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

**SAMPLE COSTS TO ESTABLISH AND PRODUCE PLUMS**



SAN JOAQUIN VALLEY – SOUTH 2016

Fresh Market-Double Line Drip Irrigation

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San Joaquin Valley – South 2016

STUDY CONTENTS

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INTRODUCTION	2
ASSUMPTIONS	3
Orchard Establishment Cultural Practices and Material Inputs	3
Production Cultural Practices and Material Inputs-Mature Trees	5
Labor, Equipment & Interest	6
Cash Overhead	7
Non-Cash Overhead	8
REFERENCES	10
Table 1. Costs per Acre to Establish A Plum Orchard-Over Years	11
Table 2. Costs per Acre to Produce Plums	13
Table 3. Costs and Returns per Acre to Produce Plums	15
Table 4. Monthly Operating Cost per Acre to Produce Plums	17
Table 5. Ranging Analysis-Plums	18
Table 6. Whole Farm Annual Equipment, Investment, Business Overhead Costs	19
Table 7. Hourly Equipment Costs	19
Table 8. Operations with Equipment & Materials	20

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**INTRODUCTION**

Sample costs to establish a plum orchard and produce fresh market plums 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 August 2016 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 2 and 3 to enter your estimated costs.

For an explanation of calculations used in the study refer to the section titled Assumptions. For more information contact Donald Stewart, University of California Agriculture and Natural Resources, Agricultural Issues Center, Department of Agricultural and Resource Economics, at 530-752-4651 or [destewart@ucdavis.edu](mailto:destewart@ucdavis.edu). The local extension office can be contacted through Kevin Day, [krday@ucanr.edu](mailto:krday@ucanr.edu), UCCE, Tulare 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.

**Acknowledgements.** The authors appreciate the help provided by those growers, packers, input suppliers, advisors and other cooperators who provided expertise and information for this study.

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## ASSUMPTIONS

The assumptions refer to Tables 1 to 8 and pertain to sample costs to establish and produce plums in the southern San Joaquin Valley. The described practices are not University of California recommendations, but represent operations and materials considered typical of a well-managed orchard in the region. The costs, materials, and practices shown in this study are based on the assumptions and are not applicable to all farms. Establishment and cultural practices vary by farm and the differences can be significant. **The use of trade names in this report does not constitute an endorsement or recommendation by the University of California.**

**Land.** The farm consists of 700 contiguous acres. Ten acres are being planted to plums and will reach maturity in five to seven years. Other orchard and vine crops are grown on 680 acres; the remaining ten acres are roads and farmstead. The owner farms the orchard.

### Orchard Establishment Cultural Practices and Material Inputs (Table 1)

**Land (Site) Preparation.** This orchard is established on ground that has been previously planted to other tree, field or row crops. The land is assumed to be deep, well drained, and either a class I or II soil. The orchard site allows for a uniform water flow (i.e. double line drip irrigation or flood/furrow). Custom operators begin land preparation by deep ripping four to five feet deep to break up any underlying hardpan or mix stratified soils that would affect root penetration and water infiltration. Following ripping, the ground is disked three times to prepare the ground for the pre-plant fumigation. The entire field is fumigated solid untarped with Telone C35 by a custom applicator. After fumigation, borders are put up for a flood irrigation to settle the tilled ground. When the soil has dried, the site is laser leveled followed by two passes with an orchard float. For purposes of this study all land preparations are included in the first year costs.

**Trees.** No specific plum varieties or rootstocks are planted in this study. Cultivars that are representative of the costs incurred in this study include: Owen T, Friar, Black Cat and Angeleno. Common rootstocks available are Nemaguard and Citation. For this study, the trees cost \$7.55 each and are planted on a 12-foot X 18-foot (tree x row) spacing, 202 trees per acre. The life of the orchard at the time of planting is estimated to be at least 18 years.

**Plant.** Planting the orchard starts in January by surveying and marking tree sites, digging holes, planting, and placing tree wraps/cartons on the trunk. Immediately after planting, berms are put up in the tree row. In the second year, 2 percent of the trees or four trees per acre are planted to replace dead and/or weak trees. The nursery furnishes these trees free and the grower incurs the replanting costs.

**Prune/Thin.** New trees are topped at planting and regular pruning begins in December, which is the beginning of the second season in which minimal pruning is practiced to bring the trees into full production earlier. Tree height is kept at 9' to 10' range to reduce labor and insurance costs. The prunings are placed in the row middles and shredded with the grower's equipment. Fruit thinning by hand begins in the third year and the time increases each year as the yields increase.

