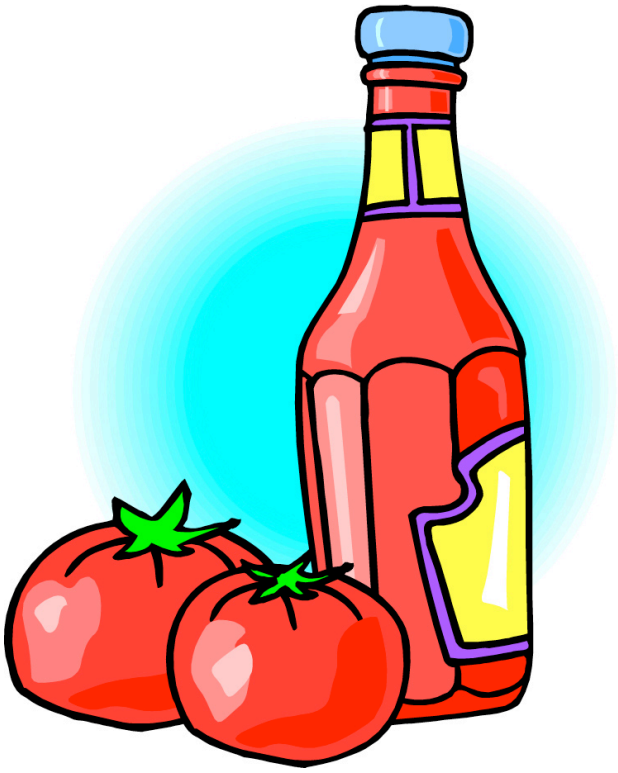
UNIVERSITY OF CALIFORNIA – COOPERATIVE EXTENSION

2008

SAMPLE COSTS TO PRODUCE

PROCESSING TOMATOES



TRANSPLANTED
IN THE SACRAMENTO VALLEY

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UC COOPERATIVE EXTENSION

SAMPLE COSTS TO PRODUCE PROCESSING TOMATOES TRANSPLANTED In the Sacramento Valley – 2008

CONTENTS

INTRODUCTION

The sample costs to produce transplanted processing tomatoes in the Sacramento Valley is based on the 2007 cost and returns study practices using 2008 prices and are presented in this study. The price adjustments are for fuel, fertilizers, pesticides, water, labor rates, interest rates, and some cash overhead costs. This study is intended as a guide only, and can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. Practices described are based on production practices considered typical for the crop and area, but may not apply to every situation. Sample costs for labor, materials, equipment, and custom services are based on current figures. Blank columns, "*Your Costs*", in Tables 1 and 2 are provided to enter actual costs of an individual farm operation.

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, (530) 752-2414 or the local UC Cooperative Extension office. Two additional cost of production study for processing tomatoes grown in this region are also available: "*Sample Costs To Produce Processing Tomatoes, Direct Seeded, In the Sacramento Valley - 2007*", and **"***Sample Costs To Produce Processing Tomatoes, Transplanted, In the Sacramento Valley – 2007"*.

Sample Cost of Production Studies for many commodities are available and can be requested through the Department of Agricultural Economics, UC Davis, (530) 752-2414. Current studies can be downloaded from the department website http://coststudies.ucdavis.edu/ or obtained from selected county UC Cooperative Extension offices.

ASSUMPTIONS

The following assumptions refer to tables 1 to 8 and pertain to sample costs and returns to produce transplanted processing tomatoes in the Sacramento Valley. Input prices and interest rates are based on 2008 values. However, production practices were not updated from the 2007 study. Practices described are not recommendations by the University of California, but represent production practices considered typical of a well-managed farm for this crop and area. Some of the costs and practices listed may not be applicable to all situations nor used during every production year and/or additional ones not indicated may be needed. Processing tomato cultural practices and material input costs will vary by grower and region, and can be significant. The practices and inputs used in the cost study serve as a guide only. The costs are shown on an annual, per acre basis. **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 2,900 non-contiguous acres of rented land. Tomatoes are transplanted on 630 acres (70% of the tomato acreage) and direct seeded on 270 acres (30% of the tomato acreage) for a total of 900 acres. Two thousand acres are planted to other rotational crops including alfalfa hay, field corn, safflower, sunflower, dry beans and/or wheat. For direct seeded tomato operations, please refer to the study titled, "*Sample Costs to Produce Processing Tomatoes, Directed Seeded, in the Sacramento Valley - 2007*". The grower also owns various investments such as a shop and an equipment yard. In this report, practices completed on less than 100% of the acres are denoted as a percentage of the total tomato crop acreage.

CULTURAL PRACTICES AND MATERIAL INPUTS

Land Preparation. Primary tillage which includes laser leveling, discing, rolling, subsoiling, land planing, and listing beds is done from August through early November in the year preceding transplanting. To maintain surface grade, 4% of the acres are laser leveled each year. Fields are stubble-disced and rolled (using a rice roller). Fields are subsoiled in two passes to a 30-inch depth and rolled. A medium-duty disk with a flat roller following is used. Ground is smoothed in two passes with a triplane. Beds on five-foot centers are made with a six-bed lister, and then shaped with a bed-shaper cultivator.

Transplanting. Planting is spread over a three-month period (late March through early June) to meet contracted weekly delivery schedules at harvest. The transplants are planted in a single line per bed. Direct seed is for the early season and precedes transplanting. All of the 630 acres are custom planted with greenhouse-grown transplants. Costs for extra seed (15%) purchased to allow for less than 100% germination and for non-plantable transplants are included in the respective categories in Table 2.

Fertilization. In the fall, ahead of listing beds, a soil amendment, gypsum at 3.0 tons per acre is custom broadcast spread on 20% of the acres. After listing, as part of the bed shaping operation, 11-52-0 is shanked into the beds at 100 pounds per acre. Prior to planting, liquid starter fertilizer, 8-24-6 plus zinc, is banded below the seed line at 15 gallons of material per acre. Nitrogen fertilizer, UN-32 at 150 pounds of N per acre is sidedress-banded at layby. Additional N is applied under special needs on 20% of acres as CAN 17 at 100 pounds of product per acre as a sidedress.

