UNIVERSITY OF CALIFORNIA – COOPERATIVE EXTENSION

2014
SAMPLE COSTS TO PRODUCE PROCESSINGTOMATOES

FURROW IRRIGATED
IN THE SACRAMENTO VALLEY & NORTHERN DELTA

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UC COOPERATIVE EXTENSION

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In the Sacramento Valley & northern Delta – 2014

CONTENTS

INTRODUCTION

The sample costs to produce transplanted processing tomatoes under furrow irrigation in the Sacramento Valley and northern Delta 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 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, contact the Department of Agricultural and Resource Economics, University of California, Davis, (530) 752-4651 or destewart@ucdavis.edu. An additional cost of production study for processing tomatoes grown in this region under drip irrigation is also available: ("*Sample Costs to Produce Processing Tomatoes, Sub-Surface Drip Irrigated (SDI), in the Sacramento Valley & Northern Delta - 2014*"). The major differences between the two companion studies are in cultivation, fertilizer, ground preparation, irrigation and yield.

Sample Cost of Production Studies for many commodities are available at http://coststudies.ucdavis.edu/.

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ASSUMPTIONS

The following assumptions refer to tables 1 to 7 and pertain to sample costs and returns to produce transplanted processing tomatoes under furrow irrigation in the Sacramento Valley and northern Delta. Input prices and interest rates are based on 2014 values. 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. Approximately one third of the total local tomato acreage is under furrow irrigation and the cost estimates are included in this study. **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 3,500 non-contiguous acres of rented land at 12.0% of gross tomato revenue for this budget. Tomatoes are transplanted on 1,000 acres. (300 acres, are furrow irrigated and 700 acres are sub-surface drip irrigated). Twenty five hundred acres are planted to other rotational crops including alfalfa hay, field corn, safflower, sunflower, dry beans and/or wheat. 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. The costs associated with GPS tractor-mounted guidance and precision agriculture systems are included in this study. Usage of these systems can reflect a significant cost savings.

CULTURAL PRACTICES AND MATERIAL INPUTS

Land Preparation. Primary tillage operations include laser leveling, disc & roll, sub-soil, landplane and listing of beds is done in the fall in the year preceding transplanting. To maintain surface grade, 4% of the acres (12 acres) is laser leveled each year. Fields are stubble disced and rolled (using a rice roller). Fields are sub-soiled in two passes to a 30-inch depth and rolled. A medium-duty disc coupled with a ring roller is used. Ground is smoothed in two passes with a triplane. Beds on 5-foot centers are made with a 6-bed lister integrated with a bed-shaper.

Transplanting. Planting is spread over a 10-week period to meet contracted weekly delivery schedules at harvest. Seedlings are transplanted in double-lines per bed. All of the 300 acres are custom planted with greenhouse-grown transplants. The grower supplies the seed to the greenhouse operation to grow the transplants. Additional seed (15% above the quantity for the desired number of transplants) is needed to compensate for imperfect germination and for non-useable, damaged seedlings.

Fertilization. In the fall, ahead of listing beds, a soil amendment, gypsum at 3.0 tons per acre is custom broadcast spread on 50% of the acres. 11-52-0 is applied at 11 lbs. N per acre with bed shaping. Prior to transplanting, liquid starter fertilizer, 8-24-6 plus 2% zinc, is injected at 8 lbs. of N per acre. Nitrogen fertilizer, UN-32 at 160 lbs. of N per acre is side-dressed early in the growing season. CAN-17 at 17 lbs. of N per acre is side-dressed later during the growing season for supplemental nitrogen and calcium. Some growers are applying various micronutrients, biologicals and manures or planting cover crops on part of their acreage; but as these are not common practices, the associated costs are not included in this study.

Irrigation. In this study, water is a combination of 1/2 well water/pumped at $90 per acre-foot and 1/2 canal/district delivered surface water at $40 per acre-foot. For this study an average cost of ($65 per acre foot or $5.42 per acre inch) is charged. The irrigation costs itemized and shown in Tables 1 and 3 for

sprinklers include labor, pumping and water. The furrow irrigation costs for water & pumping are itemized separately from irrigation labor. Three ½-ton pickup trucks used for irrigation are itemized separately also.

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 through furrow irrigation. Water is pumped from open ditches into furrows with siphon pipe. Tail water leaves the field through drain ditches without any recapture and return.

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

Pest Control Adviser/Certified Crop Advisor (PCA/CCA). Written recommendations are required for many pesticides and are available from licensed pest control or certified crop advisers. In addition the PCA/CCA or an independent consultant will monitor the field for agronomic problems including irrigation and nutrition. Growers may hire a private PCA/CCA or receive the service as part of a service agreement with an agricultural chemical and fertilizer company.

Weeds. Beginning in January, glyphosate (Roundup UltraMax) plus oxyfluorfen (Goal 2XL) is sprayed on the fallow beds to control emerged weeds and repeated later with Roundup only. The applications are made with an ATV-pulled sprayer.

Before planting, the beds are cultivated to control weeds and to prepare the seedbed. As a preplant in the spring, trifluralin (Triflurex HFP) is tank-mixed with metolachlor (Dual II Magnum) and incorporated with a power mulcher on all acres. Post-transplant, rimsulfuron (Matrix DF) is sprayed on 100% of all the acreage. Again, post-transplant Triflurex HFP is incorporated into the soil as a layby application.

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

Insects, Diseases & Vertebrate Pests. 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 that are treated are primarily bacterial speck, occasionally late blight, and blackmold fruit rot. Vertebrate pest control costs are not included in this study.

In this study Kocide is sprayed on 30% of the acres for bacterial speck. Warrior is applied to 20% of the acreage for aphid control. Sulfur dust is custom applied to 40% of the acres for russet mite and powdery mildew control. Confirm is applied for worm control to 100% of the acres. Bravo-Weatherstik is custom 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. The application rates shown in Table 2 are adjusted to reflect the percent of acreage treated.

Fruit Ripener. Ethrel, a fruit-ripening agent, is applied with a ground sprayer three weeks before harvest to 5% of the acreage. The rate in table 2 is for 5% of an acre.

