and area. Some practices listed may not be needed nor used during every production year. Additional ones not indicated may be needed. Cultural practices and costs for the production of processing tomatoes vary by grower and region, and variations can be significant. The practices and inputs used in this cost study serve as a guide, only. **The use of trade names 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**.

Farm. The hypothetical field and row-crop farm consists of 4,000 non-contiguous acres of rented land. Processing tomatoes, which are rotated with other crops, are planted on 1,200 acres – 900 acres seeded, 300 acres transplanted - and 2,800 acres are planted to cotton, cantaloupes, lettuce, onions, garlic, melons, sugarbeets, broccoli, small grains, and/or alfalfa.

Production Operating Costs

Land Preparation. Fields are disced once followed by subsoiling 18 to 22-inches deep, and two discings. The ground is smoothed in two passes with a triplane. Beds on five-foot centers are made with a six-row lister, fertilizer incorporated, and then mulched and shaped with a bed-shaper cultivator. All operations are done in November and December of the preceding year.

Planting. Planting begins in late January and is spread over a four-month period so the grower can meet the delivery contracts at harvest. Seedlings are transplanted one line per bed during the latter part of the planting period at 7,000 plants per acre on 15-inch spacing to 8,700 plants per acre on 12-inch spacing. Late season planting uses "large" plugs at $26-$28 per thousand and early season uses "small" plugs at $22-$24 per thousand. The cost in this study is $26.

Fertilization. A liquid preplant fertilizer, 10-34-0 at 180 pounds (15 gallons) per acre, is applied during bed shaping. The bulk of applied nitrogen is sidedressed during the season at 53 pounds of N per acre as UN-32 (15 gallons of material).

Irrigation. Water costs in the San Joaquin Valley vary by water district and costs the grower from $30 to $290 per acre-foot. The irrigation water district supplies the water at $62 per acre-foot ($4.50/acin). Four-acre inches are sprinkled post plant to establish the stand and incorporate the herbicide. This is followed by subsequent alternate row furrow irrigations (irrigate alternate furrows, the next irrigation in alternate furrows not previously irrigated) at 7 to 14 day intervals. A total of 2.5 acre-feet (30-acre inches) is applied to the crop in this study.

Pest Management. The pesticides and rates mentioned in the study are listed in *UC IPM Pest Management Guidelines: Tomato*. For more information on pest identification, monitoring, and management, visit the UC IPM website at www.ipm.ucdavis.edu. For information and pesticide use permits, contact the local county agricultural commissioner's office.

Pest Control Adviser (PCA). Written recommendations are required for many pesticides and are made by licensed pest control advisers. In addition the PCA may monitor the field for agronomic problems including pests and nutrition. Growers can hire private PCA's or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. In this study the PCA works for a chemical and fertilizer company.

Insects and Diseases. During the second cultivation, Dithane at two pounds per acre and Kocide at two pounds per acre are applied to control bacterial speck. Sulfur dust is applied by air to control russet mites. An air application of Asana or Dipel is applied to the transplants to control armyworms. Traps for monitoring pinworm are place in the field by the PCA at no cost. No-Mate flowable is applied by air to 25% of the acres (outside edges of field) to control pinworm. Black Mold is controlled with an air application of Bravo or Quadris. Another worm spray with Asana or Dipel is applied to the late season harvest (April planting).

Weeds. A combination of hand weeding and mechanical cultivation is used for weed control. Shadeout at two ounces per treated acre on a ten-inch band is applied post plant and sprinkled in during the first irrigation. The crop is cultivated two times during the season. Seedling tomatoes are weeded by a contract labor crew. Hand weeding is repeated two times and the cost per acre decreases with each weeding.

Crop Protectant. Snow or Sunshield is applied to 25% of the acres to protect the late harvested fruit from sunburn.

Harvest. The crop is mechanically harvested by a custom operator. Hauling from the field to the cannery is arranged and paid by the canner.

If tomatoes are harvested by the grower, custom harvest charges should be subtracted and relevant labor and equipment added to the proper sections.