Irrigation. In this study, water is calculated to cost $31.92 per acre-foot or $2.66 per acre-inch and is a combination of 1/2 well water ($47.67 per acre-foot) and 1/2 canal delivered surface water ($16.17 per acre-foot). The irrigation costs shown in Tables 1 and 3 include water, pumping, and labor charges. The transplants receive a single sprinkler irrigation after planting. Prior to initial furrow irrigation, fields are all chiseled to 12 inches deep in the furrow. Eight furrow irrigations are applied during the season. In

this study 3.5 acre-feet (42 acre-inches) is applied to the crop – 2.0 acre-inches by sprinkler and 40 acre-inches by furrow. Although sub-surface drip irrigation is gaining in popularity, it is not used in this study.

Pest Management. The pesticides and rates mentioned in this cost study are listed in *Integrated Pest Management for Tomatoes* and *UC Pest Management Guidelines, Tomato*. For more information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at www.ipm.ucdavis.edu. Written recommendations are required for many pesticides and are made by licensed pest control advisors. For information and pesticide use permits, contact the local county agricultural commissioner's office.

Weeds. Beginning in January, Roundup plus Goal is sprayed on the fallow beds to control emerged weeds and repeated later with Roundup only. Before planting, the beds are cultivated twice to control weeds and to prepare the seedbed.

Wilcox Performer conditions bed and applies starter fertilizer. Trifluralin is broadcast sprayed at 1.0 pint per acre and incorporated with a power mulcher. To control nutsedge, Dual Magnum at 1.5 pints of product per acre is added to trifluralin as a tank-mix and applied to 30% or 189 acres. Matrix is applied to 80% or 504 acres in an 18-inch band at a rate of 2.0 ounces of material per acre to control a range of weeds.

A combination of hand weeding and mechanical cultivation is also used for weed control. The crop is mechanically cultivated with sled-mounted cultivators three times during the season. A contract labor crew hand removes weeds.

Insects and Diseases. The primary insect pests of seedlings included in this study are flea beetle, darkling ground beetle, and cutworm. Foliage and fruit feeders included are tomato fruitworm, various armyworm species, russet mite, stinkbug, and potato aphid. Diseases are primarily bacterial speck, late blight, and blackmold fruit rot.

A Kocide and Dithane tank mix for bacterial speck is applied to 30% of the acres. All of the above applications are made by ground. The following applications are made by aircraft. Sulfur dust for russet mite control is applied to 70% of the acres. Asana for general insect control is applied to 40% of the acres. Confirm for worm control is applied to 100% of the acres. Bravo is applied in June to 5% of the acres for late blight control and again in September as a fruit protectant fungicide on 15% of the acres.

Fruit Ripener. Ethrel, a fruit ripening agent, is applied by ground before harvest to 5% of the acres at 4.0 pints per acre.

Harvest. The fruit is mechanically harvested using one primary harvester for 90% of the acres and one older harvester for special harvest situations and as a backup to the primary harvester. Typically growers with this acreage of processing tomatoes own tractors, trailer dollies, generator-light machines, and harvest support equipment. Four manual sorters, a harvester driver, and two bulk-trailer tractor operators are used per harvester. A seasonal average of 1.5 loads per hour at 25 tons per load are harvested with two (one day and one night) shifts of 10 hours each. Harvest efficiency includes down time, scheduled daily breaks, and transportation between fields. The processor pays the transportation cost of the tomatoes from the field to the processing plant.

Costs for harvest operations are shown in Tables 1, 3 and 7; the equipment used is listed in Tables 4 and 5. If tomatoes are custom harvested, harvest expenses are subtracted from harvest costs in Tables 1 and 3, and the custom harvest charges added. The equipment for harvest operations is then subtracted from investment costs in Table 4. Growers may choose to own harvesting equipment, purchased either new or

used, or hire a custom harvester. Many factors are important in deciding which harvesting option a grower uses. The options are discussed in *"Acquiring Alfalfa Hay Harvest Equipment: A Financial Analysis of Alternatives"*.

Yields. County average annual tomato crop yields in the Sacramento Valley over the past ten years ranged from 26.34 to 43.00 tons per acre. The reporting counties are Colusa, Sacramento, Solano, Sutter, Yolo, and sometimes Glenn counties. Butte and Tehama are the only two Sacramento Valley counties that do not report processing tomatoes. The weighted average yields for the Sacramento Valley from 1997 to 2006 are shown in Table A. In this study, a yield of 35 tons per acre is used.

Table A. Sacramento Valley Yield and Price †

Year	Tons per acre	$ per ton
2006	35.44	59.28
2005	34.30	49.81
2004	40.51	48.06
2003	33.74	48.82
2002	37.64	48.37
2001	35.23	48.49
2000	34.44	49.54
1999	34.58	58.68
1998	29.90	53.68
1997	33.24	50.85
Average	**34.90**	**51.56**

† Source: California Agricultural Commissioner Crop Reports.

Returns. Customarily, growers produce tomatoes under contract with various food processing companies. County average prices in the Sacramento Valley ranged from $45.66 to $62.00 per ton over the last 10 years and the Valley-wide weighted averages are shown in Table A. A price of $70.00 per ton is used in this study to reflect the return price growers are currently receiving.

Assessments. Under a state marketing order a mandatory assessment fee is collected and administered by the Processing Tomato Advisory Board (PTAB). The assessment pays for inspecting and grading fruit, and varies between inspection stations. In Yolo County, inspection fees range from $6.36 to $8.90 per load with an average of $6.75. Growers and processors share equally in the fee; growers pay $3.38 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 Yolo County (District 111) are charged $0.019 per ton. Additionally, several voluntary organizations assess member growers. 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 funds projects for crop improvement. CTRI membership charges are $0.07 per ton.

Labor. Basic hourly wages for workers are $11.56 and $8.00 per hour for machine operators and non-machine (irrigators and manual laborers) workers, respectively. Adding 36% for the employer's share of federal and state payroll taxes, insurance and other benefits raises the total labor costs to $15.72 per hour for machine operators and $10.88 per hour for non-machine labor. The labor for operations involving machinery is 20% higher than the field operation time, to account for equipment set up, moving, maintenance, and repair. The current minimum wage is $8.00 per hour.

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, share rent, supervisors' salaries, field sanitation, crop insurance, and investment repairs. Employee benefits, insurance, and payroll taxes are included in labor costs and not in overhead. Cash overhead costs are shown in Tables 1, 2, 3, and 4.