Harvest. The fruit is mechanically harvested by grower-owned and operated harvesters on 50% of the acreage while the remaining 50% is custom harvested by processor-owned and operated harvesters. The custom operation includes opening harvest lanes, harvesting, in-field hauling and generator-light machines for night harvesting. The grower uses a newer machine for 50% of the 300 acres. Typically growers of this scale also own an older, back-up harvester. Harvest support equipment includes tractors, trailer dollies, generator-light machines, and fuel trailers. A crew of 4 manual sorters, a harvester driver, and two bulk-trailer tractor drivers are used per harvester. A seasonal average of 2 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 maintenance & cleaning, 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 4; the equipment used is listed in Tables 5-6. Growers may choose to own harvesting equipment, purchase either new or used or hire a custom harvester. Many factors are important in deciding which harvesting option a grower uses.

Yields. An average of annual county tomato yields combined across the Sacramento Valley including neighboring San Joaquin County over the past ten years ranged from 34.30 to 42.65 tons per acre. The reporting counties were Colusa, Sacramento, Solano, Sutter, San Joaquin, Yolo, and sometimes Glenn. Butte and Tehama are the only Sacramento Valley counties that do not report processing tomatoes production average. The average yields from the 7 counties are from 2004 to 2013. In this study, a yield of 38 tons per acre is used.

Returns. Customarily, growers produce tomatoes under annual contracts with various tomato processing companies. Average prices in the Sacramento Valley ranged from $48.06 to $80.74 per ton over the last 10 years. A price of $80.00 per ton is used in this study.

Assessments. Under a state marketing order, a mandatory assessment fee is collected and administered by the Processing Tomato Advisory Board (PTAB) to inspect and grade fruit. Fees vary between inspection stations. In Yolo County, inspection fees in 2013 ranged 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 so the cost per ton is $0.14. 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 and for grower advocacy. CTGA membership charges are $0.17 per ton. The California Tomato Research Institute (CTRI) funds projects for crop improvement. CTRI membership charges are $0.07 per ton.

Labor. Basic wages are $12.50 and $10.00 per hour for machine operators and non-machine workers (irrigators and manual laborers), respectively. Adding 36% for the employer's share of federal and state payroll taxes, insurance and other benefits raises the total labor costs to $17.00 per hour for machine operators and $13.60 per hour for non-machine laborers. 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 $9.00 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, 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, 4 and 5.

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.

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 5.75% 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 $5,250 for the entire farm or $1.50 per acre.

Office Expense. Office and business expenses are estimated to be $175,000 for the entire farm or $50.00 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. For this study 100% of the land is rented at 12.0% of gross revenue for the tomatoes. The land rent includes the use of developed wells and access to surface delivered water.

Field Supervisors Salary. Supervisors' salaries include insurance, payroll taxes and benefits. Two thirds of one supervisor's time is allocated to tomatoes at $85 per acre.

Assistant Manager Salary. Assistant managers' salaries include insurance, payroll taxes and benefits at $21 per acre is allocated to tomatoes.

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 can protect the grower from crop losses due to adverse weather conditions, fire, wildlife, earthquake, volcanic eruption, catastrophic diseases and/or insects and failure of the irrigation system due to a natural disaster. The grower can choose the protection level at 50% to 75% of production history or county yields. In this study, no level is specified.

Miscellaneous Costs. Included expenses are employee safety training as well as pesticide use and regulatory continuing education training, employee bonuses, additional materials and applications for unique fields or special conditions.

Investment Repairs. Annual repairs on investment or capital recovery items that require maintenance are calculated as 2% of the purchase price.

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 cost of new equipment 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;

[{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 for this study. 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 4.75% used to calculate capital recovery cost is the effective long-term interest rate in January 2014. 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 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 and travel time.

Fuel, Lube & Repairs. 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 $4.12 and $3.93 per gallon, respectively.

Irrigation System. The land owner is responsible for the main pump and delivery of water to the grower's irrigation system. Irrigation equipment owned by the grower consists of booster pumps, pipe main lines, hand- moved sprinklers, V-ditcher, ditch closer, siphon tubes and various hand tools.

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 be 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. Any returns above total costs are considered returns on risk and investment to management (or owners).

Table Values. Due to rounding, the totals may be slightly different from the sum of the components.

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UC COOPERATIVE EXTENSION
TABLE 1. COSTS PER ACRE TO PRODUCE TOMATOES (FURROW)