**Irrigation.** Irrigation costs include pumping (water) and labor costs. The water is pumped from an existing 200 foot deep well with a pumping level at 75-feet. In this study, estimated water costs are \$16.67 per acre inch (\$200 per acre foot). The amount of water applied to the orchard during the establishment period increases each year and is shown in Table B. In addition to the 20 acre-inches applied the first year, 6 acre-inches were applied during land preparation after ripping to settle the ground. Water is delivered to the orchard from an irrigation district or well through an underground pipe which is connected to the pressurizing pump, filters, main and lateral lines and out into the orchard. Each tree row had two above ground drip lines, one on each side of the tree. If leveling costs will be excessive, pressurized irrigation systems should be considered that do not require leveling. No assumption is

made about effective rainfall. Irrigation labor is listed as a separate line item.

**Pollination.** Beginning in the fourth year, beehives at one-hive per acre are placed in the field for crop pollination. Most plums require cross-pollination to set commercially viable crops and in this study it is assumed that 11 percent of the trees in the orchard are pollinizers that are not commercially harvested.

**Fertilization.** Nitrogen (N) is the major nutrient required for proper tree growth and optimum yields. Nitrogen fertilizer (CAN 17) is applied by hand and the amount applied increases each year up to the fourth year. Beginning in the fourth year, UAN32 fertilizer is applied through the above ground drip system. Annual rates of actual N are shown in Table A. Neutral Zinc at five pounds per acre in the second year and ten pounds per acre thereafter is applied each year with the dormant spray. Zinc sulfate at 10 pounds per acre in the second and subsequent years is foliar applied in the fall (October). Leaf samples for nutrient analysis are taken beginning in June or July of the fourth year.

Table A. Nitrogen Applied		Table B. Applied Water		Table C. Annual Plum Yields		Table D. Average Yields for Plums		
Year	Pounds of N/Acre	Year	AcIn/Year	Year	Boxes/Acre	Year	*Tons/Acre	*Boxes/Acre
		1	20	3	300	2010	8.12	580
1	40	2	24	4	600	2011	8.75	625
2	60	3	30	5	900	2012	9.41	672
3	90	4	44	6	900	2013	8.35	597
4+	90	5+	44	7+	900	2014	8.78	627

Box = 28 lbs. \*Fresno & Tulare Co. Crop Reports.

**Pest Management.** See Pest Management paragraph under Production section.

*Weeds.* The tree row (berm) is sprayed with Surflan immediately after the berm is made, post-planting. The middles are sprayed with Roundup four times per year – February, April, July, and September. Beginning in the second season the berms (tree row) are sprayed during the dormant season (December) with pre-emergent herbicides. Five percent of the acreage is also spot sprayed in May and July with Roundup. The cleanings (brush from pruning) are shredded.

*Insects.* Insects treated in this study are peach twig borer (PTB), San Jose scale, katydids, codling moth (CM), mites and aphids. A dormant spray – Oil and Asana (with zinc) – is applied in December/January at the beginning of the second establishment year and in subsequent years to control PTB, scale, mites and aphids. Acramite insecticide for mite control is applied in July. Beginning in the third year, Altacor insecticide is applied in April for worm (CM) control and suppression of katydids. Late season maturing varieties are usually sprayed one week prior to harvest for additional control.

*Diseases.* Beginning in the third year, Orbit fungicide is applied at full bloom in February for brown rot blossom blight, jacket rot and powdery mildew. Although this is a common practice among many growers, it is not a UC recommendation.

**Harvest.** Harvest starts in the third establishment year. Harvest costs will vary according to yield. The crop is harvested by hand and hauled to a packing shed for cooling, storing, and selling. The grower furnishes one tractor and bin trailer for the first harvest and two tractors and trailers in the following years.

**Yields and Returns.** Although plums begin bearing an economic crop in the third year, yield maturity is not reached until the fifth year. Typical annual yields for the common varieties are shown in Table C.

## Production Cultural Practices and Material Inputs – Mature Trees

Crop Season is December to November

**Prune/Thin.** Pruning is done by hand in the winter months, December and January. The prunings are placed in the row middles, (every other row) and shredded with the grower's equipment. Fruit is thinned by hand in April and/or May.

**Irrigation.** The cost includes water pumping or district costs at \$16.67 per acre-inch (\$200 per acre-foot). Price per acre-foot for water will vary depending on the irrigation district, and/or various well characteristics, and other irrigation factors. The irrigation period is typically from late March through mid-September or early October depending on varieties and harvest dates. The trees are assumed to have a seasonal consumptive water use of 36 acre-inches. The irrigation efficiency is approximately 82 percent; therefore a total of 44 acre-inches is applied during the year. No assumption is made about effective rainfall.