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.

Interest on Operating Capital. Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 6.75% per year. A nominal interest rate is the typical market cost of borrowed funds.

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 0.740% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs $1,438 for the entire farm or $0.50 per acre.

Office Expense. Office and business expenses are estimated to be $50,489 for the entire farm or $17.41 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, office and shop utilities, and miscellaneous administrative expenses.

Share Rent. Rent arrangements will vary. The tomato land in this study is leased on a share-rent basis with the landowner receiving 12% of the gross returns. The land rented includes developed wells and irrigation system.

Field Supervisors' Salary. Supervisor salaries for tomatoes, including insurance, payroll taxes, and benefits, and are $94,500 per year for two supervisors. Two thirds of the supervisors' time is allocated to tomatoes. The costs are $70.00 per acre. Any returns above total costs are considered returns on risk and investment to management (or owners).

Field Sanitation. Sanitation services provide portable toilet and washing facilities for the ranch during the crop season. The cost includes delivery and 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, no level is chosen. The cost shown in the study is the average of the costs paid by the growers who reviewed this study.

NON-CASH OVERHEAD

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments. Although farm equipment used for processing tomatoes may be purchased new or used, this study shows the current purchase price for new equipment. The new purchase price is adjusted to 60% to reflect a mix of new and used equipment. Annual ownership costs (equipment and investments) are shown in Tables 1, 2, and 5. They represent the capital recovery cost for investments on an annual per acre basis.

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;

$$\left[\left(\underset{\text{Price}}{Purchase} - \underset{Value}{Salvage}\right) \times \left(\underset{Factor}{\overset{Capital}{\text{Recovery}}}\right)\right] + \left[\underset{Value}{Salvage} \times \underset{Rate}{Interest}\right]$$

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 4.25% used to calculate capital recovery cost is the effective long-term interest rate in January 2008. The interest rate 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.

Equipment Costs. Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. Some of the cost factors have been discussed in previous sections. The operating costs consist of repairs, fuel, and lubrication. 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 5 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.

Repairs, Fuel and Lube. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by the ASAE. Fuel and lubrication costs are also determined by ASAE equations based on maximum Power-Take-Off horsepower, and fuel type. Prices for on-farm delivery of diesel and unleaded gasoline are $3.54 and $3.57 per gallon, respectively.

Irrigation System. Irrigation equipment owned by the grower consists of main lines, hand moved sprinklers, portable pumps, V-ditchers, and siphon tubes.

Risk. Risks associated with processing tomato production are not assigned a production cost. All acres are contracted prior to harvest and all tonnage-time delivery contracts are assumed to have been 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 profitability and economic viability of processing tomato production.

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 800-994-8849, online at http://anrcatalog.ucdavis.edu/InOrder/Shop/Shop.asp, or your local county UC Cooperative Extension office.

Table 1.

UC COOPERATIVE EXTENSION
COSTS PER ACRE TO PRODUCE TOMATOES
SACRAMENTO VALLEY – 2008
TRANSPLANTED

Labor Rate: $15.72/hr. machine labor
$10.88/hr. non-machine labor

Interest Rate: 6.75%
Yield per Acre: 35.0 Ton

Operation	Operation Time (Hrs/A)	Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
		---------- Cash and Labor Costs per Acre ----------					
Preplant:							
Land Preparation - Laser Level - 4% of Acreage	0.00	0	0	0	7	7	
Land Preparation - Stubble Disc & Roll	0.14	3	18	0	0	20	
Land Preparation - Subsoil & Roll 2X	0.42	8	53	0	0	61	
Land Preparation - Disc & Roll	0.15	3	10	0	0	13	
Land Preparation - Triplane 2X	0.36	7	22	0	0	29	
Land Preparation - Apply Gypsum on 20% of Acreage	0.00	0	0	79	1	81	
Land Preparation - List Beds	0.10	2	6	0	0	8	
Land Preparation - Shape & Fertilize (11-52-0)	0.25	5	12	42	0	59	
Weed Control - Roundup & Goal	0.08	1	3	12	0	16	
Weed Control - Roundup	0.08	1	3	13	0	17	
Weed Control - Cultivate 2X	0.26	10	19	0	0	28	
TOTAL PREPLANT COSTS	1.83	39	145	146	8	338	
Cultural:							
Condition Bed & Starter Fertilizer	0.17	3	7	36	0	46	
Mulch Beds & Apply Treflan (& Dual on 30% of Acreage)	0.33	6	13	13	0	33	
Transplant Tomatoes	0.00	0	0	354	165	519	
Weed Control - Apply Matrix on 80% of Acreage	0.16	3	6	9	0	19	
Irrigate - Sprinklers 1X	3.00	33	0	18	0	51	
Weed Control - Cultivate 3X	0.61	12	21	0	0	32	
Fertilize - 150 Lbs N Sidedress	0.33	6	13	112	0	131	
Chisel Furrows	0.25	5	15	0	0	20	
Mulch Beds	0.25	5	12	0	0	17	
Disease Control - Bacterial Speck on 30% of Acreage	0.03	1	1	5	0	6	
Open Ditches	0.04	1	2	0	0	3	
Irrigate - Furrow 8X	10.00	109	0	107	0	216	
Disease Control - Late Blight on 5% of Acreage	0.00	0	0	1	0	1	
Close Ditches	0.04	1	2	0	0	3	
Mite Control - Sulfur on 70% of Acreage	0.00	0	0	15	6	21	
Fertilize - 20 Lbs N on 20% of Acreage	0.07	1	3	20	0	24	
Weed Control - Hand Hoe - Contract	0.00	0	0	0	50	50	
Train Vines	0.50	9	17	0	0	27	
Insect Control - Aphid on 40% of Acreage	0.00	0	0	5	3	7	
Disease Control - Fruit Rot on 15% of Acreage	0.00	0	0	4	1	4	
Insect Control - Worms	0.00	0	0	27	6	33	
Fruit Ripener - Ethrel on 5% of Acreage	0.00	0	0	2	0	2	
Pickup Truck Use (2 pickups)	0.32	12	8	0	0	20	
ATV Use	0.32	6	0	0	0	6	
TOTAL CULTURAL COSTS	16.42	212	122	727	231	1,292	
Harvest:							
Open Harvest Lane on 8% of Acreage	0.10	2	4	0	0	6	
Harvest	0.93	58	177	0	0	235	
In Field Hauling	0.46	32	34	0	0	66	
TOTAL HARVEST COSTS	1.49	92	215	0	0	308	
Assessment:							
Assessments/Fees	0.00	0	0	14	0	14	
TOTAL ASSESSMENT COSTS	0.00	0	0	14	0	14	
Interest on Operating Capital @ 6.75%						66	
TOTAL OPERATING COSTS/ACRE		344	482	887	239	2,017	
CASH OVERHEAD:							
Liability Insurance						1	
Office Expense						17	
Field Sanitation						0	
Crop Insurance						25	
Field Supervisors' Salary (2)						70	
Land Rent @ 12% of Gross Returns						294	
Property Taxes						6	
Property Insurance						4	
Investment Repairs						6	
TOTAL CASH OVERHEAD COSTS						423	
TOTAL CASH COSTS/ACRE						2,440	