Operation	Equipment Operation (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Preplant:								
Laser Level 4% Ac	0.00	0	0	0	0	7	7	
Stubble Disc & Roll	0.18	4	16	6	0	0	26	
Sub-Soil & Roll	0.30	6	27	11	0	0	44	
Finish Disc & Roll	0.10	2	5	2	0	0	10	
Land Plane 2X	0.27	5	14	5	0	0	25	
Gypsum 50% Ac	0.00	0	0	0	0	105	105	
List Beds 6-Row	0.11	2	10	3	0	0	15	
Shape Beds Fertilize 3-Row	0.20	4	8	4	37	0	53	
Pest Control-Weeds-Roundup/Goal 2XL	0.08	2	0	0	22	0	24	
Pest Control-Weeds-Roundup	0.08	2	0	0	13	0	15	
TOTAL PREPLANT COSTS	1.33	27	82	31	71	112	324	
Cultural:								
Open Beds 3-Row Alloway	0.14	3	5	2	0	0	9	
Mulch Beds-Apply Herbicides	0.20	4	8	3	34	0	50	
Fertilize-Starter 8-24-6, 2% Zn	0.23	5	9	4	27	0	45	
Transplant Tomatoes	0.00	0	0	0	424	209	633	
Pest Control-Weeds Post Plant Herbicide	0.08	2	3	1	12	0	17	
Irrigate-Sprinkler 50% Ac	1.00	20	9	1	11	0	42	
Pest Control-Weeds Close Cultivate	0.23	5	8	3	0	0	15	
Fertilize-Sidedress-Cultivate 2X	0.46	9	19	7	157	0	193	
Pest Control-Weeds Herbicide Layby	0.23	5	9	4	4	0	22	
Pest Control-Bacterial Speck 30% Ac	0.02	0	1	0	3	0	4	
Chisel-Furrows	0.13	3	7	2	0	0	12	
Open Ditches 2X	0.08	2	4	1	0	0	7	
Irrigate-Furrow 7X	0.00	0	0	0	217	0	217	
Pest Control-Weeds Hand Hoe	0.00	0	0	0	0	100	100	
Pest Control-Late Blight 5 % Ac	0.00	0	0	0	1	1	1	
Close Ditches-Grader 2X	0.22	4	6	1	0	0	12	
Pest Control-Aphids 20% Ac	0.02	0	1	0	1	0	2	
Train Vines (2 Tractors)	0.22	4	7	3	0	0	15	
Pest Control-Mites 40% Ac	0.00	0	0	0	4	7	11	
Irrigation-Labor	0.00	136	0	0	0	0	136	
Pest Control-Fruit Rot 15% Ac	0.00	0	0	0	2	2	4	
Pest Control-Worms	0.00	0	0	0	22	12	34	
Fruit Ripener-Ethrel 5% Ac	0.00	0	0	0	2	0	2	
Service Truck	0.50	10	2	3	0	0	15	
Water Truck	0.33	7	3	4	0	0	14	
Back Hoe	0.20	4	5	1	0	0	9	
Truck-Lowbed Trailer	0.17	3	3	2	0	0	8	
1/2 Ton Pickup Truck (3)	1.60	33	6	4	0	0	43	
3/4 Ton Pickup Truck	0.50	10	3	1	0	0	15	
TOTAL CULTURAL COSTS	6.54	269	117	49	921	331	1,687	
Harvest:								
Harvest-Custom 50% Ac	0.00	0	0	0	0	219	219	
Open Harvest Lanes 4% Ac	0.07	1	2	1	0	0	5	
Harvest-Self 50% Ac	0.37	28	33	64	0	0	125	
In Field Hauling (2)	0.76	16	31	11	0	0	57	
Share Rent 12.0%	0.00	0	0	0	365	0	365	
TOTAL HARVEST COSTS	1.20	45	67	76	365	219	771	
Assessment:								
PTAB, CTGA CTRI, CDFA-CTVP	0.00	0	0	0	15	0	15	
TOTAL ASSESSMENT COSTS	0.00	0	0	0	15	0	15	

TABLE 1. CONTINUED

Operation	Equipment Operation (Hrs/A)	Cash and Labor Costs per Acre						
		Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Interest on Operating Capital at 5.75%							63	
TOTAL OPERATING COSTS/ACRE	9	341	266	156	1,372	661	2,859	
CASH OVERHEAD:								
Liability Insurance							2	
Office Expense							50	
Field Sanitation							1	
Field Supervisor							85	
Miscellaneous Costs (Training etc.)							20	
Assistant Manager							21	
Property Taxes							1	
Property Insurance							1	
Investment Repairs							2	
TOTAL CASH OVERHEAD COSTS/ACRE							182	
TOTAL CASH COSTS/ACRE							3,041	
NON-CASH OVERHEAD:		Per Producing Acre		Annual Cost Capital Recovery				
GPS Sending Unit		2		0			0	
GPS Receivers (2)		1		0			0	
Shop Building		36		2			2	
Storage Building		14		1			1	
Fuel Tanks & Pumps		7		1			1	
Shop Tools		6		0			0	
Sprinkler Pipe		32		4			4	
Pipe Main Line 10" 1/2 Mile		15		2			2	
Generator & Lights		3		0			0	
Closed Mix System		1		0			0	
Siphon Tubes		4		0			0	
Implement Carrier		5		0			0	
Truck-Bobtail-5th Wheel		13		1			1	
Equipment		818		97			97	
TOTAL NON-CASH OVERHEAD COSTS		956		111			111	
TOTAL COSTS/ACRE							3,152	

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TABLE 2. COSTS AND RETURNS PER ACRE TO PRODUCE TOMATOES (FURROW)

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or	Your Cost
GROSS RETURNS					
Tomatoes	38	Ton	80.00	3,040	
TOTAL GROSS RETURNS	38	Ton		3,040	
OPERATING COSTS					
Fertilizer:				**221**	
11-52-0	100.00	Lb	0.37	37	
8-24-6, 2% Zn	8.00	Lb/N	3.34	27	
UN-32	160.00	Lb N	0.84	134	
CAN 17	100.00	Lb	0.23	23	
Custom:				**561**	
Laser Level	0.04	Acre	165.00	7	
Gypsum-Hauled Spread	1.50	Ton	70.00	105	
Transplanting	8.71	Thou	24.00	209	
Air App Spray 10g	1.60	Acre	11.80	19	
Air App Dusting	2.40	Lb	1.15	3	
Harvest	19.00	Ton	11.50	219	
Insecticide:				**27**	
Warrior II	0.38	FlOz	3.05	1	
Sulfur DF	2.40	Lb	1.57	4	
Confirm	10.00	FlOz	2.23	22	
Fungicide:				**6**	
Kocide DF	0.75	Lb	3.62	3	
Bravo Weatherstik	0.40	Pint	7.85	3	
Herbicide:				**84**	
Roundup UltraMax	3.00	Pint	8.59	26	
Goal 2XL	8.00	FlOz	1.08	9	
Triflurex HFP	2.00	Pint	4.07	8	
Dual II Magnum	1.33	Pint	22.58	30	
Matrix DF	0.50	Oz	23.83	12	
Growth Regulator:				**2**	
Ethrel	0.20	Pint	8.92	2	
Contract:				**100**	
Thin & Hoe	1.00	Acre	100.00	100	
Seed:				**180**	
Tomato Seed Thou	10.02	Thou	18.00	180	
Transplant:				**244**	
Transplants-Growing	8.71	Thou	28.00	244	
Irrigation:				**228**	
Water Average Costs	42.00	AcIn	5.42	228	
Assessment:				**15**	
PTAB	38.00	Ton	0.14	5	
CTGA	38.00	Ton	0.17	6	
CTRI	38.00	Ton	0.07	3	
CDFA-CTVP	38.00	Ton	0.02	1	
Land Rent:				**365**	
Share Rent 12.0%	38.00	Ton	9.60	365	
Labor				**341**	
Equipment Operator Labor	10.88	Hrs	17.00	185	
Irrigation Labor	10.00	Hrs	13.60	136	
Non-Machine Labor	1.50	Hrs	13.60	20	
Machinery				**422**	
Fuel-Gas	2.52	Gal	3.93	10	
Fuel-Diesel	62.10	Gal	4.12	256	
Lube				40	
Machinery Repair				116	
Interest on Operating Capital @ 5.75%				63	
TOTAL OPERATING COSTS/ACRE				2,859	
TOTAL OPERATING COSTS/TON				75	
NET RETURNS ABOVE OPERATING COSTS				181	

