

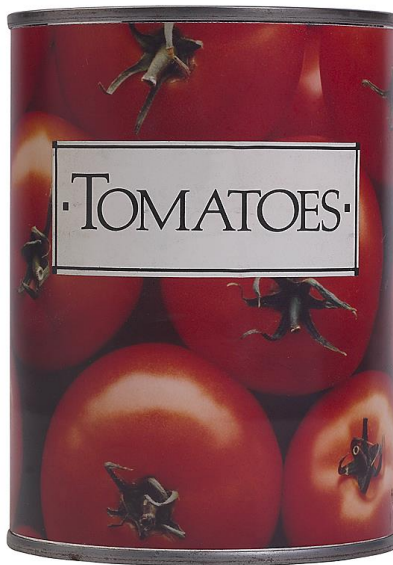
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UNIVERSITY OF CALIFORNIA AGRICULTURE AND NATURAL RESOURCES  
COOPERATIVE EXTENSION  
AGRICULTURAL ISSUES CENTER  
UC DAVIS DEPARTMENT OF AGRICULTURAL AND RESOURCE ECONOMICS

**2018**

**SAMPLE COSTS TO PRODUCE  
PROCESSING TOMATOES**



**SAN JOAQUIN VALLEY SOUTH, FRESNO COUNTY**

**SUB-SURFACE, DRIP IRRIGATED (SDI)**

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SUB-SURFACE, DRIP IRRIGATED (SDI)  
San Joaquin Valley South, Fresno County - 2018**

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**INTRODUCTION**

The sample costs to produce transplanted processing tomatoes under sub-surface, drip irrigation (SDI), in the Southern San Joaquin Valley are presented in this study. This study is intended as a guide only. It can be used to guide production decisions, estimate potential returns, prepare budgets and evaluate production loans. Sample costs given for labor, materials, equipment and contract services are based on January 2018 figures. Practices described are based on production practices considered typical for the crop and area, but will not apply to every situation. A blank column titled Your Costs is provided in Tables 1 and 2 to enter your estimated costs.

For an explanation of calculations used in the study refer to the section titled Assumptions. For more information contact Jeremy Murdock; University of California Agriculture and Natural Resources, Agricultural Issues Center, Department of Agricultural and Resource Economics, at 530-752-4651 or [jmmurdock@ucdavis.edu](mailto:jmmurdock@ucdavis.edu). The local extension office can be contacted through Tom Turini, [taturini@ucanr.edu](mailto:taturini@ucanr.edu), UCCE, Fresno County.

Sample Cost of Production studies for many commodities are available and can be down loaded from the website, <http://coststudies.ucdavis.edu>. Archived studies are also available on the website.

**Costs and Returns Study Program/Acknowledgements.** A costs and returns study is a compilation of specific crop data collected from meetings with professionals working in production agriculture from the area the study is based. The authors thank the growers, input suppliers, and other industry representatives who provided information, assistance, and expert advice. **The use of trade names and ranching**

**practices in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products or cultural practices.** *The University is an affirmative action/equal opportunity employer.*

## ASSUMPTIONS

The following assumptions refer to tables 1 to 7 and pertain to sample costs to produce transplanted processing tomatoes under sub-surface, drip irrigation (SDI), in the Southern San Joaquin Valley. The cultural practices described represent production operations and materials considered typical for a well-managed farm in the region. Costs, materials, and practices in this study will not apply to all farms. Timing and types of cultural practices will vary among growers within the region and from season to season due to variables such as weather, soil, insect, and disease pressure.

**Farm.** The hypothetical field and row-crop farm consists of 3,840 non-contiguous acres of farmer owned land (6 sections of cropland). Tomatoes are transplanted on 1,600 acres, approximately 40 percent of the total farm acreage. All 1,600 acres of processing tomatoes are sub-surface drip irrigated. The remaining 2,240 acres are planted to other rotational crops, permanent crops, or remain fallow. The rotational crops include onions, winter grains, cotton, and garlic. The permanent crops include almonds, pistachios, and grapes. The percentage of fallow acreage is greater in the more southern cropland. The hypothetical farm also includes various investments such as a farmer owned shop and 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.

### Production Operating Costs and Material Inputs

**Land Preparation.** In the fall, bed tillage equipment is used to maintain semi-permanent beds on the two thirds of the acreage (1,067 acres) with the drip tape in place. Furrows are chiseled to a 15-inch depth and rolled. Subsequently, a 3-row Performer® shallowly chisels, tills and reshapes the beds while avoiding disturbance of the drip tape.

One third of the drip tape (533 acres) is removed each year after a three-year life expectancy and is included in the post-harvest costs. On these acres, in the year preceding tomato transplanting, primary tillage includes operations to disc & roll, sub-soil, landplane, and list beds which is done from August through early December. To maintain surface grade on some of the acres where the drip tape is replaced, one fifth of the 533 acres is laser leveled each year (107 acres are laser leveled annually). Fields are stubble disced and rolled (with a rice roller). Fields are sub-soiled in two passes to a 30-inch depth while also rolled in the same pass. A medium-duty disc coupled with a ring roller follows. Ground is smoothed in two passes with a triplane. Beds on five-foot centers are made with a six-bed lister. Drip tape is installed at 10" depth (1 line/bed, 5 beds/pass), with beds re-shaped in the same operation. Drip tape is reconnected by hand to underground PVC water supply lines.

**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 7 inches from each side of the drip tape. 7,467 transplants are planted per acre. All 1,600 acres are custom planted with greenhouse-grown transplants. The grower supplies 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.** Applications of N-P-K fertilizers are based on soil and tissue tests which quantify fertility needs and determine a fertilizer program. In this study, prior to transplanting (in February), a liquid phosphoric acid fertilizer, 0-55-0, is banded at 80 lbs. of P per acre with a tractor and implement. There are 7.37 lbs. of P<sub>2</sub>O<sub>5</sub> in 1 gallon of 0-55-0 fertilizer.

Nitrogen fertilizer, UAN-32, is also banded with the phosphoric acid at a rate of 20 lbs. of N per acre. A total of 264 lbs. of N in the form of UAN-32 is applied in this study, but CAN 17 can be used as well. The remaining 244 lbs. of N is injected into the drip irrigation frequently at early stages of crop development. Most of the applications are made from 30 to 70 days after planting and some may continue to 85 days after planting. There are 3.5 lbs. of NH<sub>4</sub>NO<sub>3</sub> in 1 gallon of UAN-32 fertilizer.

Potassium, in the form of 0-0-30, is injected at a rate of 60 lbs. of K<sub>2</sub>O per acre in an injection schedule similar to the nitrogen applications. Most of the 0-0-30 applications are made from 30 to 70 days after planting. There are 3.6 lbs. of K<sub>2</sub>O in 1 gallon of 0-0-30 fertilizer.

Some growers are applying additional micronutrients, biologicals and manures or planting cover crops on part of their acreage, but these practices are not used over all operations and the specifics of these vary dramatically. Therefore, the associated costs are not included in this study.

**Irrigation.** In this study, the irrigation water is from ground water. Well water is pumped at \$250 per acre-foot. The subsurface drip irrigation costs are itemized and shown in Tables 1 and 3. Costs for water & pumping are itemized separately from irrigation labor. Three, ½-ton pickup trucks used for irrigation are itemized separately.

Total applied water was calculated at 30 acre-inches (2.5 acre-feet). All 30 acre-inches are applied through the drip system to match crop evapotranspiration and to account for 85% irrigation system efficiency. The drip system requires chemical flushing to retard calcium buildup and emitter clogging. For this study the operation is performed after harvest with N-pH<sub>2</sub> acid applied through the drip system with 0.5 acre-inch of water. The extra 0.5 acre-inch adds to the total of 30.5 inches of water shown in Table 2.