NON-CASH OVERHEAD:			
	Per producing	-- Annual Cost --	
Investment	Acre	Capital Recovery	
Shop Building	25	2	2
Storage Building	10	1	1
Fuel Tanks & Pumps	8	1	1
Shop Tools	5	0	0
Booster Pumps	21	2	2
Sprinkler Pipe	52	6	6
Main Line Pipe - 10"	28	3	3
Semi Truck & Lowbed Trailer	12	1	1
Pipe Trailers	12	1	1
Truck-Service - 2 Ton	13	3	3
Generators & Light	3	1	1
Fuel Wagons	1	0	0
Closed Mix System	2	0	0
Siphon Tubes	4	0	0
Implement Carrier	3	0	0
Equipment	755	94	94
TOTAL NON-CASH OVERHEAD COSTS	953	116	116
TOTAL COSTS/ACRE			2,555

Table 2.

UC COOPERATIVE EXTENSION
COSTS and RETURNS PER ACRE to PRODUCE TOMATOES
SACRAMENTO VALLEY – 2008
TRANSPLANTED

Labor Rate: $15.72/hr. machine labor
$10.88/hr. non-machine labor

Interest Rate: 6.75%
Yield per Acre: 35.0 Ton

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Processing Tomatoes	35.00	Ton	70.00	2,450	
TOTAL GROSS RETURNS FOR PROCESSING TOMATOES				2,450	
OPERATING COSTS					
Custom:					
Laser Level	0.04	Acre	165.00	7	
Gypsum Application	0.20	Ton	7.00	1	
Transplanting	8.70	Thou	19.00	165	
Air Application - Spray 10 Gal/Acre	1.60	Acre	6.25	10	
Air Application - Dust	28.00	Lb	0.20	6	
Fertilizer:					
Gypsum	0.60	Ton	132.00	79	
11-52-0	100.00	Lb	0.419	42	
8-24-6	15.00	Lb	2.28	34	
Zinc Chelate 6%	2.00	Pint	0.913	2	
UN-32	150.00	Lb N	0.745	112	
CAN 17	118.00	Lb	0.171	20	
Herbicide:					
Roundup Ultra	2.50	Pint	8.59	21	
Goal 2XL	3.00	FlOz	1.03	3	
Dual Magnum	0.45	Pint	18.63	8	
Treflan HFP	1.00	Pint	4.84	5	
Matrix DF	0.48	Oz	19.25	9	
Seed:					
Tomato Seed	10.01	Thou	11.00	110	
Transplant:					
Transplants - Growing	8.70	Thou	28.00	244	
Irrigation:					
Water	42.00	AcIn	2.67	112	
Pump - Fuel, Lube, & Repairs	1.00	Acre	13.00	13	
Fungicide:					
Kocide 101	0.60	Lb	3.62	2	
Dithane DF	0.60	Lb	3.89	2	
Sulfur, Dust 98%	28.00	Lb	0.55	15	
Insecticide:					
Bravo Weatherstik	0.60	Pint	7.85	5	
Warrior T	1.54	FlOz	3.05	5	
Confirm	12.00	FlOz	2.23	27	
Contract:					
Contract Labor	5.00	Hour	9.99	50	
Growth Regulator:					
Ethrel	0.03	Gal	63.00	2	
Assessment:					
CDFA-CTVP	35.00	Ton	0.019	1	
CTGA	35.00	Ton	0.17	6	
CTRI	35.00	Ton	0.07	2	
PTAB	35.00	Ton	0.135	5	
Labor (machine)	9.34	Hrs	15.72	147	
Labor (non-machine)	18.08	Hrs	10.88	197	
Fuel - Gas	1.85	Gal	3.57	7	
Fuel - Diesel	77.61	Gal	3.54	275	
Lube				42	
Machinery repair				159	
Interest on Operating Capital @ 6.75%				66	
TOTAL OPERATING COSTS/ACRE				2,017	
NET RETURNS ABOVE OPERATING COSTS/ACRE				406	

CASH OVERHEAD COSTS:	
Liability Insurance	1
Office Expense	17
Field Sanitation	0
Crop Insurance	25
Field Supervisors' Salary (2)	70
Land Rent @ 12% of Gross Returns	294
Property Taxes	6
Property Insurance	4
Investment Repairs	6
TOTAL CASH OVERHEAD COSTS/ACRE	423
TOTAL CASH COSTS/ACRE	2,440
NON-CASH OVERHEAD COSTS (CAPITAL RECOVERY):	
Shop Building	2
Storage Building	1
Fuel Tanks & Pumps	1
Shop Tools	0
Booster Pumps	2
Sprinkler Pipe	6
Main Line Pipe - 10"	3
Semi Truck & Lowbed Trailer	1
Pipe Trailers	1
Truck-Service - 2 Ton	3
Generators & Light	1
Fuel Wagons	0
Closed Mix System	0
Siphon Tubes	0
Implement Carrier	0
Equipment	94
TOTAL NON-CASH OVERHEAD COSTS/ACRE	116
TOTAL COSTS/ACRE	2,555
NET RETURNS ABOVE TOTAL COSTS/ACRE	-105

Table 3.