Yields. Average annual crop yields in the Fresno County over the past ten years ranged from 30.78 to 41.59 tons per acre. The average county yields from 1991 to 2000 are shown in Table A. In this study, 40 tons per acre are used.

Returns. Growers produce tomatoes under contract from various food processing companies. Average prices ranged from $46.00 to $57.00 per ton over the last ten years and are shown in Table A.

Table A. Yield and Price for Processing Tomatoes [1/]

	Fresno County	
Year	Ton/ac	$/ton
2000	40.20	51.00
1999	41.50	57.00
1998	35.77	53.00
1997	39.15	51.00
1996	39.80	52.00
1995	38.67	54.00
1994	41.59	51.00
1993	35.79	47.00
1992	35.21	46.00
1991	30.78	52.30
Avg.	37.85	51.43

[1/] Source: Agricultural Commissioner's Annual Crop Report: Fresno, – 1991 - 2000.

Assessments. Under a state marketing order a mandatory assessment fee is collected and administered by the Processing Tomato Advisory Board (PTAB). This assessment pays for inspection and grading of fruit, and varies between inspection stations. Inspection fees range from $6.36 to $8.90 per load with an average of $6.75. Both growers and processors are charged for half of the fee; growers pay $3.72 per load in this study. A truckload is assumed to be 25 tons. Tomato growers are also assessed a fee for the Curly Top Virus Control Program (CTVCP) administered by the California Department of Food and Agriculture (CDFA). Growers in District 2 (San Joaquin Valley) are charged $0.106 per ton by CDFA for program costs.

Additionally, several voluntary organizations assess member growers to fund their activities. California Tomato Growers Association (CTGA) represents growers' interest in negotiating contract prices with processors. CTGA membership charges are $0.17 per ton. The California Tomato Research Institute (CTRI) fund projects for crop improvement. CTRI membership charges are $0.07 per ton.

Labor. Basic hourly wages for workers are $10.00 and $6.75 per hour for machine operators and non-machine (irrigators and manual laborers) workers, respectively. Adding 34% for employer's share of federal and state payroll taxes, insurance, and other benefits raises the total labor costs to $13.40 per hour for machine operators and $9.05 per hour for non-machine labor. The labor for operations involving machinery is 20% higher than the operation time to account for the additional time involved in equipment set up, moving, maintenance and repair.

Equipment Operating Costs. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by 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 $1.26 and $1.51 per gallon, respectively. The fuel, lube, and repair cost per acre for each operation in Table 2 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 7.40% 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. Risks associated with processing tomato production are not assigned a production cost. All acres are contracted prior to harvest and it is assumed all tonnage-time delivery contracts are met. No excess acres are grown to fulfill contracts. While this study makes an effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks which affect the crop 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, land rent, field sanitation, crop 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 two 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 0.660% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs $1,380 for the entire farm or $0.345 per acre.

Office Expense. Office and business expenses are estimated at $30 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, etc. Cash overhead costs are found in Tables 1, 2, 3 and 4.

Land Rent. Land is valued at $2,000 to $3,500 per acre and is rented at a flat rate or as a percentage of gross income. Tomato land in this study is rented on a per acre basis with the landowner receiving $175 per acre. Rents in the area depend upon water available to that land. Land in the area may have priority 1 rights (2.6-acre feet) or priority 2 rights (1.3-acre feet). The land rented includes developed wells and irrigation system. The landowner is responsible for the maintenance of the irrigation system.

Field Sanitation. Sanitation services provide double portable toilet and washing facilities for the ranch during the crop season. The cost includes delivery and 7 months of weekly service. Costs will vary depending upon the crops and number of portable units required.

Crop Insurance. The insurance protects the grower from crop losses due to adverse weather conditions, fire, unusual diseases and/or insects, wildlife, earthquake, volcanic eruption, and failure of the irrigation system. The grower can choose the protection level at 50% to 75% of production history or county yields. In this study, the premium is $26.44 per acre for a 65% guarantee level.