**Fertilization.** Nitrogen (N) fertilizer is applied in the spring and in the fall following harvest. In this study nitrogen is applied at a rate of 90 pounds of N per acre split equally between March and September. A foliar application of zinc sulfate at 10 pounds per acre is applied in the autumn (October) at leaf fall, and neutral zinc at 10 pounds per acre is applied in the winter with the dormant spray. The majority of the growers in the area apply zinc during the dormant season only. Friar and Black Cat are weaker varieties than Angeleno; therefore, a differential in fertilization may be necessary but is not addressed in this study.

*Leaf Sampling.* Leaf - tissue samples - sampling for nutritional analysis are taken in June or July and the fertilizers applied according to the recommendations. The samples are collected by the PCA and analyzed by a commercial lab.

**Pollination.** Most fresh-market Japanese plums are self-unfruitful and require cross-pollination to set a commercial crop. Therefore plantings usually consist of two or more varieties in any of several layouts and densities. Friar, Black Cat and Owen T are considered to be easy-to-set varieties and Angeleno is considered to be an average setting variety. However, to enhance pollination, growers will place up to one hive per acre in the field during the mature production years. In the more difficult-to-set varieties, growers will place as many as two hives per acre to ensure maximum pollination. A minimum strength hive for fruit and nut tree pollination is a hive with six frames of bees and a queen that is laying eggs. In this study, bee hive rental is at \$175 per hive. For further information on pollination needs for specific varieties contact your local Cooperative Extension office.

**Pest Management.** The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Plums*. For information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.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.** For information and pesticide use permits, contact the local county agricultural commissioner's office. Pesticides with different active ingredients, mode of action, and sites of action should be rotated as needed to combat species shift and resistance. Adjuvants are recommended for use with many pesticides for effective control, but the adjuvants and their costs are not included in this study.

*Pest Control Adviser, (PCA).* Written recommendations are required for many commercially applied pesticides and are written by licensed pest control advisers. In addition the PCA will monitor the field for agronomic problems including pests, diseases, and nutritional status. Growers may hire private PCAs or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. In this study, the grower has a full service agreement with the company.

*Bees:* Bees are sensitive to pesticides and timing of applications must coordinate with bee pollinating activity. **See the individual pesticide labels, environmental hazards section, for these requirements in the following publication:** Oregon State University, “How to Reduce Bee Poisonings from Pesticides”: <https://catalog.extension.oregonstate.edu/pnw591>

*Weeds.* Weeds are controlled in the tree rows (berm) during the winter (December/January) with residual pre-emergence herbicides – Goal and Surflan combination. In May and July, the grower uses an ATV and sprayer to apply Roundup as a spot spray (weedy spots) in the tree row. The weeds are controlled in the row middles during the spring and summer – February, April, June, and, September – by chemical mowing (Roundup).

*Insects.* A dormant spray –Dormant Oil, Asana (with zinc) – is applied in the winter to control pests, eggs, and diseases – peach twig borer (PTB), mites, scale, aphids. In season pre-harvest sprays are applied to protect the crop from such pests as codling moth, peach twig borer, leaf rollers, mites and fruit rot. Altacor for worm control (PTB or CM and katydid suppression) is applied in April. Late season maturing varieties are usually sprayed one week prior to harvest for additional control. Acramite insecticide is applied in July for mite control.

*Diseases.* Orbit fungicide is applied at full bloom in February for brown rot blossom blight, jacket rot and powdery mildew. Although this is a common practice among many growers, it is not a UC recommendation.

**Harvest.** The orchard will reach maturity between the fifth and seventh year. The harvests costs will vary according to yield. In late July, the grower’s picking crew using ladders and picking bags supplied by an independently owned and operated packing shed, harvests the crop. The packer also furnishes the bins and the grower furnishes two tractors and trailers for moving the bins around the field. The picked fruit is placed into half-ton plastic or wooden field bins. The plastic field bins hold approximately 850 to 900 pounds of fruit. Typically, the field pack-outs are in the 60-80 percent range, but are not accounted for in this study; therefore the bins hauled represents marketable fruit only. The fruit is hauled to the packing shed by a contract hauler for \$8 per bin. The shed packs, palletizes, cools and sells (10 percent of grower price) the fruit under a contract with the grower. Packing charges are assumed to be \$7.25 per box.

**Yields.** Average annual yields for Friar, Black Cat and Angeleno varieties are measured in boxes per acre. The weight of a box of plums in this study is 28 pounds. An average annual yield over the remaining life of the orchard is 900 boxes per acre. Average county yields for fresh market plums are shown in Table D. Table 5 - Ranging Analysis, has a range of yields from 825 - 975 boxes per acre. The averages include all plum varieties and orchards in various stages of production and coincidentally are lower than high-mid season varieties for this study.