Drip tape maintenance costs are lower in the first year and increase over the 3-year life expectancy of the drip tape. The main reasons for a 3-year life expectancy of the SDI is mineral buildup plugging emitters and root intrusion. The maintenance costs are for repairs, additional labor, and time for flushing the system and adding chemicals to reduce drip emitter clogging. For this study approximately \$65 per acre is used to capture these costs.

**Soil Salinity Management.** Due to high salts in the well water efforts need to be made to concentrate salt buildup in the furrow and bed edges so that the electrical conductivity in the root zone of the plant is kept to a minimum. The use of overhead sprinklers to pre-irrigate during years of insufficient rainfall is a strategy to leach salts (and reduce salinity levels to concentrations similar to that of groundwater being used for the leaching). However, this operation is costly and it is more common to pre-irrigate with the sub-surface drip irrigation system. The costs of sprinklers is not included in this study.

**Pest Management.** The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Tomatoes*. For information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at [www.ipm.ucanr.edu](http://www.ipm.ucanr.edu). **Although growers commonly use the pesticides mentioned, many other pesticides are available. Check with your PCA and/or the UC IPM website for current recommendations.** To purchase pesticides for commercial use, a grower must be a Certified Private Applicator to obtain a Pesticide Identification number. **For information and pesticide use permits, contact your local county agricultural commissioner's office.**

While adjuvants may be recommended for use with many pesticides for effective control, adjuvants and their costs are not included 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 adviser. In addition, the PCA/CCA or an independent consultant will monitor the field for agronomic pest problems including irrigation and nutrition which would include a nitrogen management plan. 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 March, a pre-plant application of glyphosate (Roundup Ultra) is sprayed on the fallow beds to control emerged weeds and repeated again post-plant as a spot spray. The pre-plant application is made with an ATV-pulled sprayer.

Before planting, the beds are cultivated to control weeds and to prepare the seedbed. As a pre-plant in the spring, Treflan is tank-mixed with metolachlor (Dual Magnum) and incorporated with a power mulcher on all acres.

A combination of hand weeding and mechanical cultivation is also used for weed control. The crop is mechanically cultivated with a sled-mounted cultivator once during the season. On average, weeds are removed by hand 2 times during a season by contracted laborers.

*Insects and Diseases.* The insect pests included in this study are thrips, mites, worms, and beet leafhopper. The latter is the only known vector for Beet Curly Top Virus (BCTV), which is the most problematic disease. In this study, thrips are treated with Radiant SC in mid-May. To prevent resistance Dimethoate (applied in early May) can be rotated with Radiant SC annually. Worms are treated with Proclaim in June and then Coragen in July. If necessary, Proclaim can be applied again in August as a third treatment for worms, but is not included in this study.

BCTV is controlled with a series of applications beginning with Admire Pro (neonicotinoid) which is banded prior to transplanting. Another neonicotinoid, Platinum, is applied through the drip irrigation 21 days after planting. Venom is applied through the drip irrigation 42 days after planting.

Powdery mildew (PM) is a treatable disease occurring annually. In this study we included five treatments to control PM. The first treatment is dusting sulfur at 30 to 40 days after planting, followed by a second dusting sulfur treatment 3 weeks later. In July, an application of Fontelis with Proclaim (for worms), followed by another application of dusting sulfur which controls mites as well. In August, an application of Quadris Top is tank mixed with Coragen (for worms). Priaxor can also be used instead of Quadris Top. Both of these materials have some activity against black mold. All pesticide application in this study are custom ground applied, except the applications for BCTV control.

Nematodes can be a problem in sandy soils. Telone C, and several other materials, can be used for nematode control, but sandy soils are not common in Fresno County. In this study, nematode treatment expense is not included.

*Vertebrates.* Gophers are a minor problem. For gopher control, zinc phosphide is injected into gopher tunnels with a hand-held probe.

**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 a 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 harvesting includes opening harvest lanes, harvesting, in-field hauling, and generator-light machines for night harvesting. The grower uses a late-model machine for 50% of the 1600 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 (some harvesters only require 2 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 harvested fruit 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 and 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 chooses.

**Yields.** In this study, an estimated seasonal yield of 58 tons per acre is used to reflect yields under sub-surface drip irrigation.

**Returns.** Customarily, growers produce tomatoes under annual contracts with various tomato processors. A price of \$70.50 per ton is used in this study, which reflects the statewide crop price in 2017.

*Ranging Analysis.* Table 4 has a range of return prices used for calculating net returns per acre with different yields. Processing tomatoes are contracted as a statewide core price with late-season premiums and some fruit quality incentives. For this analysis, selected yields ranged from 43 to 73 tons per acre and crop prices ranged from \$55.50 to \$85.50 per ton.

**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. Inspection fees in 2016 ranged from \$9.68 to \$11.52 per load with an average of \$10.50. Growers and processors share equally in the fee; growers pay \$5.25 per load in this study. A truckload is assumed to be 25 tons so the cost per ton is \$0.21. 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 Fresno County 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 is not mandatory, but the associated fee of \$0.07 per ton is included in this study.

### **Labor, Equipment, and Interest**

**Labor.** Hourly wages for workers are \$13.25 for machine operators and \$11.50 per hour non-machine labor. Adding 45 percent for the employers' share of federal and state payroll taxes, insurance, and other possible benefits gives the labor rates shown of \$19.21 and \$16.68 per hour for machine labor and non-machine labor, respectively. The overhead includes the employer's share of federal and California state payroll taxes, workers' compensation insurance for vineyards and a percentage for other possible benefits. Workers' compensation insurance costs will vary among growers. The cost is based on the average industry rate as of January, 2018. Labor for operations involving machinery are 20 percent higher than the operation time given in Table 2 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

**Equipment Operating Costs.** Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by American Society of Agricultural and Biological Engineers (ASABE). Fuel and lubrication costs are also determined by ASABE equations based on maximum power takeoff (PTO) horsepower, and fuel type. Average prices for on-farm delivery of diesel and gasoline based on 2018 data from the Energy Information Administration are \$2.92 and \$3.20 per gallon, respectively. The cost includes a 9.25 percent sales tax, a \$0.13/gal excise tax on diesel fuel, an 8 percent sales tax, and a \$0.30/gal excise tax on gasoline. It is noted that federal and state excise taxes are refundable for on-farm use when filing the farm income tax return.

*Fuel Lube & Repair.* 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 percent 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 5.00 percent 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. The rate will vary depending upon various factors, but the rate in this study is considered a typical lending rate by a farm lending agency as of January 2018.

**Risk.** The risks associated with crop production should not be minimized. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks, which affect profitability and economic viability of processing tomato production. Because of so many potential risk factors, effective risk management must combine specific tactics in a detailed manner, in various combinations for a sustainable operation. Moreover, Table 4 of this study reflects a ranging analysis of returns based on various assumptions which is therefore hypothetical in nature. It is important to realize that actual results may differ from the returns contained in this study. Any returns above total costs are considered returns on risk and investment to management, (or owners).

Growers may purchase Federal crop insurance to reduce the production risk associated with specific natural hazards. Insurance costs will depend on the type and level of coverage.

## 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 can include property taxes, interest on operating capital, office expense, liability and property insurance, sanitation services, equipment repairs, and management.

**Property Taxes.** Counties charge a base property tax rate of 1 percent 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 percent of the average value of the property.

**Insurance.** Insurance for farm investments varies depending on the assets included and the amount of coverage.

*Property Insurance.* This provides coverage for property loss and is charged at 0.846 percent of the average value of the assets over their useful life.