UC COOPERATIVE EXTENSION
MONTHLY CASH COST PER ACRE TO PRODUCE TOMATOES
SACRAMENTO VALLEY – 2008
TRANSPLANTED

Beginning SEP 07 Ending SEP 08	SEP 07	OCT 07	NOV 07	DEC 07	JAN 08	FEB 08	MAR 08	APR 08	MAY 08	JUN 08	JUL 08	AUG 08	SEP 08	TOTAL
Preplant:														
Laser Level - 4% of Acreage	7													7
Land Prep - Stubble Disc & Roll	20													20
Land Prep - Subsoil & Roll 2X	61													61
Land Prep - Disc & Roll	13													13
Land Prep - Triplane 2X	29													29
Land Prep - Apply Gypsum on 20% of Acreage	81													81
Land Prep - List Beds		8												8
Land Prep - Shape Beds & Fertilize		59												59
Weed Control - Roundup & Goal					16									16
Weed Control - Roundup					17									17
Weed Control - Cultivate 2X					28									28
TOTAL PREPLANT COSTS	210	67			62									338
Cultural:														
Condition Bed & Starter Fertilizer					46									46
Mulch Beds & Apply Herbicide							33							33
Transplant Tomatoes								519						519
Weed Control - Apply Matrix on 80% of Acreage								19						19
Irrigate - Sprinklers 1X								51						51
Weed Control - Cultivate 2X								14	7		10			32
Fertilize - 150 Lbs N - Sidedress									131					131
Chisel Furrows								20						20
Mulch Beds									17					17
Disease Control - Bacterial Speck - 30% of Acreage								6						6
Open Ditches								2			2			3
Irrigate - Furrow 8X								54	54	54	54			216
Disease Control - Late Blight 5% of Acreage										1				1
Close Ditches											3			3
Mite Control - Sulfur 70% of Acreage											21			21
Fertilize - 20 Lb N 20% of Acreage											24			24
Weed Control - Hand Hoe											50			50
Train Vines											27			27
Insect Control - Aphids 40% of Acreage											7			7
Disease Control - Fruit Rot 15% of Acreage													4	4
Insect Control - Worms - Confirm													33	33
Fruit Ripener - Ethrel 5% of Acreage													2	2
Pickup Truck Use (2 pickups)	2	2	2	2	2	2	2	2	2	2	2	2	2	20
ATV Use	0	0	0	0	0	0	0	0	0	0	0	0	0	6
TOTAL CULTURAL COSTS	2	2	2	2	48	2	35	686	211	57	200	2	42	1,292
Harvest:														
Open Harvest Lane 8% of Acreage											2	2	2	6
Harvest											111	111	12	235
In Field Hauling											31	29	6	66
TOTAL HARVEST COSTS											144	143	21	308
Assessment:														
Assessments/Fees													14	14
TOTAL ASSESSMENT COSTS													14	14
Interest on Operating Capital @ 6.75%	1	2	2	2	2	2	2	6	7	8	10	11	11	66
TOTAL OPERATING COSTS/ACRE	213	70	4	4	112	4	37	693	219	65	354	155	87	2,017
OVERHEAD:														
Liability Insurance					1									1
Office Expense	1	1	1	1	1	1	1	1	1	1	1	1	1	17
Field Sanitation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Crop Insurance					25									25
Field Supervisors' Salary (2)	5	5	5	5	5	5	5	5	5	5	5	5	5	70
Land Rent @ 12% of Gross Returns													294	294
Property Taxes						3					3			6
Property Insurance						2					2			4
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0		6
TOTAL CASH OVERHEAD COSTS	7	7	7	7	33	12	7	7	7	7	12	7	301	423
TOTAL CASH COSTS/ACRE	220	78	11	11	145	16	44	700	226	72	367	162	388	2,440

UC COOPERATIVE EXTENSION

Table 4. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
SACRAMENTO VALLEY – 2008
TRANSPLANTED

ANNUAL EQUIPMENT COSTS

						- Cash Overhead -		
Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
07	110 HP 2WD Tractor	66,445	10	19,627	6,678	318	430	7,427
07	130 HP 2WD Tractor	69,163	10	20,430	6,952	331	448	7,731
07	155 HP 2WD Tractor	99,594	10	29,418	10,010	477	645	11,133
07	200 HP Crawler	172,650	10	50,998	17,353	828	1,118	19,299
07	425 HP Crawler	221,197	10	65,338	22,233	1,060	1,433	24,726
07	92 HP 2WD Tractor	44,015	10	13,001	4,424	211	285	4,920
07	ATV	4,017	10	710	443	17	24	484
07	Bed Shaper - 3 Row	13,292	10	2,351	1,466	58	78	1,602
07	Cultivator - Alloway 3 Row	10,236	10	1,810	1,129	45	60	1,234
07	Cultivator - Perfecta 3 Row	5,100	10	902	562	22	30	615
07	Cultivator - Performer 3 Row	30,281	10	5,355	3,339	132	178	3,649
07	Cultivator - 3 Row	11,868	5	3,866	1,974	58	79	2,111
07	Cultivator - Sled 3 Row	4,980	10	881	549	22	29	600
07	Disc - Stubble 18'	49,847	5	16,237	8,293	245	330	8,868
07	Disc - Finish 25'	44,743	10	7,912	4,934	195	263	5,392
07	Ditcher - V	8,631	12	1,195	855	36	49	940
07	Harvester Tomato - Used	46,108	8	10,411	5,799	209	283	6,291
07	Harvester -Tomato	331,980	8	10,000	48,743	1,265	1,710	51,718
07	Lister - 3 Row	20,176	5	6,572	3,357	99	134	3,589
07	Mulcher - 15'	20,507	9	4,098	2,406	91	123	2,620
07	Pickup Truck - 1/2 Ton	17,655	7	1,766	2,747	72	97	2,916
07	Pickup Truck - 3/4 Ton	17,655	7	1,766	2,747	72	97	2,916
07	Rear Blade - 8'	2,269	15	218	197	9	12	219
07	Rice Roller - 18'	14,139	10	2,500	1,559	62	83	1,704
07	Flat Roller - 18'	14,139	10	2,500	1,559	62	83	1,704
07	Ringroller - 30'	7,952	10	1,406	877	35	47	958
07	Saddle Tank - 300 Gallon	2,374	10	420	262	10	14	286
07	Saddle Tank - 300 Gallon	2,374	10	420	262	10	14	286
07	Saddle Tank - 300 Gallon	2,374	10	420	262	10	14	286
07	Saddle Tank - 300 Gallon	2,374	10	420	262	10	14	286
07	Spray Boom - 25'	1,781	5	580	296	9	12	317
07	Subsoiler - 16' - 9 Shank	35,605	5	11,598	5,923	175	236	6,334
07	Trailer Dolly	1,451	15	139	126	6	8	140
07	Trailer Dolly	1,451	15	139	126	6	8	140
07	Trailer Dolly	1,451	15	139	126	6	8	140
07	Trailer Dolly	1,451	15	139	126	6	8	140
07	Triplane - 16'	22,253	10	3,935	2,454	97	131	2,682
07	Vine Diverter	16,046	10	2,838	1,769	70	94	1,934
07	Vine Trainer	4,800	10	480	560	20	26	606
	TOTAL	1,444,424		302,935	173,739	6,465	8,737	188,941
	60% of New Cost *	866,654		181,761	104,243	3,879	5,242	113,364

* Used to reflect a mix of new and used equipment.