**Returns.** An estimated average price over the last few years of \$16 per box based on grower and marketer input is used to determine income over a range of prices and yields. Return prices are shown in Table 5 – Ranging Analysis, which shows a price range of \$10 - \$22 per box.

**Pickup/ATV.** The pickup is for on-farm use only, moving employees and supplies. The ATV is used for spot spraying and is included in those specific costs. Use of the ATV for monitoring the orchard and checking the irrigation is shown under the ATV operation line item.

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

**Labor.** Labor rates of \$22.56 per hour for machine operators and \$16.92 for general labor includes payroll overhead of 41 percent. The basic hourly wages are \$16.00 for machine operators and \$12.00 for general labor. The overhead includes the employers’ share of federal and California state payroll taxes, workers’

compensation insurance for orchard/fruit crops (code 0016), and a percentage for other possible benefits. Workers' compensation costs will vary among growers, but for this study the cost is based upon the average industry final rate as of August 2016.

**Management Salary.** Wages for management are not included as a cash cost. Any return above total costs is considered a return to management and risk. However, growers wanting to account for management may wish to add a fee. The manager makes all production decisions including cultural practices, action to be taken on pest management recommendations, and labor.

**Equipment Operating Costs.** Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by the American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum power take off (PTO) horsepower and fuel type. Prices for on-farm delivery of diesel and gasoline are \$2.43 (excludes excise taxes) and \$2.70 per gallon, respectively. The fuel prices are the average costs from August 2016. The cost includes a 2.25 percent sales tax for diesel fuel, and federal and excise taxes plus an 8 percent sales tax on gasoline. The federal and state excise tax on gasoline used on the farm can be refunded for on-farm use when filing your income tax. The fuel, lube, and repair cost per acre for each operation in the "Cost Per Acre to Produce" table is determined by multiplying the total hourly operating cost in the "Hourly Equipment Costs" table for each piece of equipment used from the Operation Time (Hrs/A) column 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 4.25 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 August 2016.

**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 stone fruit 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.

### **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.

**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 0.843 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. For this study, liability insurance is charged at \$1,225 for the entire farm.

*Crop Insurance.* This is available to stone fruit 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 orchard. 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 no level is specified in this study.

**Office Expense.** Office and business expenses are estimated at \$75.00 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, office utilities, and miscellaneous administrative charges.

**Sanitation Services.** Sanitation services provide double portable toilets, washbasins, soap, and towels for the entire farm is \$12 per acre. The cost includes delivery and 5 months of weekly service. Growers using contract labor may not have a cost because many labor contractors provide their own sanitation facilities.

**Management/Supervisor Salaries.** The grower farms the orchard; therefore no salaries are included for management. Returns above costs are considered a return to management.

**Investment Repairs.** Annual maintenance is calculated as two percent of the purchase price.

### **Non-Cash Overhead**

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments.

**Capital Recovery Costs.** Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase prices 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:  $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$ .

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



*Capital Recovery Factor.* Capital recovery factor is the amortization factor or annual payment whose present value at compound interest is 1. The amortization factor is a table value that corresponds to the interest rate used and the life of the machine.

*Interest Rate.* The interest rate of 3.75 percent is used to calculate capital recovery. The rate will vary depending upon size of loan and other lending agency conditions, but is a suggested rate by a farm lending agency in August 2016.

**Establishment Cost.** Costs to establish the orchard are used to determine capital recovery expenses, depreciation, and interest on investment for the production years. Establishment cost is the sum of the costs for land preparation, planting, trees, cash overhead and production expenses for growing the trees through the first year that plums are harvested minus any returns from production. In Table 1, the Total Accumulated Net Cash Cost in the third year represents the establishment cost. For this study the cost is \$7,807 per producing acre or \$78,070 for the 10-acre orchard. The establishment cost is spread over the remaining 27 producing years of the 30 years of orchard life.

**Irrigation System.** For this study, water is delivered to the orchard from the district ditch or deep well. This part of the system is already in place and no charges are shown. The life of the irrigation system is estimated at 20 years. A pressurized (above ground double drip line system) is used in this orchard. A new 125 horsepower pump is installed to irrigate the 10 acres. This booster pump and filters are shared with other acreage so only 10 percent of the total cost is shown. The main, laterals, connectors and drip lines for the 10 acres are included in the irrigation system costs. The irrigation system is installed at planting. The irrigation system is considered an improvement to the property and is shown in the capital recovery sections in the tables. The installation labor is listed in the first year establishment costs.

**Land.** The orchard is established on ground previously planted to deciduous trees or vines. Land is valued between \$16,000 and \$24,000 per acre in this region. For this study, land is valued at \$18,000 per acre.