*Liability insurance.* A standard farm liability insurance policy will help cover the expenses for which you become legally obligated to pay for bodily injury claims on your property and damages to another person's property as a result of a covered accident. Common liability expenses covered under your policy include attorney fees and court costs, medical expenses for people injured on your property, injury or damage to another's property. In this study, liability insurance costs \$1,756 for the entire farm or \$0.46 per acre.

*Crop Insurance.* Federally supported crop insurance is available to processing tomato growers for any unavoidable loss of production, damage or poor quality resulting from adverse weather conditions such as cool wet weather, freeze, frost, hail, heat, rain, wind and damage from birds, drought, earthquakes and fire. Coverage levels are from 50-85 percent of the approved average yield as established by verifiable production records from the vineyard. Actual insurance coverage is by unit, not by acre. A significant number of growers purchase crop insurance in this region. Due to variability in coverages, crop insurance is not purchased in this study. <http://www.rma.usda.gov/policies/2017policy.html>

**Office Expense.** Office and business expenses are estimated at \$50 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, shop and office utilities, and miscellaneous administrative charges.

**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 Managers 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.

**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 percent of the purchase price.

## NON-CASH OVERHEAD

Non-cash overhead costs, shown on an annual per-acre basis, are calculated as the capital recovery cost for equipment and other farm investments.

**Capital Recovery Costs.** Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). It is equivalent to the annual payment on a loan for the investment with the down payment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but more accurately represents the annual costs of ownership because it takes the time value of money into account (Boehlje and Eidman). The formula for the calculation of the annual capital recovery costs is ((Purchase Price – Salvage Value) x (Capital Recovery Factor)) + (Salvage Value x Interest Rate).



*Salvage Value.* Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements), the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the American Society of Agricultural and Biological Engineers (ASABE) based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASABE, by the annual hours of use in the operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value for land is the purchase price because land does not depreciate. The purchase price and salvage value for equipment and investments are shown in 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 5.50 percent used to calculate capital recovery cost is the effective long-term interest rate in January 2018. 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.

**Irrigation System.** Drip system equipment owned by the grower consists of filters, booster & injector pumps and drip tape installing & extracting implements. Grower costs include connections to pump, drip tape installation, sub-main water supply lines and installation, pressure regulators and air vents.

*Drip Tape.* The drip tape is considered an investment and is amortized over the three-year life expectancy of the tape. There are no recycling revenue or disposal fees for the drip tape in this study.

**Land.** For this study, the land has been valued at \$10,000 per acre. This land investment is listed under Non-Cash Overhead in Tables 1 & 2. The annual capital recovery cost is \$550/acre.

**Equipment Costs.** 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 percent to indicate a mix of new and used equipment. Annual ownership costs for equipment and other investments are in the Whole Farm Equipment, Investment and Business Overhead 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.

**Implement Carrier/Flatbed Truck.** This equipment is used throughout the year to move equipment and supplies. They are listed under investments with no actual tasks assigned.

**Buildings-Shop/Storage.** The shop and storage buildings are used to perform maintenance on equipment and storage for equipment and supplies for the entire farm.

**Global Positioning Systems, (GPS).** The stationary GPS sending unit is mounted so that it can receive and send data to the tractors operating in the fields. The receiving units are mounted so that they are removable and interchangeable to different tractors.

**Generators/Lights/Shop Tools.** This includes shop tools and equipment, hand tools, and miscellaneous field tools. Generators and lights are for the staging/loading areas when harvesting at night.

**Fuel Tanks.** One 5,000-gallon diesel fuel tank and one 500-gallon gasoline fuel tank using gravity feed and mounted on metal stands. The tanks are setup in a cement containment pad that meets federal, state, and county regulations.

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

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**TABLE 1. SAMPLE COSTS PER ACRE TO PRODUCE PROCESSING TOMATOES**  
 SAN JOAQUIN VALLEY SOUTH – 2018

Operation	Cash and Labor Costs per Acre						Total Cost	Your Cost
	Operation Time (Hrs/A)	Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/Rent		
<b>Pre-plant:</b>								
Laser level 7% Ac	0.00	0	0	0	0	11	11	
Chisel Furrows 67% Ac	0.15	4	6	2	0	0	12	
Condition Beds 67% Ac	0.10	2	4	2	0	0	8	
Stubble Disc & Roll 33% Ac	0.06	1	4	2	0	0	7	
Sub-Soil & Roll 33% Ac	0.10	2	6	3	0	0	12	
Finish Disc & Roll 33% Ac	0.03	1	1	1	0	0	3	
Land Plane 2X 33% Ac	0.04	1	2	1	0	0	3	
List Beds 6-Row 33% Ac	0.04	1	2	1	0	0	4	
5-Row Shape/Insert Drip Tape 33% Ac	0.13	20	8	3	0	0	31	
Pest Control-Weeds Roundup	0.08	2	0	0	6	0	9	
<b>TOTAL PREPLANT COSTS</b>	<b>0.74</b>	<b>34</b>	<b>34</b>	<b>16</b>	<b>6</b>	<b>11</b>	<b>101</b>	
<b>Cultural:</b>								
Well Test/Water Analysis	0.00	0	0	0	0	1	1	
Open Beds-3 Row Alloway	0.14	3	3	2	0	0	8	
Mulch Beds-Apply Herbicides	0.10	2	3	2	12	0	19	
Fertilize- UAN-32 & 0-55-0 (Band)	0.23	5	7	4	128	0	143	
Pest Control-BCTV(Band)	0.23	5	7	4	7	0	22	
Transplant Tomatoes	0.00	0	0	0	0	650	650	
Pest Control-Weeds Post Plant Spray	0.04	1	1	0	1	0	3	
Irrigate	0.00	0	0	0	625	0	625	
Fertigate- 0-0-30	0.00	0	0	0	85	0	85	
Pest Control-Weeds Close Cultivate	0.22	5	5	2	0	0	13	
Fertigate-UAN-32	0.00	0	0	0	142	0	142	
Pest Control-Weeds Hand Hoe	0.00	0	0	0	0	80	80	
Pest Control-Thrips	0.00	0	0	0	41	15	56	
Pest Control-Mildew(Dust) 2X	0.00	0	0	0	14	30	44	
Ferigate- 0-0-30	0.00	0	0	0	42	0	42	
Pest Control-BCTV(Chemigate)	0.00	0	0	0	92	0	92	
Trim Vines	0.18	4	4	2	0	0	11	
Pest Control-Worms/Mites/Mildew	0.00	0	0	0	73	15	88	
Pest Control-Mites/Mildew(Dust)	0.00	0	0	0	7	15	22	
Irrigation Labor	0.00	133	0	0	0	0	133	
Pest Control-Worms/Mildew	0.00	0	0	0	87	15	102	
Fruit Ripener-Ethrel 5% Ac	0.00	0	0	0	2	0	2	
Service Truck	0.50	12	1	3	0	0	16	
Water Truck	0.33	8	2	3	0	0	13	
Back Hoe	0.17	4	3	0	0	0	7	
Road Grader	0.17	4	3	1	0	0	8	
Truck-Lowbed Trailer	0.17	4	2	2	0	0	7	
1/2 Ton Pickup (1)	0.25	6	1	1	0	0	7	
1/2 Ton Pickup (2)	0.25	6	1	1	0	0	7	
1/2 Ton Pickup (3)	0.25	6	1	1	0	0	7	
3/4 Ton Pickup	0.25	6	1	1	0	0	8	
Pest Control-Vertebrate	0.20	9	1	0	1	0	11	
<b>TOTAL CULTURAL COSTS</b>	<b>3.67</b>	<b>222</b>	<b>46</b>	<b>28</b>	<b>1,358</b>	<b>821</b>	<b>2,475</b>	
<b>Harvest:</b>								
Harvest Custom 50% Ac	0.00	0	0	0	0	377	377	
Open Harvest Lanes 4% Ac	0.07	2	2	1	0	0	4	
Harvest Self 50% Ac	0.44	34	28	75	0	0	137	
In Field Hauling (2)	0.87	20	25	11	0	0	56	
<b>TOTAL HARVEST COSTS</b>	<b>1.38</b>	<b>56</b>	<b>55</b>	<b>86</b>	<b>0</b>	<b>377</b>	<b>574</b>	
<b>Post-Harvest:</b>								
Irrigate/Chemigate	0.00	0	0	0	22	0	22	

## UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

**TABLE 1. CONTINUED**  
SAN JOAQUIN VALLEY SOUTH – 2018

Operation	Operation		Cash and Labor Costs per Acre				Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/Rent		
Drip Tape System Maintenance	0.20	64	1	0	0	0	65	
Drip Tape Extraction 33% Ac	0.17	21	11	5	0	0	36	
<b>TOTAL POST-HARVEST COSTS</b>	<b>0.37</b>	<b>84</b>	<b>12</b>	<b>5</b>	<b>22</b>	<b>0</b>	<b>123</b>	
Assessment:								
PTAB CTGA CDFA-CTVP CTRI	0.00	0	0	0	27	0	27	
<b>TOTAL ASSESSMENT COSTS</b>	<b>0.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>27</b>	<b>0</b>	<b>27</b>	
Interest on Operating Capital at 5.00%							45	
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>6</b>	<b>396</b>	<b>146</b>	<b>135</b>	<b>1,440</b>	<b>1,209</b>	<b>3,345</b>	
<b>CASH OVERHEAD:</b>								
Liability Insurance							0	
Office Expense							50	
Field Sanitation							1	
Field Supervisor							85	
Misc Costs (Training etc.)							20	
Assistant Manager							21	
GPS Annual Activation Fee							2	
Property Taxes							107	
Property Insurance							9	
Investment Repairs							22	
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>							<b>318</b>	
<b>TOTAL CASH COSTS/ACRE</b>							<b>3,663</b>	
<b>NON-CASH OVERHEAD:</b>								
		Per Producing Acre		Annual Cost Capital Recovery				
GPS Sending Unit		1		0			0	
GPS Receivers (2)		1		0			0	
Shop Building		23		2			2	
Storage Building		9		1			1	
Diesel and Gasoline Fuel Station		6		0			0	
Shop Tools		4		0			0	
Generators & Light (2)		3		1			1	
Closed Mix System		1		0			0	
Drip Irrigation System		750		55			55	
Drip Tape		300		111			111	
Implement Carrier		3		0			0	
Truck-Bobtail-5th Wheel		13		1			1	
Land		10,000		550			550	
Fuel Trailers 500 Gallon (3)		8		1			1	
Equipment		567		75			75	
<b>TOTAL NON-CASH OVERHEAD COSTS</b>		<b>11,688</b>		<b>798</b>			<b>798</b>	
<b>TOTAL COSTS/ACRE</b>							<b>4,461</b>	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 2. COSTS AND RETURNS PER ACRE TO PRODUCE PROCESS TOMATOES**  
 SAN JOAQUIN VALLEY SOUTH – 2018

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>GROSS RETURNS</b>					
Tomatoes (SDI)	58	Ton	70.50	4,089	
<b>TOTAL GROSS RETURNS</b>				4,089	
<b>OPERATING COSTS</b>					
<b>Fertilizer:</b>				<b>396</b>	
UAN 32	264.00	Lb NH <sub>4</sub> NO <sub>3</sub>	0.58	153	
0-55-0	80.00	Lb P <sub>2</sub> O <sub>5</sub>	1.45	116	
0-0-30	60.00	Lb K <sub>2</sub> O	2.12	127	
<b>Custom:</b>				<b>1,129</b>	
Laser Level	0.07	Acre	165.00	11	
Annual Well Test/Water Analysis	1.00	Acre	1.00	1	
Transplanting w/ plant costs	1.00	Acre	650.00	650	
Ground App Spray 20g	6.00	Acre	15.00	90	
Harvest	29.00	ton	13.00	377	
<b>Insecticide:</b>				<b>259</b>	
Admire Pro	4.00	Oz	1.70	7	
Radiant SC	6.00	FIOz	6.81	41	
Sulfur, Dust 98%	60.00	Lb	0.35	21	
Platinum 75 SG	3.67	Oz	7.59	28	
Venom	6.00	Oz	10.63	64	
Proclaim	4.50	FIOz	7.43	33	
Coragen	7.00	FIOz	9.26	65	
<b>Fungicide:</b>				<b>62</b>	
Fontelis	20.00	FIOz	2.00	40	
Quadris Top	8.00	FIOz	2.72	22	
<b>Herbicide:</b>				<b>20</b>	
Roundup Ultra	1.75	Pint	4.31	8	
Treflan	0.50	Pint	4.45	2	
Dual Magnum	0.67	Pint	15.00	10	
<b>Vertebrate Pest Control:</b>				<b>1</b>	
Zinc Phosphide	0.50	Lb	2.50	1	
<b>Growth Regulator:</b>				<b>14</b>	
Ethrel	0.20	Pint	8.92	2	
N-pHuric Acid	0.12	Gal	100.00	12	
<b>Contract:</b>				<b>80</b>	
Hand Hoe	0.80	Acre	100.00	80	
<b>Irrigation:</b>				<b>635</b>	
Water - Pumped	30.50	AcIn	20.83	635	
<b>Assessment:</b>				<b>27</b>	
PTAB	58.00	Ton	0.21	12	
CTGA	58.00	Ton	0.17	10	
CDFA-CTVP	58.00	Ton	0.02	1	
CTRI	58.00	Ton	0.07	4	
<b>Labor</b>				<b>396</b>	
Equipment Operator Labor	7.39	hrs	19.21	142	
Non-Machine Labor	3.69	hrs	16.68	62	
Irrigation Labor	11.55	hrs	16.68	193	
<b>Machinery</b>				<b>282</b>	
Fuel-Gas	1.61	gal	3.20	5	
Fuel-Diesel	48.32	gal	2.92	141	
Lube				22	
Machinery Repair				113	
Interest on Operating Capital @ 5.00%				45	
<b>TOTAL OPERATING COSTS/ACRE</b>				3,345	
<b>TOTAL OPERATING COSTS/TON</b>				58	
<b>NET RETURNS ABOVE OPERATING COSTS</b>				744	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 2. CONTINUED**  
 SAN JOAQUIN VALLEY SOUTH – 2018

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>CASH OVERHEAD COSTS</b>					
Liability Insurance				0	
Office Expense				50	
Field Sanitation				1	
Field Supervisor				85	
Misc Costs (Training etc.)				20	
Assistant Manager				21	
GPS Annual Activation Fee				2	
Property Taxes				107	
Property Insurance				9	
Investment Repairs				22	
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>				318	
<b>TOTAL CASH OVERHEAD COSTS/TON</b>				5	
<b>TOTAL CASH COSTS/ACRE</b>				3,663	
<b>TOTAL CASH COSTS/TON</b>				63	
<b>NET RETURNS ABOVE CASH COSTS</b>				426	
<b>NON-CASH OVERHEAD COSTS (Capital Recovery)</b>					
GPS Sending Unit				0	
GPS Receivers (2)				0	
Shop Building				2	
Storage Building				1	
Diesel and Gasoline Fuel Station				0	
Shop Tools				0	
Generators & Light (2)				1	
Closed Mix System				0	
Drip Irrigation System				55	
Drip Tape				111	
Implement Carrier				0	
Truck-Bobtail-5th Wheel				1	
Land				550	
Fuel Trailers 500 Gallon (3)				1	
Equipment				75	
<b>TOTAL NON-CASH OVERHEAD COSTS/ACRE</b>				798	
<b>TOTAL NON-CASH OVERHEAD COSTS/TON</b>				14	
<b>TOTAL COST/ACRE</b>				4,461	
<b>TOTAL COST/TON</b>				77	
<b>NET RETURNS ABOVE TOTAL COST</b>				-372	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 3. MONTHLY COSTS PER ACRE TO PRODUCE PROCESS TOMATOES**  
 SAN JOAQUIN VALLEY SOUTH – 2018