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 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 equal to the purchase price because land does not depreciate. The purchase price and salvage value for certain equipment and investments are shown in Table 5.

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 and the life of the equipment.

Interest Rate. The interest rate of 6.41% used to calculate capital recovery cost is the United States Department of Agriculture-Economic Reporting Service's (USDA-ERS) 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. In other words, the next best alternative use for these resources is in another agricultural enterprise.

Pipe. The irrigation system owned by the grower consists of 86 10"X40' of 30" mainline, 774 2"X30' sprinkler pipe, and 47 10"X40' gated pipe w/30" gate spacing. The grower also owns 10 pipe trailers with hydraulic lifts.

Truck. A 2-ton truck containing equipment and materials to repair and service equipment in the field is designated as a service truck.

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 tables. 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 the above or other University of California publications, contact UC DANR Communications Services at 1-800-994-8849, online at www.ucop.edu, or your local county UC Cooperative Extension office.

UC COOPERATIVE EXTENSION

Table 1. COSTS PER ACRE TO PRODUCE TOMATOES

SAN JOAQUIN VALLEY - Fresno County 2002

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre					
		Labor Cost	Fuel , Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:							
Land Prep-Subsoil 2X	0.61	10	27	0	0	36	
Land Prep-Triplane 2X	0.24	4	7	0	0	11	
Land Prep-Disc 3X	0.32	5	11	0	0	16	
Land Prep/Fertilize-List 6 Bed	0.05	1	1	22	0	24	
Land Prep-Shape/Mulch Bed	0.20	3	4	0	0	7	
Irrigate-Preplant	2.40	52	12	75	0	139	
Weed-Mulch Bare Beds	0.20	3	4	0	0	7	
Transplant	0.00	0	0	251	131	382	
Weed-Shadeout	0.13	2	2	149	0	154	
Irrigate-Sprinkle Plant Establishment	0.80	26	4	30	0	60	
Weed-Cultivate	0.20	3	4	0	0	7	
Weed/Fertilize-Cultivate/Sidedress	0.20	3	4	21	0	28	
Weed-Cultivate/Spray	0.20	3	4	11	0	18	
Weed-Hoe	0.00	0	0	0	37	37	
Weed-Mulch/Layby	0.20	3	4	1	0	8	
Irrigate-Furrow	1.99	18	0	122	0	140	
Disease-Powdery Mildew	0.00	0	0	6	6	13	
Insect-Worms	0.00	0	0	33	11	43	
Insect-Pinworm 25% acre	0.00	0	0	10	1	11	
Disease-Black Mold	0.00	0	0	19	5	24	
Irrigate-Open Ditch	0.01	0	0	0	0	0	
Irrigate-Close Ditch	0.01	0	0	0	0	0	
Train Vines	0.21	3	4	0	0	8	
Whitewash 25% acres late	0.00	0	0	5	2	7	
Pickup Truck Use (2 pickups)	0.06	2	1	0	0	2	
TOTAL CULTURAL COSTS	8.00	142	93	755	193	1,183	
Harvest:							
Harvest	0.00	0	0	0	0	380	
TOTAL HARVEST COSTS	0.00	0	0	0	0	380	
Assessment:							
Assessments/Fees	0.00	0	0	16	0	16	
TOTAL ASSESSMENT COSTS	0.00	0	0	16	0	16	
Postharvest:							
Disc Crop Residue 2X	0.20	3	7	0	0	10	
TOTAL POSTHARVEST COSTS	0.20	3	7	0	0	10	
Interest on operating capital @ 7.40%						48	
TOTAL OPERATING COSTS/ACRE		145	99	771	573	1,637	