TABLE 2. CONTINUED

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
CASH OVERHEAD COSTS					
Liability Insurance				2	
Office Expense				50	
Field Sanitation				1	
Field Supervisor				85	
Miscellaneous Costs (Training etc.)				20	
Assistant Manager				21	
Property Taxes				1	
Property Insurance				1	
Investment Repairs				2	
TOTAL CASH OVERHEAD COSTS/ACRE				182	
TOTAL CASH OVERHEAD COSTS/TON				5	
TOTAL CASH COSTS/ACRE				3,041	
TOTAL CASH COSTS/TON				80	
NET RETURNS ABOVE CASH COSTS				-1	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
GPS Sending Unit				0	
GPS Receivers (2)				0	
Shop Building				2	
Storage Building				1	
Fuel Tanks & Pumps				1	
Shop Tools				0	
Sprinkler Pipe				4	
Pipe Main Line 10" 1/2 Mile				2	
Generator & Lights				0	
Closed Mix System				0	
Siphon Tubes				0	
Implement Carrier				0	
Truck-Bobtail-5th Wheel				1	
Equipment				97	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				111	
TOTAL NON-CASH OVERHEAD COSTS/TON				3	
TOTAL COST/ACRE				3,152	
TOTAL COST/TON				83	
NET RETURNS ABOVE TOTAL COST				-112	

UC COOPERATIVE EXTENSION

TABLE 3. MONTHLY COSTS PER ACRE TO PRODUCE TOMATOES (FURROW)

	OCT 13	NOV 13	DEC 13	JAN 14	FEB 14	MAR 14	APR 14	MAY 14	JUN 14	JUL 14	AUG 14	SEP 14	Total
Preplant:													
Laser Level 4% Ac	7												7
Stubble Disc & Roll	26												26
Sub-Soil & Roll	44												44
Finish Disc & Roll	10												10
Land Plane 2X	25												25
Gypsum 50% Ac	105												105
List Beds 6-Row 30″ Beds		15											15
Shape Beds Fertilize 3-Row		53											53
Pest Control-Weeds-Roundup/Goal 2XL				24									24
Pest Control-Weeds-Roundup						15							15
TOTAL PREPLANT COSTS	217	68		24		15							324
Cultural:													
Open Beds 3-Row Alloway						9							9
Mulch Beds-Apply Herbicides							50						50
Fertilize-Starter 8-24-6, 2% Zn							45						45
Transplant Tomatoes							633						633
Pest Control-Weeds Post Plant herbicide							17						17
Irrigate-Sprinkler 50% Ac							42						42
Pest Control-Weeds Close Cultivate							15						15
Fertilize-Sidedress-Cultivate 2X							152			41			193
Pest Control-Weeds Herbicide Layby								22					22
Pest Control-Bacterial Speck 30% Ac								4					4
Chisel-Furrows								12					12
Open Ditches 2X								4		4			7
Irrigate-Furrow 7X								27	65	65	60		217
Pest Control-Weeds Hand Hoe									100				100
Pest Control-Late Blight 5 % Ac									1				1
Close Ditches-Grader 2X									6		6		12
Pest Control-Aphids 20% Ac									2				2
Train Vines (2)										15			15
Pest Control-Mites 40% Ac										11			11
Irrigation-Labor											136		136
Pest Control-Fruit Rot 15% Ac												4	4
Pest Control-Worms												34	34
Fruit Ripener-Ethrel 5% Ac												2	2
Service Truck	1	1	1	1	1	1	1	1	1	1	1	1	15
Water Truck	1	1	1	1	1	1	1	1	1	1	1	1	14
Back Hoe	1	1	1	1	1	1	1	1	1	1	1	1	9
Truck-Lowbed Trailer	1	1	1	1	1	1	1	1	1	1	1	1	8
1/2 Ton Pickup Truck (3)	4	4	4	4	4	4	4	4	4	4	4	4	43
3/4 Ton Pickup Truck	1	1	1	1	1	1	1	1	1	1	1	1	15
TOTAL CULTURAL COSTS	9	9	9	9	9	18	963	77	183	144	210	49	1,687

TABLE 3. CONTINUED

	OCT 13	NOV 13	DEC 13	JAN 14	FEB 14	MAR 14	APR 14	MAY 14	JUN 14	JUL 14	AUG 14	SEP 14	Total
Harvest:													
Harvest-Custom 50% Ac											219		219
Open Harvest Lanes 4% Ac												5	5
Harvest-Self 50% Ac												125	125
In Field Hauling (2)												57	57
Share Rent 12.0%												365	365
TOTAL HARVEST COSTS	0	0	0	0	0	0	0	0	0	0	219	552	771
Assessment:													
Assessment	1	1	1	1	1	1	1	1	1	1	1	1	15
TOTAL ASSESSMENT COSTS	1	1	1	1	1	1	1	1	1	1	1	1	15
Interest on Operating Capital @ 5.75%	1	1	2	2	2	2	6	7	8	8	11	13	63
TOTAL OPERATING COSTS/ACRE	228	79	11	35	12	36	971	85	192	153	440	616	2,859
CASH OVERHEAD													
Liability Insurance					2								2
Office Expense	4	4	4	4	4	4	4	4	4	4	4	4	50
Field Sanitation												1	1
Field Supervisor	7	7	7	7	7	7	7	7	7	7	7	7	85
Miscellaneous Costs (Training etc.)												20	20
Assistant Manager	2	2	2	2	2	2	2	2	2	2	2	2	21
Property Taxes				1						1			1
Property Insurance				0						0			1
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL CASH OVERHEAD COSTS	13	13	13	14	15	13	13	13	13	14	13	34	182
TOTAL CASH COSTS/ACRE	241	92	25	50	26	49	984	99	205	168	453	650	3,041