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Total
	17	17	17	18	18	18	18	18	18	18	18	18	
Pre-plant:													
Laser level 7% Ac	11												11
Chisel Furrows 67% Ac	12												12
Condition Beds 67% Ac	8												8
Stubble Disc & Roll 33% Ac	7												7
Sub-Soil & Roll 33% Ac	12												12
Finish Disc & Roll 33% Ac	3												3
Land Plane 2X 33% Ac	3												3
List Beds 6-Row 33% Ac		4											4
5-Row Shape/Insert Drip Tape 33% Ac		31											31
Pest Control-Weeds Roundup						9							9
<b>TOTAL PREPLANT COSTS</b>	<b>56</b>	<b>35</b>				<b>9</b>							<b>101</b>
Cultural:													
Well Test/Water Analysis				1									1
Open Beds-3 Row Alloway						8							8
Mulch Beds-Apply Herbicides						19							19
Fertilize- UAN-32 & 0-55-0 (Band)							143						143
Pest Control-BCTV(Band)							22						22
Transplant Tomatoes							650						650
Pest Control-Weeds Post Plant Spray							3						3
Irrigate							83	125	146	167	104		625
Fertigate- 0-0-30							42		42				85
Pest Control-Weeds Close Cultivate							6	6					13
Fertigate-UAN-32							41	41	41	20			142
Pest Control-Weeds Hand Hoe								40	40				80
Pest Control-Thrips								56					56
Pest Control-Mildew(Dust)								22	22				44
Fertigate- 0-0-30								42					42
Pest Control-BCTV(Chemigate)								92					92
Trim Vines										5	5		11
Pest Control-Worms/Mites/Mildew										88			88
Pest Control-Mites/Mildew(Dust)										22			22
Irrigation Labor											133		133
Pest Control-Worms/Mildew											102		102
Fruit Ripener-Ethrel 5% Ac											2		2
Service Truck	1	1	1	1	1	1	1	1	1	1	1	1	16
Water Truck	1	1	1	1	1	1	1	1	1	1	1	1	13
Back Hoe	1	1	1	1	1	1	1	1	1	1	1	1	7
Road Grader	1	1	1	1	1	1	1	1	1	1	1	1	8
Truck-Lowbed Trailer	1	1	1	1	1	1	1	1	1	1	1	1	7
1/2 Ton Pickup (1)	1	1	1	1	1	1	1	1	1	1	1	1	7
1/2 Ton Pickup (2)	1	1	1	1	1	1	1	1	1	1	1	1	7
1/2 Ton Pickup (3)	1	1	1	1	1	1	1	1	1	1	1	1	7
3/4 Ton Pickup	1	1	1	1	1	1	1	1	1	1	1	1	8
Pest Control-Vertebrate	1	1	1	1	1	1	1	1	1	1	1	1	11
<b>TOTAL CULTURAL COSTS</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>9</b>	<b>8</b>	<b>35</b>	<b>999</b>	<b>431</b>	<b>298</b>	<b>336</b>	<b>354</b>	<b>8</b>	<b>2,475</b>



UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

**TABLE 3. CONTINUED**  
SAN JOAQUIN VALLEY SOUTH – 2018

	OCT 16	NOV 16	DEC 16	JAN 17	FEB 17	MAR 17	APR 17	MAY 17	JUN 17	JUL 17	AUG 17	SEP 17	Total
Harvest:													
Harvest Custom 50% Ac											377		377
Open Harvest Lanes 4% Ac											4		4
Harvest Self 50% Ac											137		137
In Field Hauling (2)											56		56
<b>TOTAL HARVEST COSTS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>574</b>	<b>0</b>	<b>574</b>
Post-Harvest:													
Irrigate/Chemigate												22	22
Drip Tape System Maintenance												65	65
Drip Tape Extraction 33% Ac												36	36
<b>TOTAL POST-HARVEST COSTS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>123</b>	<b>123</b>
Assessment:													
PTAB CTGA CDEA-CTVP CTRI	2	2	2	2	2	2	2	2	2	2	2	2	27
<b>TOTAL ASSESSMENT COSTS</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>27</b>
Interest on Operating Capital @5.00%	0	0	1	1	1	1	5	7	8	9	13	-1	45
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>67</b>	<b>46</b>	<b>10</b>	<b>12</b>	<b>11</b>	<b>47</b>	<b>1,007</b>	<b>440</b>	<b>309</b>	<b>348</b>	<b>944</b>	<b>133</b>	<b>3,345</b>
<b>CASH OVERHEAD</b>													
Liability Insurance					0								0
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
Misc Costs (Training etc.)												20	20
Assistant Manager												21	21
GPS Annual Activation Fee												2	2
Property Taxes				53						53			107
Property Insurance				5						5			9
Investment Repairs	2	2	2	2	2	2	2	2	2	2	2	2	22
<b>TOTAL CASH OVERHEAD COSTS</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>71</b>	<b>14</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>71</b>	<b>13</b>	<b>57</b>	<b>318</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>80</b>	<b>59</b>	<b>24</b>	<b>83</b>	<b>24</b>	<b>60</b>	<b>1,020</b>	<b>454</b>	<b>322</b>	<b>419</b>	<b>957</b>	<b>190</b>	<b>3,663</b>

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 4. RANGING ANALYSIS - PROCESS TOMATOES**  
 SAN JOAQUIN VALLEY SOUTH – 2018