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Table 1. continued

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel , Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cash Overhead:							
Office Expense						30	
Land Rent						150	
Liability Insurance						0	
Field Sanitation						0	
Crop Insurance 65%						26	
Property Taxes						3	
Property Insurance						2	
Investment Repairs						2	
TOTAL CASH OVERHEAD COSTS						213	
TOTAL CASH COSTS/ACRE						1,850	
Non-Cash Overhead:		Per producing Acre		-- Annual Cost -- Capital Recovery			
Shop Building		16		1		1	
Storage Building		7		1		1	
Fuel Tanks & Pumps		5		0		0	
Shop Tools		3		0		0	
Pipe - Gated		3		0		0	
Pipe-Sprinkler774		8		1		1	
Pipe Main Line 10" 86 pipes		4		1		1	
Truck-Service 2 Ton		31		6		6	
Pipe Trailer (10)		9		1		1	
Equipment		275		32		32	
TOTAL NON-CASH OVERHEAD COSTS		361		44		44	
TOTAL COSTS/ACRE						1,894	

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Table 2. COSTS AND RETURNS PER ACRE TO PRODUCE TOMATOES

SAN JOAQUIN VALLEY - Fresno County 2002

	Quantity /Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Tomatoes	40.00	ton	51.50	2,060	
OPERATING COSTS					
Fertilizer:					
10-34-0	180.00	lb	0.12	22	
UN-32	53.00	lb N	0.39	21	
Irrigation:					
Water Preplant	10.00	acin	7.50	75	
Water	20.26	acin	7.50	152	
Seed:					
Seed for transplants	9.50	thou	2.65	25	
Transplant:					
Transplants	8.70	thou	26.00	226	
Custom:					
Transplanting	8.70	thou	15.00	131	
Air Application - Dust	35.00	lb	0.18	6	
Air Application Spray 10 gal	3.25	acre	5.25	17	
Air Application Spray 20 gal	0.25	acre	7.50	2	
Contract:					
Contract Labor	4.47	hour	8.38	37	
Herbicide:					
Shadeout 25DF	2.00	oz	74.71	149	
Treflan HP	0.20	pint	3.48	1	
Fungicide:					
Dithane DF	2.00	lb	3.00	6	
Kocide 101	2.00	lb	2.55	5	
Sulfur, Dust 98%	35.00	lb	0.18	6	
Insecticide:					
Asana XL	9.00	floz	0.90	8	
Bravo Weatherstik	2.50	pint	7.43	19	
Dipel DF	2.00	lb	12.44	25	
NoMate TPW MEC	0.62	floz	16.25	10	
Crop Protectant:					
Snow	20.00	lb	0.26	5	
Assessment:					
CDFA-CTVP	40.00	ton	0.02	1	
CTGA	40.00	ton	0.17	7	
CTRI	40.00	ton	0.07	3	
CPTAB	40.00	ton	0.14	5	
Labor (machine)	7.51	hrs	13.40	101	
Labor (non-machine)	4.88	hrs	9.05	44	
Fuel - Gas	0.32	gal	1.51	0	
Fuel - Diesel	43.01	gal	1.26	54	
Lube				8	
Machinery repair				37	
Interest on operating capital @ 7.41%				48	
TOTAL OPERATING COSTS/ACRE				1,637	
NET RETURNS ABOVE OPERATING COSTS				423	

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Table 2. continued

	Quantity /Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
CASH OVERHEAD COSTS:					
Office Expense				30	
Land Rent				150	
Liability Insurance				0	
Field Sanitation				0	
Crop Insurance 65%				26	
Property Taxes				3	
Property Insurance				2	
Investment Repairs				2	
TOTAL CASH OVERHEAD COSTS/ACRE				213	
TOTAL CASH COSTS/ACRE				1,850	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Shop Building				1	
Storage Building				1	
Fuel Tanks & Pumps				0	
Shop Tools				0	
Pipe - Gated				0	
Pipe-Sprinkler774				1	
Pipe Main Line 10" 86 pipes				1	
Truck-Service 2 Ton				6	
PipeTrailer (10)				1	
Equipment				32	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				44	
TOTAL COSTS/ACRE				1,894	
NET RETURNS ABOVE TOTAL COSTS				166	

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Table 3. MONTHLY CASH COSTS PER ACRE TO PRODUCE TOMATOES