UC COOPERATIVE EXTENSION
TABLE 4. RANGING ANALYSIS - TOMATOES (FURROW)

COSTS PER ACRE AND PER TON AT VARYING YIELDS TO PRODUCE TOMATOES (FURROW)

	YIELD (TON)						
	23.00	28.00	33.00	38.00	43.00	48.00	53.00
OPERATING COSTS/ACRE:							
Preplant	324	324	324	324	324	324	324
Cultural	1,687	1,687	1,687	1,687	1,687	1,687	1,687
Harvest	532	612	691	771	850	929	1,009
Assessment	9	11	13	15	17	19	21
Interest on Operating Capital @ 5.75%	61	62	62	63	63	64	65
TOTAL OPERATING COSTS/ACRE	2,613	2,695	2,777	2,859	2,941	3,023	3,105
TOTAL OPERATING COSTS/TON	113.62	96.26	84.16	75.24	68.40	62.98	58.59
CASH OVERHEAD COSTS/ACRE	191	191	191	191	191	191	191
TOTAL CASH COSTS/ACRE	2,804	2,886	2,968	3,050	3,132	3,214	3,296
TOTAL CASH COSTS/TON	121.92	103.07	89.94	80.26	72.84	66.96	62.19
NON-CASH OVERHEAD COSTS/ACRE	111	111	111	111	111	111	111
TOTAL COSTS/ACRE	2,915	2,997	3,079	3,161	3,243	3,324	3,406
TOTAL COSTS/TON	127.00	107.00	93.00	83.00	75.00	69.00	64.00

Net Return per Acre above Operating Costs for Tomatoes (Furrow)

PRICE ($/ton)	YIELD (Ton /acre)						
Tomatoes	23.00	28.00	33.00	38.00	43.00	48.00	53.00
65.00	-1,118	-875	-632	-389	-146	97	340
70.00	-1,003	-735	-467	-199	69	337	605
75.00	-888	-595	-302	-9	284	577	870
80.00	-773	-455	-137	181	499	817	1,135
85.00	-658	-315	28	371	714	1,057	1,400
90.00	-543	-175	193	561	929	1,297	1,665
95.00	-428	-35	358	751	1,144	1,537	1,930

Net Return per Acre above Cash Costs for Tomatoes (Furrow)

PRICE ($/ton)	YIELD (Ton /acre)						
Tomatoes	23.00	28.00	33.00	38.00	43.00	48.00	53.00
65.00	-1,309	-1,066	-823	-580	-337	-94	149
70.00	-1,194	-926	-658	-390	-122	146	414
75.00	-1,079	-786	-493	-200	93	386	679
80.00	-964	-646	-328	-10	308	626	944
85.00	-849	-506	-163	180	523	866	1,209
90.00	-734	-366	2	370	738	1,106	1,474
95.00	-619	-226	167	560	953	1,346	1,739

TABLE 4. RANGING ANALYSIS CONTINUED

Net Return per Acre above Total Costs for Tomatoes (Furrow)

PRICE ($/ton)	YIELD (Ton /acre)						
Tomatoes	23.00	28.00	33.00	38.00	43.00	48.00	53.00
65.00	-1,420	-1,177	-934	-691	-448	-204	39
70.00	-1,305	-1,037	-769	-501	-233	36	304
75.00	-1,190	-897	-604	-311	-18	276	569
80.00	-1,075	-757	-439	-121	197	516	834
85.00	-960	-617	-274	69	412	756	1,099
90.00	-845	-477	-109	259	627	996	1,364
95.00	-730	-337	56	449	842	1,236	1,629

UC COOPERATIVE EXTENSION
TABLE 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS

ANNUAL EQUIPMENT COSTS

						Cash Overhead		
Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
14	Road Grader	75,000	25	2,122	5,143	320	386	5,848
14	#1 Irrigation Pipe Trailer	2,141	20	119	164	9	11	185
14	#2 Irrigation Pipe Trailer	2,141	20	119	164	9	11	185
14	Truck-Trailer Lowbed	95,000	15	18,495	8,125	470	567	9,163
14	Back Hoe	16,599	15	1,594	1,497	75	91	1,663
14	425 HP Crawler	340,000	10	100,431	35,420	1,826	2,202	39,448
14	200 HP Crawler	229,338	10	67,743	23,892	1,231	1,485	26,609
14	#1 155 HP2WD Tractor	158,066	10	46,690	16,467	849	1,024	18,339
14	#2 155 HP2WD Tractor	158,066	10	46,690	16,467	849	1,024	18,339
14	#1 130 HP2WD Tractor	123,000	10	36,332	12,814	660	797	14,271
14	#2 130 HP2WD High-Crop Tractor	123,000	10	36,332	12,814	660	797	14,271
14	#1 Irrigation-Booster Pump	19,919	10	3,523	2,265	97	117	2,479
14	#2 Irrigation Booster Pump	19,919	10	3,523	2,265	97	117	2,479
14	Rice Roller 18'	15,552	10	2,750	1,768	76	92	1,936
14	Bed Shaper - 3 Row	13,292	10	2,351	1,511	65	78	1,655
14	Cultivator 3-Row Alloway	11,259	10	1,991	1,280	55	66	1,401
14	Ring Roller 26'	8,747	10	1,547	995	43	51	1,089
14	Cultivator- #1 Sled 3 Row	5,478	10	969	623	27	32	682
14	Cultivator- #2 Sled 3 Row	5,478	10	969	623	27	32	682
14	#1 Trailer Dolly	1,596	10	301	180	8	9	197
14	#2 Trailer Dolly	1,596	10	301	180	8	9	197
14	Harvester-Tomato	450,000	8	10,000	67,866	1,907	2,300	72,073
14	Stubble Disc 18'	55,000	5	17,916	9,357	302	365	10,024
14	Finish Disc 25'	48,769	5	15,886	8,297	268	323	8,889
14	Water Truck	48,000	5	21,512	7,098	288	348	7,733
14	Subsoiler 16'-9 Shank	42,454	5	13,829	7,223	233	281	7,738
14	Service Truck	38,600	5	17,300	5,708	232	279	6,219
14	3/4 Ton Pickup	28,000	5	12,549	4,140	168	203	4,511
14	Triplane-16'	24,478	5	7,973	4,165	135	162	4,461
14	Incorporator - 15'	24,345	5	7,930	4,142	134	161	4,437
14	#1 1/2 Ton Pickup	24,000	5	10,756	3,549	144	174	3,867
14	#2 1/2 Ton Pickup	24,000	5	10,756	3,549	144	174	3,867
14	#3 1/2 Ton Pickup	24,000	5	10,756	3,549	144	174	3,867
14	Mulcher-15'	20,507	5	6,680	3,489	113	136	3,738
14	6 Row Lister-30'	20,176	5	6,572	3,433	111	134	3,677
14	Vine Diverter	17,650	5	5,749	3,003	97	117	3,217
14	Furrow Chisel-3 Row	17,405	5	5,669	2,961	96	115	3,172
14	Cultivator-Fertilizer Bar-3 Row	13,054	5	4,252	2,221	72	87	2,379
14	Ditcher-V	8,631	5	2,811	1,468	47	57	1,573
14	ATV	6,499	5	2,913	961	39	47	1,047
14	Vine Trainer	5,280	5	1,720	898	29	35	962
14	ATV Spray System	4,017	5	1,308	683	22	27	732
14	#1 Spray Boom-25'	3,630	5	1,182	618	20	24	662
14	#2 Spray Boom-25'	3,630	5	1,182	618	20	24	662
14	#1 300 Gal Saddle Tank	3,218	5	1,048	547	18	21	587
14	#2 300 Gal Saddle Tank	3,218	5	1,048	547	18	21	587
14	#3 300 Gal Saddle Tank	3,218	5	1,048	547	18	21	587
14	#4 300 Gal Saddle Tank	3,218	5	1,048	547	18	21	587
	TOTAL	2,390,184	-	576,287	295,843	12,296	14,832	322,972
	60% of New Cost*	1,434,110	-	345,772	177,506	7,378	8,899	193,783

*Used to reflect a mix of new and used equipment

TABLE 5. CONTINUED

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead: Insur-ance	Cash Overhead: Taxes	Cash Overhead: Repairs	Total
INVESTMENT								
Shop Building	125,000	25	7,217	8,492	548	661	722	10,423
Storage Building	47,500	20	2,911	3,641	209	252	586	4,688
Fuel Tanks & Pumps	25,240	20	1,263	1,943	110	133	50	2,236
Shop Tools	20,000	20	1,447	1,526	89	107	145	1,867
Truck-Bobtail-5th Wheel	45,000	15	2,766	4,132	198	239	417	4,986
Implement Carrier	16,700	15	974	1,536	73	88	487	2,184
Siphon Tubes	12,726	15	848	1,165	56	68	100	1,390
Sprinkler Pipe	113,235	10	11,324	13,57	516	623	1,71	16,431
Pipe Main Line 10" 1/2 Mile	53,784	10	5,378	6,448	245	296	1,47	8,468
GPS Sending Unit	5,895	10	590	707	27	32	100	866
Closed Mix System	5,074	10	507	608	23	28	25	684
GPS Receivers (2)	3,990	10	400	478	18	22	100	618
Generator & Lights	8,763	5	1,763	1,689	44	53	100	1,886
TOTAL INVESTMENT	482,907	-	37,388	45,942	2,157	2,601	6,027	56,727

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	300	Acre	1.50	450
Office Expense	300	Acre	50.00	15,000
Field Sanitation	300	Acre	0.75	225
Field Supervisor	300	Acre	85.00	25,500
Misc Costs (Training etc.)	300	Acre	20.00	6,000
Assistant Manager	300	Acre	21.00	6,300