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

	YIELD (TON)						
	43.00	48.00	53.00	58.00	63.00	68.00	73.00
<b>OPERATING COSTS/ACRE:</b>							
Pre-plant	101	101	101	101	101	101	101
Cultural	2,475	2,475	2,475	2,475	2,475	2,475	2,475
Harvest	471	505	540	574	609	643	678
Post-Harvest	123	123	123	123	123	123	123
Assessment	20	23	25	27	30	32	34
Interest on Operating Capital @ 5.00%	44	44	45	45	45	45	45
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>3,234</b>	<b>3,271</b>	<b>3,309</b>	<b>3,345</b>	<b>3,383</b>	<b>3,420</b>	<b>3,457</b>
<b>TOTAL OPERATING COSTS/TON</b>	<b>75.22</b>	<b>68.15</b>	<b>62.43</b>	<b>57.68</b>	<b>53.69</b>	<b>50.29</b>	<b>47.36</b>
<b>CASH OVERHEAD COSTS/ACRE</b>	<b>318</b>	<b>318</b>	<b>318</b>	<b>318</b>	<b>318</b>	<b>318</b>	<b>318</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>3,552</b>	<b>3,589</b>	<b>3,626</b>	<b>3,663</b>	<b>3,700</b>	<b>3,738</b>	<b>3,775</b>
<b>TOTAL CASH COSTS/TON</b>	<b>82.60</b>	<b>74.77</b>	<b>68.42</b>	<b>63.16</b>	<b>58.74</b>	<b>54.96</b>	<b>51.71</b>
<b>NON-CASH OVERHEAD COSTS/ACRE</b>	<b>798</b>	<b>798</b>	<b>798</b>	<b>798</b>	<b>798</b>	<b>798</b>	<b>798</b>
<b>TOTAL COSTS/ACRE</b>	<b>4,350</b>	<b>4,387</b>	<b>4,424</b>	<b>4,461</b>	<b>4,498</b>	<b>4,535</b>	<b>4,572</b>
<b>TOTAL COSTS/TON</b>	<b>101.00</b>	<b>91.00</b>	<b>83.00</b>	<b>77.00</b>	<b>71.00</b>	<b>67.00</b>	<b>63.00</b>
<b>Net Return per Acre above Operating Costs for Process Tomatoes (SDI)</b>							
PRICE (\$/ton )	YIELD (ton /acre)						
Tomatoes (SDI)	43.00	48.00	53.00	58.00	63.00	68.00	73.00
55.50	-848	-607	-367	-127	114	354	595
60.50	-633	-367	-102	163	429	694	960
65.50	-418	-127	163	453	744	1,034	1,325
70.50	-203	113	428	744	1,059	1,374	1,690
75.50	12	353	693	1,033	1,374	1,714	2,055
80.50	227	593	958	1,323	1,689	2,054	2,420
85.50	442	833	1,223	1,613	2,004	2,394	2,785
<b>Net Return per Acre above Cash Costs for Process Tomatoes (SDI)</b>							
PRICE (\$/ton )	YIELD (ton /acre)						
Tomatoes (SDI)	43.00	48.00	53.00	58.00	63.00	68.00	73.00
55.50	-1,165	-925	-685	-444	-204	36	277
60.50	-950	-685	-420	-154	111	376	642
65.50	-735	-445	-155	136	426	716	1,007
70.50	-520	-205	110	426	741	1,056	1,372
75.50	-305	35	375	716	1,056	1,396	1,737
80.50	-90	275	640	1,006	1,371	1,736	2,102
85.50	125	515	905	1,296	1,686	2,076	2,467
<b>Net Return per Acre above Total Costs for Process Tomatoes (SDI)</b>							
PRICE (\$/ton )	YIELD (ton /acre)						
Tomatoes (SDI)	43.00	48.00	53.00	58.00	63.00	68.00	73.00
55.50	-1,963	-1,723	-1,482	-1,242	-1,001	-761	-521
60.50	-1,748	-1,483	-1,217	-952	-686	-421	-156
65.50	-1,533	-1,243	-952	-662	-371	-81	209
70.50	-1,318	-1,003	-687	-372	-56	259	574
75.50	-1,103	-763	-422	-82	259	599	939
80.50	-888	-523	-157	208	574	939	1,304
85.50	-673	-283	108	498	889	1,279	1,669

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS**  
 SAN JOAQUIN VALLEY SOUTH – 2018

ANNUAL EQUIPMENT COSTS

Yr.	Description	Price	Years Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insurance	Taxes	
18	#1 425 HP Crawler	425,000	10	125,538	46,634	233	2,753	49,619
18	#1 Stubble Disc 18'	55,000	5	17,916	9,670	31	365	10,065
18	#1 Rice Roller 18'	15,552	10	2,750	1,850	8	92	1,949
18	#1 200 HP Crawler	229,338	10	67,743	25,164	126	1,485	26,775
18	#1 Finish Disc 25'	48,769	5	15,886	8,574	27	323	8,925
18	#1 Triplane-16'	24,478	5	7,973	4,304	14	162	4,480
18	#1 ATV	6,499	5	2,913	1,000	4	47	1,051
18	#1 ATV Spray System	4,017	5	1,308	706	2	27	735
18	#2 ATV	6,499	5	2,913	1,000	4	47	1,051
18	#1 130 HP2WD Tractor	123,000	10	36,332	13,496	67	797	14,360
18	#1 300 Gal Saddle Tank	3,218	3	1,338	770	2	23	795
18	#1 Mulcher-15'	20,507	5	6,680	3,605	12	136	3,753
18	#1 Vine Trimmer	5,280	5	1,835	908	3	36	946
18	#1 155 HP2WD Tractor	158,066	8	55,163	19,279	90	1,066	20,435
18	#2 Spray Boom-25'	3,630	5	1,182	638	2	24	664
18	Furrow Chisel-3 Row	17,405	5	5,669	3,060	10	115	3,185
18	#2 300 Gal Saddle Tank	3,218	3	1,338	770	2	23	795
18	#1 Trailer Dolly	1,596	10	301	188	1	9	199
18	Cultivator- #2 Sled 3 Row	5,478	5	1,784	963	3	36	1,002
18	#1 Harvester-Tomato	450,000	8	10,000	70,010	195	2,300	72,505
18	Drip Tape Extractor	30,000	5	9,772	5,274	17	199	5,490
18	#2 Trailer Dolly	1,596	10	301	188	1	9	199
18	#1 Vine Diverter	24,000	5	7,818	4,219	13	159	4,392
18	5-Row Shaper-Drip Tape Inserter	16,117	5	5,250	2,834	9	107	2,949
18	Cult - #1 Performer 3 Row	33,309	10	5,890	3,962	17	196	4,174
18	Cultivator 3-Row Alloway	11,259	8	2,542	1,516	6	69	1,591
18	Water Truck	48,000	5	21,512	7,386	29	348	7,763
18	Road Grader	75,000	25	2,122	5,550	33	386	5,968
18	#1 3/4 Ton Pickup	45,000	5	20,168	6,924	28	326	7,278
18	Service Truck	38,600	5	17,300	5,940	24	279	6,243
18	#1 6R Lister-30'	20,176	5	6,572	3,547	11	134	3,692
18	Back Hoe	16,599	10	2,935	1,974	8	98	2,080
18	Truck-Trailer Lowbed	95,000	7	36,037	12,357	55	655	13,068
18	#3 1/2 Ton Pickup	28,000	5	12,549	4,308	17	203	4,528
18	#2 155 HP2WD Tractor	158,066	8	55,163	19,279	90	1,066	20,435
18	#3 300 Gal Saddle Tank	3,218	3	1,338	770	2	23	795
18	#2 130 HP2WD High-Crop Tractor	123,000	10	36,332	13,496	67	797	14,360
18	#4 300 Gal Saddle Tank	3,218	3	1,338	770	2	23	795
18	#2 Rice Roller 18'	15,552	10	2,750	1,850	8	92	1,949
18	#1 Subsoiler 18'- 9 Shank	42,454	5	13,829	7,464	24	281	7,769
18	#1 Ring Roller 25'	8,747	10	1,547	1,040	4	51	1,096
18	#2 1/2 Ton Pickup	28,000	5	12,549	4,308	17	203	4,528
18	#1 1/2 Ton Pickup	28,000	5	12,549	4,308	17	203	4,528
18	#1 Cultivator- 3 Row	13,054	5	4,252	2,295	7	87	2,389
18	#2 Cultivator- 3 Row	13,054	5	4,252	2,295	7	87	2,389
TOTAL		2,525,569	-	663,233	336,446	1,349	15,944	353,739
60% of New Cost*		1,515,341	-	397,940	201,868	809	9,566	212,243