SAN JOAQUIN VALLEY - Fresno County 2002

Beginning NOV 01 Ending OCT 02	NOV 01	DEC 01	JAN 02	FEB 02	MAR 02	APR 02	MAY 02	JUN 02	JUL 02	AUG 02	SEP 02	OCT 02	TOTAL
Cultural:													
Land Prep-Subsoil 2X	36												36
Land Prep-Triplane 2X	11												11
Land Prep-Disc 3X	16												16
Land Prep/Fertilize-List		24											24
Land Prep-Shape/Mulch Bed		7											7
Irrigate-Preplant		139											139
Weed-Mulch Bare Beds		7											7
Transplant						382							382
Weed-Shadeout						154							154
Irrigate-SprinklePlant Establishment						60							60
Weed-Cultivate							7						7
Weed/Fertilize-Cultivate/Sidedress							28						28
Weed-Cultivate/Spray							18						18
Weed-Hoe							35	3					37
Weed-Mulch/Layby							8						8
Irrigate-Furrow							72	45	23				140
Disease-Powdery Mildew								13					13
Insect-Worms									13	30			43
Insect-Pinworm 25% acre										11			11
Disease-Black Mold										24			24
Irrigate-Open Ditch						0	0						0
Irrigate-Close Ditch								0		0			0
Train Vines								4	4				8
Whitewash 25% acres										7			7
Pickup Truck Use (2 pickup)	0	0	0	0	0	0	0	0	0	0	0		2
TOTAL CULTURAL COSTS	63	177	0	0	0	596	168	64	40	73	0		1,183
Harvest:													
Harvest											380		380
TOTAL HARVEST COSTS											380		380
Assessment:													
Assessments/Fees											16		16
TOTAL ASSESSMENT COSTS											16		16
Postharvest:													
Disc Crop Residue 2X											10		10
TOTAL POSTHARVEST COSTS											10		10
Interest on operating capital	0	1	1	1	1	5	6	7	7	7	10		48
TOTAL OPERATING COSTS/ACRE	64	179	2	2	2	601	174	71	47	80	415		1,637
OVERHEAD:													
Office Expense	3	3	3	3	3	3	3	3	3	3	3	3	30
Land Rent												150	150
Liability Insurance			0										0
Field Sanitation	0	0	0	0	0	0	0	0	0	0	0		0
Crop Insurance 65%				26									26
Property Taxes				1					1				2
Property Insurance				1					1				2
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL CASH OVERHEAD COSTS	3	3	3	31	3	3	3	3	5	3	3	153	213
TOTAL CASH COSTS/ACRE	66	181	5	33	4	604	177	74	52	83	418	453	1,850

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

SAN JOAQUIN VALLEY - Fresno County 2002

ANNUAL INVESTMENT COSTS

						Cash Overhead		
Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
02	125HP 2000gal Booster Pump 1	18,000	5	5,863	3,288	79	119	3,486
02	125HP 2000 gal Booster Pump 2	18,000	5	5,863	3,288	79	119	3,486
02	150HP 7810 4WD Tractor 1	102,012	8	35,601	13,143	454	688	14,285
02	150HP 7810 4WDTractor 2	102,012	8	35,601	13,143	454	688	14,285
02	225HP 8400T Track	160,000	10	47,261	18,634	684	1,036	20,354
02	340HP 75E Track	171,600	10	50,688	19,985	734	1,111	21,830
02	Cultivator -3 Row	10,725	5	3,494	1,959	47	71	2,077
02	Disc - Stubble 18'	45,045	5	14,673	8,228	197	299	8,724
02	Ditcher - V	7,800	12	1,080	888	29	44	962
02	Lister - 6 Row	18,232	5	5,939	3,330	80	121	3,531
02	Mulcher - 15'	20,507	5	6,680	3,746	90	136	3,971
02	Pickup Truck - 1/2 ton	17,655	7	1,766	3,000	64	97	3,161
02	Pickup Truck - 3/4 ton	17,655	7	1,766	3,000	64	97	3,161
02	Saddle Tank 2-200 Gal 1	4,575	5	1,490	836	20	30	886
02	SaddleTank 2-200 Gal 2	4,575	5	1,490	836	20	30	886
02	Scraper - Drag 10'	2,581	18	172	240	9	14	263
02	Spray Boom - 20'	482	5	157	88	2	3	93
02	Subsoiler 16 '9 shank	32,175	5	10,481	5,877	141	213	6,231
02	Triplane - 16'	20,109	10	3,556	2,519	78	118	2,716
02	Vine trainer	4,800	10	480	629	17	26	673
TOTAL		778,540		234,101	106,656	3,342	5,063	115,061
	60% of New Cost *	467,124		140,461	63,994	2,005	3,038	69,037