UC COOPERATIVE EXTENSION
TABLE 6. HOURLY EQUIPMENT COSTS

		Tomatoes (Furrow)	Total		Cash Overhead		Operating			
Yr	Description	Hours Used	Hours Used	Capital Recovery	Insur-ance	Taxes	Lube& Repairs	Fuel	Total Oper.	Total Costs/Hr.
14	Water Truck	100	2000	2.13	0.09	0.10	10.56	10.30	20.86	23.18
14	ATV	50	2000	0.29	0.01	0.01	1.81	3.93	5.74	6.05
14	425 HP Crawler	195	1600	13.28	0.68	0.83	21.40	82.40	103.80	118.60
14	200 HP Crawler	191	1600	8.96	0.46	0.56	13.27	47.82	61.10	71.07
14	Harvester-Tomato	121	1250	32.58	0.92	1.10	158.92	82.40	241.32	275.92
14	#1 155 HP2WD Tractor	408	1200	8.23	0.42	0.51	12.92	37.06	49.98	59.15
14	#2 155 HP2WD Tractor	277	1200	8.23	0.42	0.51	12.92	37.06	49.98	59.15
14	#1 130 HP2WD Tractor	155	1200	6.41	0.33	0.40	10.39	31.08	41.47	48.61
14	#2 130 HP2WD High-Crop Tractor	101	1200	6.41	0.33	0.40	10.39	31.08	41.47	48.61
14	#1 Irrigation-Booster Pump	165	1000	1.36	0.06	0.07	1.29	8.24	9.53	11.02
14	#2 Irrigation Booster Pump	165	1000	1.36	0.06	0.07	1.29	8.24	9.53	11.02
14	Service Truck	150	1000	3.42	0.14	0.17	6.11	4.12	10.23	13.96
14	#1 Trailer Dolly	114	750	0.14	0.01	0.01	0.00	0.00	0.00	0.16
14	#2 Trailer Dolly	114	750	0.14	0.01	0.01	0.00	0.00	0.00	0.16
14	Triplane-16'	81	600	4.16	0.13	0.16	3.82	0.00	3.82	8.29
14	#1 Irrigation Pipe Trailer	150	500	0.20	0.01	0.01	0.06	0.00	0.06	0.28
14	#2 Irrigation Pipe Trailer	150	500	0.20	0.01	0.01	0.06	0.00	0.06	0.28
14	#1 1/2 Ton Pickup	160	400	5.32	0.22	0.26	2.38	3.93	6.31	12.11
14	#2 1/2 Ton Pickup	160	400	5.32	0.22	0.26	2.38	3.93	6.31	12.11
14	#3 1/2 Ton Pickup	160	400	5.32	0.22	0.26	2.38	3.93	6.31	12.11
14	3/4 Ton Pickup	150	400	6.21	0.25	0.30	2.97	5.90	8.87	15.63
14	Subsoiler 16'-9 Shank	91	400	10.83	0.35	0.42	9.90	0.00	9.90	21.50
14	Road Grader	72	400	7.71	0.48	0.58	4.93	24.72	29.65	38.42
14	Incorporator - 15'	69	400	6.21	0.20	0.24	2.84	0.00	2.84	9.49
14	Cultivator-Fertilizer Bar-3 Row	69	400	3.33	0.11	0.13	2.93	0.00	2.93	6.50
14	Vine Trainer	65	400	1.35	0.04	0.05	0.94	0.00	0.94	2.38
14	Mulcher-15'	59	400	5.23	0.17	0.20	2.39	0.00	2.39	8.00
14	Stubble Disc 18'	54	400	14.04	0.45	0.55	9.37	0.00	9.37	24.41
14	Furrow Chisel-3 Row	38	400	4.44	0.14	0.17	3.91	0.00	3.91	8.67
14	6 Row Lister-30'	32	400	5.15	0.17	0.20	4.23	0.00	4.23	9.75
14	Finish Disc 25'	31	400	12.45	0.40	0.48	8.31	0.00	8.31	21.64
14	Ditcher-V	24	400	2.20	0.07	0.09	1.47	0.00	1.47	3.83
14	Vine Diverter	21	400	4.50	0.15	0.18	3.13	0.00	3.13	7.95
14	#1 300 Gal Saddle Tank	257	300	1.09	0.04	0.04	0.88	0.00	0.88	2.05
14	#2 300 Gal Saddle Tank	138	300	1.09	0.04	0.04	0.88	0.00	0.88	2.05
14	ATV Spray System	50	300	1.37	0.04	0.05	1.10	0.00	1.10	2.56
14	#3 300 Gal Saddle Tank	30	300	1.10	0.04	0.04	0.88	0.00	0.88	2.05
14	#2 Spray Boom-25'	25	300	1.24	0.04	0.05	0.99	0.00	0.99	2.32
14	#1 Spray Boom-25'	12	300	1.24	0.04	0.05	0.99	0.00	0.99	2.32
14	#4 300 Gal Saddle Tank	6	300	1.09	0.04	0.04	0.88	0.00	0.88	2.05
14	Rice Roller 18'	145	200	5.31	0.23	0.27	1.78	0.00	1.78	7.59
14	Cultivator- #1 Sled 3 Row	138	200	1.87	0.08	0.10	1.17	0.00	1.17	3.22
14	Cultivator- #2 Sled 3 Row	69	200	1.87	0.08	0.10	1.17	0.00	1.17	3.22
14	Back Hoe	66	200	4.49	0.23	0.27	3.26	20.60	23.86	28.85
14	Bed Shaper - 3 Row	60	200	4.53	0.19	0.23	2.85	0.00	2.85	7.81
14	Cultivator 3-Row Alloway	41	200	3.84	0.16	0.20	2.41	0.00	2.41	6.62
14	Ring Roller 26'	31	200	2.98	0.13	0.15	1.00	0.00	1.00	4.27
14	Truck-Trailer Lowbed	50	133	36.65	2.12	2.56	11.30	15.45	26.75	68.09