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

## UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

**TABLE 5. CONTINUED**  
SAN JOAQUIN VALLEY SOUTH – 2018

## ANNUAL INVESTMENT COSTS

Description	Price	Years Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insurance	Taxes	Repairs	
INVESTMENT								
GPS Sending Unit	5,895	10	413	750	3	32	118	902
GPS Receivers (2)	3,990	10	279	508	2	21	80	611
Shop Building	125,000	25	8,750	9,148	57	669	2,500	12,373
Storage Building	47,500	20	3,325	3,879	22	254	950	5,105
Diesel and Gasoline Fuel Station	33,255	20	2,328	2,716	15	178	665	3,574
Shop Tools	20,000	20	1,400	1,633	9	107	400	2,149
Generators & Light (2)	17,526	5	1,227	3,884	8	94	350	4,336
Closed Mix System	5,074	10	355	646	2	27	101	776
Drip Irrigation System	1,200,000	25	84,000	87,817	543	6,420	24,000	118,780
Drip Tape	480,000	3	0	177,914	203	2,400	9,600	190,117
Implement Carrier	16,700	15	1,169	1,612	8	89	334	2,042
Truck-Bobtail-5th Wheel	70,000	15	4,900	6,755	32	375	1,400	8,561
Land	16,000,000	30	16,000,000	880,000	13,536	160,000	0	1,053,536
Fuel Trailers 500 Gallon (3)	45,000	15	3,150	4,343	20	241	900	5,504
<b>TOTAL INVESTMENT</b>	<b>18,069,940</b>	<b>-</b>	<b>16,111,296</b>	<b>1,181,604</b>	<b>14,459</b>	<b>170,906</b>	<b>41,398</b>	<b>1,408,367</b>

## ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	1600	Acre	0.46	736
Office Expense	1600	Acre	50.00	80,000
Field Sanitation	1600	Acre	0.75	1,200
Field Supervisor	1600	Acre	85.00	136,000
Misc Costs (Training etc.)	1600	Acre	20.00	32,000
Assistant Manager	1600	Acre	21.00	33,600
GPS Annual Activation Fee	1600	Acre	2.00	3,200

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 6. HOURLY EQUIPMENT COSTS**  
 SAN JOAQUIN VALLEY SOUTH – 2018

Yr.	Description	Process Tomatoes (SDI)		Total			Cash Overhead		Operating		Total Costs/Hr.
		Hours Used	Hours Used	Hours Used	Capital Recovery	Insurance	Taxes	Lube & Repairs	Fuel	Total Oper.	
18	#1 425 HP Crawler	869	1600	17.49	0.09	1.03	19.92	58.40	78.32	96.93	
18	#1 Stubble Disc 18'	95	400	14.50	0.05	0.55	9.33	0.00	9.33	24.43	
18	#1 Rice Roller 18'	95	200	5.55	0.02	0.27	1.77	0.00	1.77	7.62	
18	#1 200 HP Crawler	591	1600	9.44	0.05	0.56	11.11	33.89	45.00	55.04	
18	#1 Finish Disc 25'	55	400	12.86	0.04	0.48	8.27	0.00	8.27	21.66	
18	#1 Triplane-16'	71	600	4.30	0.01	0.16	3.82	0.00	3.82	8.29	
18	#1 ATV	133	2000	0.30	0.00	0.01	1.70	3.20	4.90	5.21	
18	#1 ATV Spray System	133	300	1.41	0.00	0.05	1.10	0.00	1.10	2.57	
18	#2 ATV	640	2000	0.30	0.00	0.01	1.70	3.20	4.90	5.21	
18	#1 130 HP2WD Tractor	690	1200	6.75	0.03	0.40	8.96	22.03	30.99	38.17	
18	#1 300 Gal Saddle Tank	163	500	0.92	0.00	0.03	0.89	0.00	0.89	1.84	
18	#1 Mulcher-15'	157	400	5.41	0.02	0.20	2.38	0.00	2.38	8.01	
18	#1 Vine Trimmer	293	600	0.91	0.00	0.04	1.19	0.00	1.19	2.13	
18	#1 155 HP2WD Tractor	1339	1500	7.71	0.04	0.43	11.35	26.27	37.62	45.79	
18	#2 Spray Boom-25'	69	300	1.28	0.00	0.05	0.99	0.00	0.99	2.32	
18	Furrow Chisel-3 Row	246	400	4.59	0.01	0.17	3.88	0.00	3.88	8.66	
18	#2 300 Gal Saddle Tank	367	500	0.92	0.00	0.03	0.89	0.00	0.89	1.84	
18	#1 Trailer Dolly	693	750	0.15	0.00	0.01	0.00	0.00	0.00	0.16	
18	Cultivator- #2 Sled 3 Row	345	400	1.44	0.00	0.05	1.22	0.00	1.22	2.73	
18	#1 Harvester-Tomato	777	1250	33.60	0.09	1.10	153.55	58.40	211.95	246.75	
18	Drip Tape Extractor	271	400	7.91	0.03	0.30	6.28	0.00	6.28	14.51	
18	#2 Trailer Dolly	693	750	0.15	0.00	0.01	0.00	0.00	0.00	0.16	
18	#1 Vine Diverter	112	400	6.33	0.02	0.24	4.24	0.00	4.24	10.82	
18	5-Row Shaper-Drip Tape Inserter	207	400	4.25	0.01	0.16	3.37	0.00	3.37	7.80	
18	Cult - #1 Performer 3 Row	166	200	11.88	0.05	0.59	6.80	0.00	6.80	19.33	
18	Cultivator 3-Row Alloway	220	250	3.64	0.01	0.17	2.43	0.00	2.43	6.25	
18	Water Truck	533	2000	2.22	0.01	0.10	10.09	7.30	17.39	19.72	
18	Road Grader	293	400	8.32	0.05	0.58	3.83	17.52	21.35	30.30	
18	#1 3/4 Ton Pickup	400	400	10.39	0.04	0.49	4.07	4.80	8.87	19.78	
18	Service Truck	800	1000	3.56	0.01	0.17	5.92	2.92	8.84	12.58	
18	#1 6R Lister-30'	57	400	5.32	0.02	0.20	4.22	0.00	4.22	9.76	
18	Back Hoe	293	300	3.95	0.02	0.20	2.37	14.60	16.97	21.13	
18	Truck-Trailer Lowbed	267	285	26.02	0.12	1.38	10.89	10.95	21.84	49.35	
18	#3 1/2 Ton Pickup	400	400	6.46	0.03	0.30	2.56	3.20	5.76	12.56	
18	#2 155 HP2WD Tractor	1166	1500	7.71	0.04	0.43	11.35	26.27	37.62	45.79	
18	#3 300 Gal Saddle Tank	63	500	0.92	0.00	0.03	0.89	0.00	0.89	1.84	
18	#2 130 HP2WD High-Crop Tractor	453	1200	6.75	0.03	0.40	8.96	22.03	30.99	38.17	
18	#4 300 Gal Saddle Tank	367	500	0.92	0.00	0.03	0.89	0.00	0.89	1.84	
18	#2 Rice Roller 18'	160	200	5.55	0.02	0.27	1.77	0.00	1.77	7.62	
18	#1 Subsoiler 18'- 9 Shank	160	400	11.20	0.04	0.42	9.87	0.00	9.87	21.52	
18	#1 Ring Roller 25'	55	200	3.12	0.01	0.15	1.00	0.00	1.00	4.29	
18	#2 1/2 Ton Pickup	400	400	6.46	0.03	0.30	2.56	3.20	5.76	12.56	
18	#1 1/2 Ton Pickup	400	400	6.46	0.03	0.30	2.56	3.20	5.76	12.56	
18	#1 Cultivator- 3 Row	367	400	3.44	0.01	0.13	2.91	0.00	2.91	6.50	
18	#2 Cultivator- 3 Row	367	400	3.44	0.01	0.13	2.91	0.00	2.91	6.50	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 7. OPERATIONS WITH EQUIPMENT & MATERIALS**  
 SAN JOAQUIN VALLEY SOUTH – 2018