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	------ Cash Overhead ------ Insur-ance	Taxes	Repairs	Total
INVESTMENT								
Booster Pumps	59,757	10	5,976	6,967	243	329	1,643	9,182
Closed Mix System	4,412	10	441	514	18	24	221	778
Fuel Tanks & Pumps	21,949	20	2,195	1,579	89	121	439	2,228
Fuel Wagons	2,186	10	219	255	9	12	44	320
Generators & Light	7,620	5	762	1,584	31	42	210	1,867
Implement Carrier	9,742	15	974	844	40	54	487	1,424
Main Line Pipe - 10"	80,676	10	8,068	9,407	328	444	2,219	12,398
Pipe Trailers	35,000	10	700	4,311	132	178	700	5,322
Semi Truck & Lowbed Trailer	36,170	15	3,617	3,133	147	199	531	4,010
Shop Building	72,168	25	7,217	4,575	294	397	722	5,988
Shop Tools	14,465	20	1,447	1,041	59	80	145	1,324
Siphon Tubes	11,066	15	1,107	958	45	61	313	1,377
Sprinkler Pipe	150,980	10	15,098	17,604	614	830	4,152	23,201
Storage Building	29,112	20	2,911	2,095	118	160	586	2,959
Truck-Service - 2 Ton	38,600	5	3,860	8,022	157	212	3,860	12,252
TOTAL INVESTMENT	573,903		54,592	62,889	2,325	3,142	16,272	84,629

ANNUAL BUSINESS OVERHEAD

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Crop Insurance	900	Acre	25.00	22,500
Field Sanitation	2,900	Acre	0.48	1,392
Field Supervisors' Salary (2)	900	Acre	70.00	63,000
Land Rent @ 12% of Gross Returns	900	Acre	294.00	264,600
Liability Insurance	2,900	Acre	0.50	1,450
Office Expense	2,900	Acre	17.41	50,489

Table 5.

UC COOPERATIVE EXTENSION
HOURLY EQUIPMENT COSTS
SACRAMENTO VALLEY – 2008
TRANSPLANTED

				---------- COSTS PER HOUR ----------					
		Actual		- Cash Overhead -		-------- Operating --------			
Yr	Description	Hours Used	Capital Recovery	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
07	110 HP 2WD Tractor	1,443.2	2.78	0.13	0.18	3.12	25.99	29.11	32.20
07	130 HP 2WD Tractor	1,200.0	3.48	0.17	0.22	3.25	30.71	33.96	37.82
07	155 HP 2WD Tractor	1,199.3	5.01	0.24	0.32	4.67	36.62	41.29	46.86
07	200 HP Crawler	1,599.4	6.51	0.31	0.42	4.63	47.25	51.88	59.12
07	425 HP Crawler	1,599.8	8.34	0.40	0.54	5.93	100.40	106.33	115.61
07	92 HP 2WD Tractor	1,199.2	2.21	0.11	0.14	2.06	30.71	32.77	35.24
07	ATV	199.5	1.33	0.05	0.07	1.09	0.00	1.09	2.54
07	Bed Shaper - 3 Row	199.5	4.41	0.17	0.24	2.87	0.00	2.87	7.69
07	Cultivator - Alloway 3 Row	199.8	3.39	0.13	0.18	2.21	0.00	2.21	5.92
07	Cultivator - Perfecta 3 Row	199.8	1.69	0.07	0.09	1.05	0.00	1.05	2.90
07	Cultivator - Performer 3 Row	225.1	8.90	0.35	0.47	6.25	0.00	6.25	15.98
07	Cultivator - 3 Row	533.0	2.22	0.07	0.09	2.68	0.00	2.68	5.05
07	Cultivator - Sled 3 Row	380.5	0.87	0.03	0.05	1.08	0.00	1.08	2.03
07	Disc - Stubble 18'	399.2	12.46	0.37	0.50	8.52	0.00	8.52	21.85
07	Disc - Finish 25'	199.5	14.84	0.59	0.79	7.43	0.00	7.43	23.64
07	Ditcher - V	165.2	3.10	0.13	0.18	2.42	0.00	2.42	5.84
07	Harvester Tomato - Used	199.4	17.45	0.63	0.85	2.08	61.07	63.15	82.07
07	Harvester -Tomato	699.0	41.84	1.09	1.47	124.44	61.07	185.51	229.90
07	Lister - 9 Row	390.0	5.16	0.15	0.21	4.24	0.00	4.24	9.76
07	Mulcher - 15'	365.4	3.95	0.15	0.20	2.36	0.00	2.36	6.67
07	Pickup Truck - 1/2 Ton	266.5	6.18	0.16	0.22	1.27	11.97	13.24	19.81
07	Pickup Truck - 3/4 Ton	266.5	6.18	0.16	0.22	1.27	11.97	13.24	19.81
07	Rear Blade - 8'	132.2	0.89	0.04	0.06	0.31	0.00	0.31	1.30
07	Rice Roller - 18'	199.2	4.70	0.19	0.25	1.63	0.00	1.63	6.76
07	Flat Roller - 18'	262.5	3.56	0.14	0.19	1.63	0.00	1.63	5.52
07	Ringroller - 30'	199.5	2.64	0.10	0.14	0.91	0.00	0.91	3.79
07	Saddle Tank - 300 Gallon	206.6	0.76	0.03	0.04	0.64	0.00	0.64	1.47
07	Saddle Tank - 300 Gallon	49.1	3.20	0.13	0.17	0.64	0.00	0.64	4.14
07	Saddle Tank - 300 Gallon	126.0	1.25	0.05	0.07	0.64	0.00	0.64	2.00
07	Saddle Tank - 300 Gallon	401.9	0.39	0.02	0.02	0.64	0.00	0.64	1.07
07	Spray Boom - 25'	299.4	0.59	0.02	0.02	0.49	0.00	0.49	1.12
07	Subsoiler - 16' - 9 Shank	399.5	8.90	0.26	0.35	8.32	0.00	8.32	17.83
07	Trailer Dolly	499.6	0.15	0.01	0.01	0.11	0.00	0.11	0.28
07	Trailer Dolly	499.7	0.15	0.01	0.01	0.11	0.00	0.11	0.28
07	Trailer Dolly	499.3	0.15	0.01	0.01	0.11	0.00	0.11	0.28
07	Trailer Dolly	499.7	0.15	0.01	0.01	0.11	0.00	0.11	0.28
07	Triplane - 16'	373.8	3.94	0.16	0.21	3.43	0.00	3.43	7.74
07	Vine Diverter	241.9	4.39	0.17	0.23	2.78	0.00	2.78	7.57
07	Vine Trainer	315.0	1.07	0.04	0.05	2.88	0.00	2.88	4.03