UC COOPERATIVE EXTENSION
TABLE 7. OPERATIONS WITH EQUIPMENT & MATERIALS

Operation	Operation Month	Tractor	Implement	Labor Type/ Material	Rate/ acre	Unit
Laser Level 4% Ac	Oct			Laser Level	0.04	Acre
Stubble Disc & Roll	Oct	425 HP Crawler	Stubble Disc 18'	Equipment Operator Labor	0.22	hour
			Rice Roller 18'			
Sub-Soil & Roll	Oct	425 HP Crawler	Subsoiler 16'-9 Shank	Equipment Operator Labor	0.36	hour
			Rice Roller 18'			
Finish Disc & Roll	Oct	200 HP Crawler	Finish Disc 25'	Equipment Operator Labor	0.12	hour
			Ring Roller 26'			
Land Plane 2X	Oct	200 HP Crawler	Triplane-16'	Equipment Operator Labor	0.32	hour
Gypsum 50% Ac	Oct			Gypsum-Hauled Spread	1.50	Ton
List Beds 6-Row	Nov	425 HP Crawler	6 Row Lister-30'	Equipment Operator Labor	0.13	hour
Shape Beds Fertilize	Nov	155 HP2WD Tractor	Bed Shaper - 3 Row	Equipment Operator Labor	0.24	hour
				11-52-0	100.00	Lb
			300 Gal Saddle Tank			
Pest Control-Weeds	Jan		ATV	Equipment Operator Labor	0.10	hour
				Roundup UltraMax	1.50	Pint
			ATV Spray System	Goal 2XL	8.00	FlOz
Pest Control-Weeds	Mar		ATV	Equipment Operator Labor	0.10	hour
				Roundup UltraMax	1.50	Pint
			ATV Spray System			
Open Beds	Mar	130 HP2WD Tractor	Cultivator 3-Row Alloway	Equipment Operator Labor	0.17	hour
Mulch Beds-Apply Herb	Apr	155 HP2WD Tractor	Mulcher-15'	Equipment Operator Labor	0.24	hour
				Triflurex HFP	1.00	Pint
			300 Gal Saddle Tank	Dual II Magnum	1.33	Pint
Fertilize-Starter	Apr	155 HP2WD Tractor	300 Gal Saddle Tank	Equipment Operator Labor	0.28	hour
				8-24-6, 2% Zn	8.00	Lb/N
			Cultivator - 3 Row			
Transplant Tomatoes	Apr			Transplanting	8.71	Thou
				Tomato Seed Thou	10.02	Thou
				Transplants-Growing	8.71	Thou
Pest Control-Weeds	Apr	130 HP2WD Tractor	300 Gal Saddle Tank	Equipment Operator Labor	0.09	hour
				Matrix DF	0.50	Oz
			Spray Boom-25'			
Irrigate-Sprinkler	Apr		Irrigation-Booster Pump	Equipment Operator Labor	0.60	hour
				Water Average Costs	1.00	AcIn
			Irrigation Pipe Trailer			
	Apr		Irrigation Booster Pump	Equipment Operator Labor	0.60	hour
				Water Average Costs	1.00	AcIn
			Irrigation Pipe Trailer			
Pest Control-Weeds	Apr	130 HP2WD Tractor	Cultivator- Sled 3 Row	Equipment Operator Labor	0.28	hour
Fertilize-Sidedress	Apr	155 HP2WD Tractor	300 Gal Saddle Tank	Equipment Operator Labor	0.28	hour
				UN-32	160.00	Lb N
			Cultivator-Sled 3 Row			
	July	155 HP2WD Tractor	300 Gal Saddle Tank	Equipment Operator Labor	0.28	hour
				CAN 17	100.00	Lb
			Cultivator-Sled 3 Row			
Pest Control-Weeds	May	155 HP2WD Tractor	300 Gal Saddle Tank	Equipment Operator Labor	0.28	hour
				Triflurex HFP	1.00	Pint
			Incorporator - 15'			
Pest Control-Bacteria	May	130 HP2WD Tractor	300 Gal Saddle Tank	Equipment Operator Labor	0.03	hour
				Kocide DF	0.75	Lb
			Spray Boom-25'			
Chisel-Furrows	May	200 HP Crawler	Furrow Chisel-3 Row	Equipment Operator Labor	0.15	hour
Open Ditches 2X	May	200 HP Crawler	Ditcher-V	Equipment Operator Labor	0.05	hour
	July	200 HP Crawler	Ditcher-V	Equipment Operator Labor	0.05	hour
Irrigate-Furrow 7X	May			Water Average Costs	5.00	AcIn
	June			Water Average Costs	6.00	AcIn
	June			Water Average Costs	6.00	AcIn
	July			Water Average Costs	6.00	AcIn
	July			Water Average Costs	6.00	AcIn
	Aug			Water Average Costs	6.00	AcIn
	Aug			Water Average Costs	5.00	AcIn
Pest Control-Weeds	June			Thin & Hoe	1.00	Acre
Pest Control-Late Blight	June			Bravo Weatherstik	0.10	Pint
				Air App Spray 10g	0.05	Acre
Close Ditches-Grader	June		Road Grader	Equipment Operator Labor	0.13	hour
	Aug		Road Grader	Equipment Operator Labor	0.13	hour
Pest Control-Aphids	June	130 HP2WD HC	300 Gal Saddle Tank	Equipment Operator Labor	0.02	hour
				Warrior II	0.38	FlOz
			Spray Boom-25'			
Train Vines (2)	July	130 HP2WD HC	Vine Trainer	Equipment Operator Labor	0.26	hour

TABLE 7. OPERATIONS WITH EQUIPMENT & MATERIALS CONTINUED

Operation	Operation Month	Tractor	Implement	Labor Type/ Material	Rate/ acre	Unit
Pest Control-Mites	July			Air App Dusting	2.40	Lb
				Sulfur DF	2.40	Lb
				Air App Spray 10g	0.40	Acre
Irrigation-Labor	Aug			Irrigation Labor	10.00	hours
Pest Control-Fruit Rot	Sept			Air App Spray 10g	0.15	Acre
				Bravo Weatherstik	0.30	Pint
Pest Control-Worms	Sept			Air App Spray 10g	1.00	acre
				Confirm	10.00	FlOz
Fruit Ripener-Ethrel	Sept	130 HP2WD HC	300 Gal Saddle Tank	Equipment Operator Labor	0.00	hour
				Ethrel	0.20	Pint
			Spray Boom-25'			
Service Truck	Sept		Service Truck	Equipment Operator Labor	0.60	hour
Water Truck	Sept		Water Truck	Equipment Operator Labor	0.40	hour
Back Hoe	Sept		Back Hoe	Equipment Operator Labor	0.24	hour
Truck-Lowbed Trailer	Sept		Truck-Trailer Lowbed	Equipment Operator Labor	0.20	hour
1/2 Ton Pickup Truck	Sept		1/2 Ton Pickup	Equipment Operator Labor	0.64	hour
	Sept		1/2 Ton Pickup	Equipment Operator Labor	0.64	hour
	Sept		1/2 Ton Pickup	Equipment Operator Labor	0.64	hour
3/4 Ton Pickup Truck	Sept		3/4 Ton Pickup	Equipment Operator Labor	0.60	hour
Harvest-Custom 50% Ac	Aug			Harvest	19.00	Tons
Open Harvest Lanes	Sept	130 HP2WD HC	Vine Diverter	Equipment Operator Labor	0.08	hour
Harvest-Self 50% Ac	Sept		Harvester-Tomato	Non-Machine Labor	1.50	hours
In Field Hauling (2)	Sept	155 HP2WD Tractor	Trailer Dolly	Equipment Operator Labor	0.46	hour
	Sept	155 HP2WD Tractor	Trailer Dolly	Equipment Operator Labor	0.46	hour
Share Rent 12.0%	Sept			Share Rent 12.0%	38.00	Ton