**Building/Shop.** The shop totals 1,800 square feet on a cement slab with an attached pole barn for equipment storage.

**Tools.** This includes shop tools, hand tools, and miscellaneous field tools such as pruning tools.

**Fuel Tanks.** Two 1,000-gallon fuel tanks using gravity feed are on metal stands. The tanks are setup in a cement containment pad that meets federal, state, and county regulations.

**Equipment.** Farm equipment is purchased new or used, but the study shows the current purchase price for new equipment. The new purchase price is adjusted to 60 percent to indicate a mix of new and used equipment. Annual ownership costs for equipment and other investments are shown in the Whole Farm Annual Equipment, Investment, and Business Overhead Costs table. Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. Both of the overhead factors have been discussed in previous sections. The operating costs consist of repairs, fuel, and lubrication and are discussed under operating costs.

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

## REFERENCES

American Society of Agricultural and Biological Engineers (ASABE). *2013 ASABE Standards Book with Standards Supplement*. St. Joseph, MI: Curran Associates, Inc., 2015.

Boehlje, Michael D., and Vernon R. Eidman. *Farm Management*. New York: John Wiley and Sons, 1984.

California Chapter of the American Society of Farm Managers and Rural Appraisers. *Trends in Agricultural Land & Lease Values*. Woodbridge, CA: American Society of Farm Managers and Rural Appraisers, 2016.

"Economic Research Service - Publications." United States Department of Agriculture.  
[www.ers.usda.gov/data-products.aspx](http://www.ers.usda.gov/data-products.aspx).

"Identify and Manage Pests in Crops and Agriculture." University of California Statewide Integrated Pest Management Program. <http://www.ipm.ucdavis.edu/PMG/crops-agriculture.html>.

"National Agricultural Statistics Service." United States Department of Agriculture.  
[www.nass.usda.gov/Quick\\_Stats/](http://www.nass.usda.gov/Quick_Stats/).

"Tax Rates for Motor Vehicle and Diesel Fuels." California State Board of Equalization.  
<http://www.boe.ca.gov/pdf/1413.pdf>.

"U.S. Gasoline and Diesel Retail Prices." U.S. Energy Information Administration (EIA).  
[https://www.eia.gov/dnav/pet/pet\\_pri\\_gnd\\_dcus\\_nus\\_m.htm](https://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_m.htm).

"Workers' Compensation Rate Comparison." California Department of Insurance.  
<http://www.insurance.ca.gov/01-consumers/105-type/9-compare-prem/wc-rate/index.cfm>.

Day, Kevin R., Karen Klonsky, and Richard L. DeMoura. *Sample Costs to Establish and Produce Plums, Southern San Joaquin Valley – 2009*. UC Davis Cost Studies. <http://coststudies.ucdavis.edu/en/current/>.

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**Table 1. COSTS PER ACRE TO ESTABLISH A PLUM ORCHARD-OVER YEARS**  
 San Joaquin Valley - South 2016

Operations:	Year:	Cost Per Acre				
		1st	2nd	3rd	4th	5th
Price: \$16.00/ 28lb. Box, Yield: Boxes Per Acre:				300	600	900
<b>Pre-Plant:</b>						
Deep Rip 5' 2X		300				
Disc & Roll 3X		75				
Fumigate-Solid Untarped		1,800				
Make Irrigation Borders		8				
Irrigate-Pre-Plant		100				
Laser Leveling		140				
Float/Smooth Field 2X		40				
<b>TOTAL PRE-PLANTING COSTS</b>		<b>2,463</b>				
Survey/Layout/Mark Orchard		242				
Dig Holes/Plant Trees/Top/Cartons		949				
Trees-Plum		1,525	17			
Make Berms/Tree Rows		8				
Drip Irrigation System Installation Labor		271				
<b>TOTAL PLANTING COSTS</b>		<b>2,996</b>	<b>17</b>			
<b>Cultural:</b>						
Pests-Weeds-Dormant Strip Spray		22	35	35	35	35
Pests-Weeds-Spray Middles 4X		47	47	47	47	47
Irrigate 12X		333	400	500	733	733
Irrigation Labor		59	59	59	59	59
Fertilize (Yr. 1-3, CAN17. Yr. 4+, UAN32)		59	106	121	81	81
Fertilize Fall Zinc (Zinc Sulfate)			23	23	23	23
Prune-Dormant-Hand Crew			85	195	338	406
Prune-Shred Brush			7	7	7	7
Pests-Insects-Dormant Oil, Fertilize-Zn			85	92	92	92
Pests-Insects-Mites			86	86	86	86
Pests-Weeds-Spot Spray 2X			4	4	4	4
Pests-Diseases-Brown Rot @ Bloom				36	36	36
Thin Fruit-Hand Crew				85	271	508
Pests-Insects-Codling Moth/Katydid				50	50	50
Pollinate-Bees Hives					175	175
Fertilize-Leaf Samples & Analysis					2	2
Pickup Truck Use		28	29	28	28	28
ATV		14	14	14	14	14
<b>TOTAL CULTURAL COSTS</b>		<b>563</b>	<b>981</b>	<b>1,383</b>	<b>2,083</b>	<b>2,388</b>
<b>Harvest:</b>						
Pick Fruit-Hand Crew				186	373	543
Haul to Shed				72	144	244
Pack Fruit				2,175	4,350	6,525
Sell				480	960	1,440
<b>TOTAL HARVEST COSTS</b>				<b>2,913</b>	<b>5,827</b>	<b>8,732</b>
Interest On Operating Capital @ 4.25%		208	18	28	49	64
<b>TOTAL OPERATING COSTS/ACRE</b>		<b>6,229</b>	<b>1,016</b>	<b>4,324</b>	<b>7,959</b>	<b>11,183</b>

## UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

**Table 1. CONTINUED**  
San Joaquin Valley - South 2016

	Cost Per Acre					
	Year:	1st	2nd	3rd	4th	5th
Price: \$16.00/ 28lb. Box, Yield: Boxes Per Acre:				300	600	900
Cash Overhead:						
Office Expense		75	75	75	75	75
Liability Insurance		2	2	2	2	2
Sanitation Fees		12	12	12	12	12
Property Taxes		192	192	192	231	231
Property Insurance		16	16	16	20	20
Investment Repairs		49	49	49	205	205
<b>TOTAL CASH OVERHEAD COSTS</b>		<b>346</b>	<b>346</b>	<b>346</b>	<b>545</b>	<b>545</b>
<b>TOTAL CASH COSTS/ACRE</b>		<b>6,575</b>	<b>1,362</b>	<b>4,670</b>	<b>8,504</b>	<b>11,728</b>
<b>INCOME/ACRE FROM PRODUCTION</b>				<b>4,800</b>	<b>9,600</b>	<b>14,400</b>
<b>NET CASH COSTS/ACRE FOR THE YEAR</b>		<b>6,575</b>	<b>1,362</b>	-	-	-
<b>PROFIT/ACRE ABOVE CASH COSTS</b>		-	-	<b>130</b>	<b>1,096</b>	<b>2,672</b>
<b>ACCUMULATED NET CASH COSTS/ACRE</b>		<b>6,575</b>	<b>7,937</b>	<b>7,807</b>	<b>6,711</b>	<b>4,039</b>
Non-Cash Overhead (Capital Recovery):						
Buildings		22	22	22	22	22
Fuel Tanks		1	1	1	1	1
Shop & Field Tools		1	1	1	1	1
Irrigation System-Drip Double Line		130	130	130	130	130
Irrigation System-Booster Pump/Filters		16	16	16	16	16
Orchard Establishment					629	629
Land-Plums		675	675	675	675	675
Equipment		16	31	37	38	38
<b>TOTAL NON-CASH OVERHEAD COST/ACRE</b>		<b>861</b>	<b>875</b>	<b>882</b>	<b>1,513</b>	<b>1,513</b>
<b>TOTAL COST/ACRE FOR THE YEAR</b>		<b>7,436</b>	<b>2,237</b>	<b>5,552</b>	<b>10,016</b>	<b>13,241</b>
<b>INCOME/ACRE FROM PRODUCTION</b>		-	-	<b>4,800</b>	<b>9,600</b>	<b>14,400</b>
<b>TOTAL NET COST/ACRE FOR THE YEAR</b>		<b>7,436</b>	<b>2,237</b>	<b>752</b>	<b>416</b>	-
<b>TOTAL NET PROFIT/ACRE ABOVE TOTAL COSTS</b>		-	-	-	-	<b>1,159</b>
<b>TOTAL ACCUMULATED NET COST/ACRE</b>		<b>7,436</b>	<b>9,673</b>	<b>10,425</b>	<b>10,841</b>	<b>9,682</b>

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 2. COSTS PER ACRE TO PRODUCE PLUMS**  
 San Joaquin Valley - South 2016