*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
Fuel Tanks & Pumps	19,835	20	1,984	1,734	72	109	397	2,312
Pipe - Gated	10,850	10		1,502	36	54	217	1,809
Pipe-Sprinkler774	33,865	10		4,689	112	169	677	5,647
PipeMnLine10" 86pi	17,286	10		2,393	57	86	346	2,883
PipeTrailer(10)	35,000	10	700	4,794	118	179	700	5,790
Shop Building	65,216	25	6,522	5,185	237	359	652	6,432
Shop Tools	13,072	20	1,307	1,143	47	72	131	1,393
Storage Building	26,308	20	2,631	2,300	96	145	526	3,066
Truck-Service 2Ton	125,000	5	25,000	25,599	495	750	2,500	29,344
TOTAL INVESTMENT	346,432		38,144	49,339	1,269	1,923	6,146	58,677

ANNUAL BUSINESS OVERHEAD

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Crop Insurance 65%	1,200	acre	26.44	31,728
Field Sanitation	4,000	acre	0.48	1,920
Land Rent	1,200	acre	150.00	180,000
Liability Insurance	4,000	acre	0.34	1,360
Office Expense	4,000	acre	30.00	120,000

UC COOPERATIVE EXTENSION

Table 5. HOURLY EQUIPMENT COSTS

SAN JOAQUIN VALLEY - Fresno County 2002

			COSTS PER HOUR					
			Cash Overhead		Operating			
Yr	Description	Actual Hours Used	Capital Recovery	Insurance	Taxes	Repairs	Fuel & Lube	Total Operating	Total Costs/Hr.
02	125HP 2000gal Booster Pump 1	2,400.00	0.82	0.02	0.03	3.24	1.45	4.69	5.56
02	125HP 2000 gal Booster Pump 2	2,400.00	0.82	0.02	0.03	3.24	1.45	4.69	5.56
02	150HP 7810 4WD Tractor 1	2,031.80	3.88	0.13	0.20	2.70	12.61	15.31	19.53
02	150HP 7810 4WDTractor 2	2,000.00	3.94	0.14	0.21	2.70	12.61	15.31	19.60
02	225HP 8400T Track	1,600.00	6.99	0.26	0.39	4.14	18.92	23.06	30.69
02	340HP 75E Track	1,600.00	7.49	0.28	0.42	4.44	28.59	33.03	41.22
02	Cultivator -3 Row	400.40	2.94	0.07	0.11	2.38	0.00	2.38	5.49
02	Disc - Stubble 18'	400.20	12.34	0.30	0.45	7.60	0.00	7.60	20.67
02	Ditcher - V	166.00	3.21	0.11	0.16	2.11	0.00	2.11	5.58
02	Lister - 6 Row	54.80	36.46	0.87	1.32	3.80	0.00	3.80	42.46
02	Mulcher - 15'	529.40	4.25	0.10	0.15	2.38	0.00	2.38	6.88
02	Pickup Truck - 1/2 ton	266.60	6.75	0.14	0.22	1.26	5.06	6.32	13.43
02	Pickup Truck - 3/4 ton	266.60	6.75	0.14	0.22	1.26	5.06	6.32	13.43
02	Saddle Tank 2-200 Gal 1	301.40	1.66	0.04	0.06	1.25	0.00	1.25	3.01
02	SaddleTank 2-200 Gal 2	299.90	1.67	0.04	0.06	1.25	0.00	1.25	3.02
02	Scraper - Drag 10'	145.00	0.99	0.04	0.06	0.38	0.00	0.38	1.47
02	Spray Boom - 20'	299.90	0.18	0.00	0.01	0.13	0.00	0.13	0.32
02	Subsoiler 16 '9 shank	399.80	8.82	0.21	0.32	7.45	0.00	7.45	16.80
02	Triplane - 16'	299.60	5.05	0.16	0.24	3.06	0.00	3.06	8.50
02	Vine trainer	120.00	3.14	0.09	0.13	2.88	0.00	2.88	6.24