Table 6.

UC COOPERATIVE EXTENSION
RANGING ANALYSIS
SACRAMENTO VALLEY – 2008
TRANSPLANTED

COSTS PER ACRE AT VARYING YIELDS FOR PROCESSING TOMATOES

	YIELD (TONS/ACRE)						
	26.0	29.0	32.0	35.0	38.0	41.0	44.0
OPERATING COSTS/ACRE:							
Preplant Cost	338	338	338	338	338	338	338
Cultural Cost	1292	1,292	1,292	1,292	1,292	1,292	1,292
Harvest Cost	228	255	281	308	334	360	387
Assessment Cost	14	14	14	14	14	14	14
Interest on Operating Capital	65	65	65	66	66	66	67
TOTAL OPERATING COSTS/ACRE	1937	1,964	1,990	2,017	2,044	2,071	2,097
TOTAL OPERATING COSTS/TON	74	68	62	58	54	51	48
CASH OVERHEAD COSTS/ACRE	422	422	423	423	423	423	423
TOTAL CASH COSTS/ACRE	2359	2,386	2,413	2,440	2,466	2,493	2,520
TOTAL CASH COSTS/TON	91	82	75	70	65	61	57
NON-CASH OVERHEAD COSTS/ACRE	113	114	115	116	117	117	118
TOTAL COSTS/ACRE	2472	2,500	2,528	2,555	2,583	2,611	2,638
TOTAL COSTS/TON	95	86	79	73	68	64	60

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR PROCESSING TOMATOES

PRICE (DOLLARS/TON)	YIELD (TONS/ACRE)						
Processing Tomatoes	26.0	29.0	32.0	35.0	38.0	41.0	44.0
55.00	-507	-369	-230	-92	46	184	323
60.00	-377	-224	-70	83	236	389	543
65.00	-247	-79	90	258	426	594	763
70.00	-117	66	250	433	616	799	983
75.00	13	211	410	608	806	1,004	1,203
80.00	143	356	570	783	996	1,209	1,423
85.00	273	501	730	958	1,186	1,414	1,643

NET RETURNS PER ACRE ABOVE CASH COSTS FOR PROCESSING TOMATOES

PRICE (DOLLARS/TON)	YIELD (TONS/ACRE)						
Processing Tomatoes	26.0	29.0	32.0	35.0	38.0	41.0	44.0
55.00	-929	-791	-653	-515	-376	-238	-100
60.00	-799	-646	-493	-340	-186	-33	120
65.00	-669	-501	-333	-165	4	172	340
70.00	-539	-356	-173	10	194	377	560
75.00	-409	-211	-13	185	384	582	780
80.00	-279	-66	147	360	574	787	1,000
85.00	-149	79	307	535	764	992	1,220

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR PROCESSING TOMATOES

PRICE (DOLLARS/TON)	YIELD (TONS/ACRE)						
Processing Tomatoes	26.0	29.0	32.0	35.0	38.0	41.0	44.0
55.00	-1,042	-905	-768	-630	-493	-356	-218
60.00	-912	-760	-608	-455	-303	-151	2
65.00	-782	-615	-448	-280	-113	54	222
70.00	-652	-470	-288	-105	77	259	442
75.00	-522	-325	-128	70	267	464	662
80.00	-392	-180	32	245	457	669	882
85.00	-262	-35	192	420	647	874	1,102

Table 7.

UC COOPERATIVE EXTENSION
COSTS AND RETURNS/ BREAKEVEN ANALYSIS
SACRAMENTO VALLEY – 2008
TRANSPLANTED

COSTS AND RETURNS - PER ACRE BASIS

Crop	1. Gross Returns	2. Operating Costs	3. Net Returns Above Oper. Costs (1-2)	4. Cash Costs	5. Net Returns Above Cash Costs (1-4)	6. Total Costs	7. Net Returns Above Total Costs (1-6)
Processing Tomatoes	2,450	2,017	433	2,440	10	2,555	-105

COSTS AND RETURNS - TOTAL ACREAGE

Crop	1. Gross Returns	2. Operating Costs	3. Net Returns Above Oper. Costs (1-2)	4. Cash Costs	5. Net Returns Above Cash Costs (1-4)	6. Total Costs	7. Net Returns Above Total Costs (1-6)
Processing Tomatoes	1,543,500	1,270,748	272,752	1,536,994	6,506	1,609,965	-66,465

BREAKEVEN PRICES PER YIELD UNIT

			-------- Breakeven Price To Cover --------		
CROP	Base Yield (Units/Acre)	Yield Units	Operating Costs	Cash Costs	Total Costs
			---------- $ per Yield Unit ----------		
Processing Tomatoes	35.0	Ton	57.63	69.70	73.01

BREAKEVEN YIELDS PER ACRE

			-------- Breakeven Yield To Cover --------		
CROP	Yield Units	Base Price ($/Unit)	Operating Costs	Cash Costs	Total Costs
			---------- Yield Units / Acre ----------		
Processing Tomatoes	Ton	70.00	28.8	34.9	36.5

Table 8.