Operation	Operation Month	Tractor	Implement	Labor Type/ Material	Rate/ acre	Unit
Laser level 7% Ac	Oct			Laser Level	0.07	Acre
Chisel Furrows 67% Ac	Oct	#1 200 HP Crawler	Furrow Chisel-3 Row	Equipment Operator Labor	0.18	hour
Condition Beds 67% Ac	Oct	#1 200 HP Crawler	Cult - #1 Performer 3 Row	Equipment Operator Labor	0.12	hour
Stubble Disc & Roll 33%	Oct	#1 425 HP Crawler	#1 Stubble Disc 18'	Equipment Operator Labor	0.07	hour
			#1 Rice Roller 18'			
Sub-Soil & Roll 33% Ac	Oct	#1 425 HP Crawler	#1 Subsoiler 18'- 9 Shank			
			#2 Rice Roller 18'			
Finish Disc & Roll 33%	Oct	#1 200 HP Crawler	#1 Finish Disc 25'	Equipment Operator Labor	0.04	hour
			#1 Ring Roller 25'			
Land Plane 2X 33% Ac	Oct	#1 200 HP Crawler	#1 Triplane-16'	Equipment Operator Labor	0.05	hour
List Beds 6-Row 33% Ac	Nov	#1 425 HP Crawler	#1 6R Lister-30'	Equipment Operator Labor	0.04	hour
5-Row Shape/Insert Drip	Nov	#1 425 HP Crawler	5-Row Shaper-Drip Tape Inserter	Non-Machine Labor	1.00	hour
Pest Control-Weeds	Mar		#1 ATV	Equipment Operator Labor	0.10	hour
				Roundup Ultra	1.50	Pint
			#1 ATV Spray System			
Well Test/Water Analysis	Jan			Annual Well Test/Water Analysis	1.00	Acre
Open Beds-3 Row	Mar	#1 130 HP2WD Tractor	Cultivator 3-Row Alloway	Equipment Operator Labor	0.17	hour
Mulch Beds-Apply	Mar	#1 155 HP2WD Tractor	#1 300 Gal Saddle Tank	Equipment Operator Labor	0.12	hour
				Treflan	0.50	Pint
			#1 Mulcher-15'	Dual Magnum	0.67	Pint
Fertilize- UAN-32	Apr	#2 155 HP2WD Tractor	#2 300 Gal Saddle Tank	Equipment Operator Labor	0.28	hour
				UAN 32	20.00	Lb N
			#1 Cultivator- 3 Row	0-55-0	80.00	Lb P
Pest Control-BCTV	Apr	#1 155 HP2WD Tractor	#4 300 Gal Saddle Tank	Equipment Operator Labor	0.28	hour
				Admire Pro	4.00	Oz
			#2 Cultivator- 3 Row			
Transplant Tomatoes	Apr			Transplanting w/ plant costs	1.00	Acre
Pest Control-Weeds	Apr	#1 130 HP2WD Tractor	#3 300 Gal Saddle Tank	Equipment Operator Labor	0.05	hour
				Roundup Ultra	0.25	Pint
			#2 Spray Boom-25'			
Irrigate	Apr			Water - Pumped	2.00	AcIn
	Apr			Water - Pumped	2.00	AcIn
	May			Water - Pumped	3.00	AcIn
	May			Water - Pumped	3.00	AcIn
	June			Water - Pumped	7.00	AcIn
	July			Water - Pumped	8.00	AcIn
	Aug			Water - Pumped	5.00	AcIn
Fertigate-0-0-30	Apr			0-0-30	20.00	Lb K
	June			0-0-30	20.00	Lb K
Pest Control-Weeds	Apr	#1 130 HP2WD Tractor	Cultivator- #2 Sled 3 Row	Equipment Operator Labor	0.13	hour
	May	#1 130 HP2WD Tractor	Cultivator- #2 Sled 3 Row	Equipment Operator Labor	0.13	hour
Fertigate-UAN-32	Apr			UAN 32	70.00	Lb N
	May			UAN 32	70.00	Lb N
	June			UAN 32	70.00	Lb N
	July			UAN 32	34.00	Lb N
Pest Control-Weeds Hand	May			Hand Hoe	0.40	Acre
	June			Hand Hoe	0.40	Acre
Pest Control-Thrips	May			Radiant SC	6.00	FIOz
Pest Control-Mildew	May			Ground App Spray 20g	1.00	Acre
				Sulfur, Dusting 98%	20.00	Lb
	June			Ground App Spray 20g	20.00	Lb
				Sulfur, Dusting 98%	1.00	Acre
Fertigate- 0-0-30	May			0-0-30	20.00	Lb K
Pest Control-BCTV	May			Platinum 75 SG	3.67	Oz
	May			Venom	6.00	Oz
Trim Vines	July	#2 130 HP2WD	Vine Trimmer	Equipment Operator Labor	0.11	hour
	Aug	#2 130 HP2WD	Vine Trimmer	Equipment Operator Labor	0.11	hour
Pest Control-Worms	July			Proclaim	4.50	FIOz
				Fontelis	20.00	FIOz
				Ground App Spray 20g	1.00	Acre
Pest Control-Mildew	July			Sulfur, Dusting 98%	20.00	Lb
				Ground App Spray 20g	1.00	Acre
Irrigation Labor	Aug			Irrigation Labor	8.00	hours
Pest Control-Worms	Aug			Coragen	7.00	FIOz
				Quadris Top	8.00	FIOz
				Ground App Spray 20g	1.00	Acre
Fruit Ripener-Ethrel	Aug	#2 130 HP2WDk		Equipment Operator Labor	0.00	hour
				Ethrel	0.20	Pint

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 7. CONTINUED**  
 SAN JOAQUIN VALLEY SOUTH – 2018

Operation	Operation Month	Tractor	Implement	Labor Type/ Material	Rate/ acre	Unit
Service Truck	Aug		Service Truck	Equipment Operator Labor	0.60	hour
Water Truck	Aug		Water Truck	Equipment Operator Labor	0.40	hour
Back Hoe	Aug		Back Hoe	Equipment Operator Labor	0.20	hour
Road Grader	Aug		Road Grader	Equipment Operator Labor	0.20	hour
Truck-Lowbed Trailer	Aug		Truck-Trailer Lowbed	Equipment Operator Labor	0.20	hour
1/2 Ton Pickup (1)	Aug		#1 1/2 Ton Pickup	Equipment Operator Labor	0.30	hour
1/2 Ton Pickup (2)	Aug		#2 1/2 Ton Pickup	Equipment Operator Labor	0.30	hour
1/2 Ton Pickup (3)	Aug		#3 1/2 Ton Pickup	Equipment Operator Labor	0.30	hour
3/4 Ton Pickup	Aug		#1 3/4 Ton Pickup	Equipment Operator Labor	0.30	hour
Pest Control-Vertebrates	Aug		#2 ATV	Non-Machine Labor	0.25	hour
				Zinc Phosphide	0.50	Lb
Harvest Custom 50% Ac	Aug			Harvest	29.00	ton
Open Harvest Lanes 4%	Aug	#2 130 HP2WD	Vine Diverter	Equipment Operator Labor	0.08	hour
Harvest Self 50% Ac	Aug		#1 Harvester-Tomato	Non-Machine Labor	1.44	hours
In Field Hauling (2)	Aug	#1 155 HP2WD Tractor	#1 Trailer Dolly	Equipment Operator Labor	0.52	hour
	Aug	#2 155 HP2WD Tractor	#2 Trailer Dolly	Equipment Operator Labor	0.52	hour
Irrigate/Chemigate	Sept			Infuric Acid	0.12	Gal
				Water - Pumped	0.50	AcIn
Drip Tape System Maintenance	Sept		#2 ATV	Irrigation Labor	3.55	hours
Drip Tape Extraction	Sept	#1 425 HP Crawler	Drip Tape Extractor	Non-Machine Labor	1.00	hour
PTAB CTGA CDFA-CTVP	Sept			PTAB	58.00	Ton
CTRI				CTGA CTRI	58.00	Ton
				CDFA-CTVP	58.00	Ton