UC COOPERATIVE EXTENSION

Table 6. RANGING ANALYSIS

SAN JOAQUIN VALLEY - Fresno County 2002

	YIELD (ton/acre)						
	28.00	32.00	36.00	40.00	44.00	48.00	52.00
OPERATING COSTS/ACRE:							
Cultural Cost	1,183	1,183	1,183	1,183	1,183	1,183	1,183
Harvest Cost	266	304	342	380	418	456	494
Assessment Cost	13	14	15	16	17	18	19
Postharvest Cost	10	10	10	10	10	10	10
Interest on operating capital	47	48	48	48	48	49	49
TOTAL OPERATING COSTS/ACRE	1,519	1,559	1,598	1,637	1,676	1,716	1,755
TOTAL OPERATING COSTS/TON	**54.25**	**48.72**	**44.39**	**40.93**	**38.09**	**35.75**	**33.75**
CASH OVERHEAD COSTS/ACRE	213	213	213	213	213	213	213
TOTAL CASH COSTS/ACRE	1,732	1,772	1,811	1,850	1,889	1,929	1,968
TOTAL CASH COSTS/TON	**61.86**	**55.38**	**50.31**	**46.25**	**42.93**	**40.19**	**37.85**
NON-CASH OVERHEAD COSTS/ACRE	44	44	44	44	44	44	44
TOTAL COSTS/ACRE	1,776	1,816	1,855	1,894	1,933	1,973	2,012
TOTAL COSTS/TON	**63.43**	**56.75**	**51.53**	**47.35**	**43.93**	**41.10**	**38.69**

NET RETURNS PER ACRE **ABOVE OPERATING** COSTS

PRICE	YIELD (ton/acre)						
$/ton	28.00	32.00	36.00	40.00	44.00	48.00	52.00
36.50	-497	-391	-284	-177	-70	36	143
41.50	-357	-231	-104	23	150	276	403
46.50	-217	-71	76	223	370	516	663
51.50	-77	89	256	423	590	756	923
56.50	63	249	436	623	810	996	1,183
61.50	203	409	616	823	1,030	1,236	1,443
66.50	343	569	796	1,023	1,250	1,476	1,703

NET RETURNS PER ACRE **ABOVE CASH** COSTS

PRICE	YIELD (ton/acre)						
$/ton	28.00	32.00	36.00	40.00	44.00	48.00	52.00
36.50	-710	-604	-497	-390	-283	-177	-70
41.50	-570	-444	-317	-190	-63	63	190
46.50	-430	-284	-137	10	157	303	450
51.50	-290	-124	43	210	377	543	710
56.50	-150	36	223	410	597	783	970
61.50	-10	196	403	610	817	1,023	1,230
66.50	130	356	583	810	1,037	1,263	1,490

NET RETURNS PER ACRE **ABOVE TOTAL** COSTS

PRICE	YIELD (ton/acre)						
$/ton	28.00	32.00	36.00	40.00	44.00	48.00	52.00
36.50	-754	-648	-541	-434	-327	-221	-114
41.50	-614	-488	-361	-234	-107	19	146
46.50	-474	-328	-181	-34	113	259	406
51.50	-334	-168	-1	166	333	499	666
56.50	-194	-8	179	366	553	739	926
61.50	-54	152	359	566	773	979	1,186
66.50	86	312	539	766	993	1,219	1,446