UC COOPERATIVE EXTENSION
DETAILS OF OPERATIONS
SACRAMENTO VALLEY – 2008
TRANSPLANTED

Operation	Operation Month	Tractor/ Power Unit	Implement	Material	Broadcast Rate/Acre	Material Unit
Laser Level - 4% Of Acreage	September	Custom	Laser Level		0.04	Acre
Land Prep - Stubble Disc & Roll	September	425 HP Crawler	Disc - Stubble 18'			
			Rice Roller - 18'			
Land Prep - Subsoil & Roll 2X	September	425 HP Crawler	Subsoiler - 16' - 9 Shank			
Land Prep - Disc & Roll		200 HP Crawler	Disc - Finish 25'			
			Ringroller - 30'			
Land Prep - Triplane 2X	September	200 HP Crawler	Triplane - 16'			
Land Prep -	September	Gypsum Application		Gypsum	0.20	Ton
- Apply Gypsum on 20% of Acreage						
Land Prep - List Beds	October	200 HP Crawler	Lister - 9 Row			
Land Prep - Shape Beds & Fertilize	October	155 HP 2WD Tractor	Bed Shaper - 3 Row	11-52-0	100.00	Lb
			Saddle Tank - 300 Gallon	Zinc Chelate	2.00	Pint
Weed Control - Roundup & Goal	January	130 HP 2WD Tractor	Saddle Tank - 300 Gallon	Roundup Ultra	1.00	Pint
			Spray Boom - 25'	Goal 2 XL	3.00	FlOz
Weed Control - Roundup	January	130 HP 2WD Tractor	Saddle Tank - 300 Gallon	Roundup Ultra	1.50	Pint
			Spray Boom - 25'			
Weed Control - Cultivate 2X	January	110 HP 2WD Tractor	Cultivator - Alloway 3 Row			
		92 HP 2WD Tractor	Cultivator - Perfecta 3 Row			
Condition Beds & Apply Starter Fertilizer	January	110 HP 2WD Tractor	Cultivator - Performer 3 Row	8-24-6	15.00	Lb
Power Mulch & Apply Herbicides -	March	130 HP 2WD Tractor	Mulcher - 15'	Treflan HFP	1.00	Pint
- Treflan (& Dual on 30% of Acreage)			Saddle Tank - 300 Gallon	Dual Magnum	0.45	Pint
Transplant Tomatoes	April	Custom		Tomato Seed	10.44	Thou
				Transplants - Growing	8.70	Thou
				Transplanting	8.70	Thou
Weed Control	April	130 HP 2WD Tractor	Saddle Tank - 300 Gallon	Matrix DF	0.48	Oz
- Apply Matrix on 80% of Acreage			Cultivator - Sled 3 Row			
Irrigate - Sprinklers 1X	April		Labor	Water	2.00	AcIn
Weed Control - Cultivate 3X	April	110 HP 2WD Tractor	Cultivator - Sled 3 Row			
	April	110 HP 2WD Tractor	Cultivator - Sled 3 Row			
	May	110 HP 2WD Tractor	Cultivator - 3 Row			
Fertilize - 150 Lbs N Sidedress	May	130 HP 2WD Tractor	Cultivator - Sled 3 Row	UN-32	150.00	Lbs N
			Saddle Tank - 300 Gallon			
Chisel Furrows	April	200 HP Crawler	Cultivator - 3 Row			
Mulch Beds	May	155 HP 2WD Tractor				
Disease Control - Bacterial Speck	April	130 HP 2WD Tractor	Cultivator - Sled 3 Row	Kocide 101	0.60	Lb
- on 30% of Acreage			Saddle Tank - 300 Gallon	Dithane DF	0.60	Lb
Open Ditches	April	200 HP Crawler	Ditcher - V			
	July	200 HP Crawler	Ditcher - V			
Irrigate - Furrow 8X	April		Labor	Water	10.00	AcIn
	May		Labor	Water	10.00	AcIn
	June		Labor	Water	10.00	AcIn
	July		Labor	Water	10.00	AcIn
Disease Control -	June	Air Application Spray		Bravo Weatherstik	0.15	Pint
- Late Blight on 5% of Acreage						
Close Ditches	July	200 HP Crawler	Rear Blade - 8'			
	July	200 HP Crawler	Rear Blade - 8'			
Mite Control - Sulfur on 70% of Acreage	July	Air Application Dust		Sulfur, Dust 98%	28.00	Lb
Fertilize - 20 Lbs N on 20% of Acreage	July	130 HP 2WD Tractor	Cultivator - Sled 3 Row	CAN 17	118.00	Lb
			Saddle Tank - 300 Gallon			
Weed Control - Hand Hoe	July	Contract Labor		Labor	5.00	Hour
Train Vines	July	110 HP 2WD Tractor	Vine Trainer			
Insect Control -	July	Air Application Spray		Warrior T	1.54	FlOz
- Aphids on 40% of Acreage						
Disease Control -	September	Air Application Spray		Bravo Weatherstik	0.45	Pint
- Fruit Rot on 15% of Acreage						
Insect Control - Worms	September	Air Application Spray		Confirm	12.00	FlOz
Fruit Ripener - Ethrel on 5% of Acreage	September	110 HP 2WD Tractor	Saddle Tank - 300 Gallon	Ethrel	0.03	Gal
			Spray Boom - 25'			
Open Harvest Lane on 8% of Acreage	July/Sept	130 HP 2WD Tractor	Vine Diverter			
		130 HP 2WD Tractor	Vine Diverter			
		130 HP 2WD Tractor	Vine Diverter			
Harvest	July/Sept	Harvester -Tomato	Harvester Tomato - Used	Labor	5.00	Hour
In Field Hauling 3X	July/Sept	110 HP 2WD Tractor	Trailer Dolly			
		130 HP 2WD Tractor	Trailer Dolly			
		155 HP 2WD Tractor	Trailer Dolly			
Pickup Truck Use (2 pickups)	All	Pickup Truck - 1/2 Ton				
	All	Pickup Truck - 3/4 Ton				
ATV Use	All	ATV				
Assessments/Fees	September	CDFA-CTVP		Fee	0.019	Ton
		CTGA		Fee	0.17	Ton
		CTRI		Fee	0.07	Ton
		PTAB		Fee	0.135	Ton