Operation	Equipment	Cash and Labor Costs per Acre					Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/Rent		
Cultural:								
Pests-Weeds-Dormant Strip Spray	0.24	6	0	1	27	0	35	
Prune-Dormant-Hand Crew	0.00	406	0	0	0	0	406	
Shred Brush	0.15	4	2	2	0	0	7	
Pests-Insects-Dormant Oil/Zinc	0.34	9	5	3	88	0	105	
Pollinate-Bee Hives	0.00	0	0	0	0	175	175	
Pests-Diseases @ Bloom	0.34	9	5	3	20	0	36	
Pests-Weeds-Spray Middles 4X	0.94	25	1	3	17	0	47	
Fertilize-UAN32 2X	0.50	14	4	1	63	0	81	
Insects-Codling Moth/Katydid	0.34	9	5	3	34	0	50	
Irrigate 12X	0.00	0	0	0	733	0	733	
Thin Fruit-Hand Crew	0.00	508	0	0	0	0	508	
Pests-Weeds-Spot Spray 2X	0.10	3	0	0	1	0	4	
Fertilize: Leaf Samples	0.00	0	0	0	0	2	2	
Pests-Insects-Mites	0.34	9	5	3	70	0	86	
Irrigation Labor	0.00	228	0	0	0	0	228	
Fertilize - Fall Zinc	0.75	20	5	2	0	0	28	
Pickup Truck Use	0.50	14	0	0	0	0	14	
ATV Use	0.34	9	5	3	6	0	23	
<b>TOTAL CULTURAL COSTS</b>	<b>4.89</b>	<b>1,275</b>	<b>35</b>	<b>24</b>	<b>1,059</b>	<b>177</b>	<b>2,570</b>	
Harvest:								
Pick Fruit-Hand Crew	1.00	535	6	2	0	0	543	
Haul To Shed	0.00	0	0	0	0	224	224	
Pack Fruit	0.00	0	0	0	0	6,525	6,525	
Sell	0.00	0	0	0	0	1,440	1,440	
<b>TOTAL HARVEST COSTS</b>	<b>1.00</b>	<b>535</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>8,189</b>	<b>8,732</b>	
Interest on Operating Capital at 4.25%							65	
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>6.00</b>	<b>1,809</b>	<b>41</b>	<b>26</b>	<b>1,059</b>	<b>8,366</b>	<b>11,366</b>	

## UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

**TABLE 2. CONTINUED**  
San Joaquin Valley - South 2016

Operation	Equipment	Cash and Labor Costs per Acre					Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/ Rent		
<b>CASH OVERHEAD:</b>								
Liability Insurance							2	
Office Expense							75	
Sanitation Fees							12	
Property Taxes							231	
Property Insurance							20	
Investment Repairs							205	
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>							<b>545</b>	
<b>TOTAL CASH COSTS/ACRE</b>							<b>11,911</b>	
<b>NON-CASH OVERHEAD:</b>								
		Per Producing Acre	Annual Cost Capital Recovery					
Building: 1800SqFt		386	22				22	
Land - Plums		18,000	675				675	
Shop Tools		21	1				1	
Irrigation System-Drip Double Line		1,800	130				130	
Irrigation System-Booster Pump/Filters		230	16				16	
Fuel Tanks-1,000 Gal (2)		16	1				1	
Establishment Cost-Plums		7,807	629				629	
Equipment		392	38				38	
<b>TOTAL NON-CASH OVERHEAD COSTS</b>							<b>1,513</b>	
<b>TOTAL COSTS/ACRE</b>							<b>13,424</b>	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 3. COSTS AND RETURNS PER ACRE TO PRODUCE PLUMS**  
 San Joaquin Valley - South 2016

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>GROSS RETURNS</b>					
Production; 28lbs/Box	900	Box	16.00	14,400	
<b>TOTAL GROSS RETURNS</b>				14,400	
<b>OPERATING COSTS</b>					
<b>Herbicide:</b>				<b>45</b>	
Surflan 4 AS	2.00	Pint	5.00	10	
Goal 2 XL	2.00	Pint	8.64	17	
Roundup UltraMax	4.20	Pint	4.31	18	
<b>Insecticide:</b>				<b>166</b>	
Dormant Oil	6.00	Gal	5.01	30	
Asana XL	4.00	FIOz	8.00	32	
Altacor	3.00	Oz	11.25	34	
Acramite 50WS	1.00	Lb	69.74	70	
<b>Fungicide:</b>				<b>20</b>	
Orbit	4.00	FIOz	4.90	20	
<b>Fertilizer:</b>				<b>95</b>	
Neutral Zinc 50%	20.00	Lb	1.30	26	
UAN-32	90.00	Lb N	0.70	63	
Zinc Sulfate 36%	10.00	Lb	0.64	6	
<b>Water:</b>				<b>733</b>	
Water - Plums	44.00	AcIn	16.67	733	
<b>Custom:</b>				<b>6,926</b>	
Pollination-Bee Hives	1.00	each	175.00	175	
Leaf Analysis	1.00	Acre	2.00	2	
Haul Fruit	28.00	Bin	8.00	224	
Pack Fruit	900.00	Box	7.25	6,525	
<b>Contract:</b>				<b>1,440</b>	
Sell Plums	900.00	Box	1.60	1,440	
<b>Labor</b>				<b>1,809</b>	
Equipment Operator Labor	7.07	hrs	22.56	160	
Non-Machine Labor	84.00	hrs	16.92	1,421	
Irrigation Labor	13.50	hrs	16.92	228	
<b>Machinery</b>				<b>67</b>	
Fuel-Gas	0.67	gal	2.43	2	
Fuel-Diesel	14.46	gal	2.70	39	
Lube				6	
Machinery Repair				20	
Interest on Operating Capital @ 4.25%				65	
<b>TOTAL OPERATING COSTS/ACRE</b>				11,366	
<b>TOTAL OPERATING COSTS/BOX</b>				13	
<b>NET RETURNS ABOVE OPERATING COSTS</b>				3,034	

## UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

**TABLE 3. CONTINUED**  
San Joaquin Valley - South 2016

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>CASH OVERHEAD COSTS</b>					
Liability Insurance				2	
Office Expense				75	
Sanitation Fees				12	
Property Taxes				231	
Property Insurance				20	
Investment Repairs				205	
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>				545	
<b>TOTAL CASH OVERHEAD COSTS/BOX</b>				1	
<b>TOTAL CASH COSTS/ACRE</b>				11,911	
<b>TOTAL CASH COSTS/BOX</b>				13	
<b>NET RETURNS ABOVE CASH COSTS</b>				2,489	
<b>NON-CASH OVERHEAD COSTS (Capital Recovery)</b>					
Building: 1800SqFt				22	
Land - Plums				675	
Shop Tools				1	
Irrigation System-Drip Double Line				130	
Irrigation System-Booster Pump/Filters				16	
Fuel Tanks-1,000 Gal (2)				1	
Establishment Cost-Plums				629	
Equipment				38	
<b>TOTAL NON-CASH OVERHEAD COSTS/ACRE</b>				1,513	
<b>TOTAL NON-CASH OVERHEAD COSTS/BOX</b>				2	
<b>TOTAL COST/ACRE</b>				13,424	
<b>TOTAL COST/BOX</b>				15	
<b>NET RETURNS ABOVE TOTAL COST</b>				976	



UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 4. MONTHLY COSTS PER ACRE TO PRODUCE PLUMS**  
 San Joaquin Valley - South 2016

	DEC 15	JAN 16	FEB 16	MAR 16	APR 16	MAY 16	JUN 16	JUL 16	AUG 16	SEP 16	OCT 16	Total
<b>Cultural:</b>												
Pests-Weeds-Dormant Strip Spray	35											35
Prune-Dormant-Hand Crew	203	203										406
Shred Brush		7										7
Pests-Insects-Dormant Oil/Zinc		105										105
Pollinate – Bee Hives			175									175
Pests-Diseases @ Bloom			36									36
Pests-Weeds-Spray Middles 4X			12		12		12			12		47
Fertilizer-UAN32 2X				41						41		81
Pests-Insects-Codling Moth/Katydid					50							50
Irrigate 12X					150	150	150	150	133			733
Thin Fruit-Hand Crew					508							508
Pests-Weeds-Spot Spray 2X						2		2				4
Fertilize: Leaf Samples							2					2
Pests-Insects-Mites								86				86
Irrigation-Labor								228				228
Pickup Truck Use	3	3	3	3	3	3	3	3	3	3	3	28
ATV Farm Use	1	1	1	1	1	1	1	1	1	1	1	14
Fertilize - Fall Zinc											23	23
<b>TOTAL CULTURAL COSTS</b>	<b>242</b>	<b>319</b>	<b>227</b>	<b>44</b>	<b>724</b>	<b>156</b>	<b>168</b>	<b>471</b>	<b>137</b>	<b>56</b>	<b>27</b>	<b>2,570</b>
<b>Harvest:</b>												
Pick Fruit								543				543
Haul To Shed								224				224
Pack Fruit								6,525				6,525
Sell								1,440				1,440
<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>8,732</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8,732</b>
Interest on Operating Capital @ 4.25%	0.86	1.99	2.79	2.95	5.51	6.06	6.65	39.25	-0.78	-0.29	-0.10	64.88
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>242</b>	<b>321</b>	<b>230</b>	<b>47</b>	<b>729</b>	<b>162</b>	<b>174</b>	<b>9,242</b>	<b>136</b>	<b>56</b>	<b>27</b>	<b>11,366</b>
<b>CASH OVERHEAD</b>												
Liability Insurance										2		2
Office Expense	7	7	7	7	7	7	7	7	7	7	7	75
Sanitation Fees										12		12
Property Taxes				116						116		231
Property Insurance				10						10		20
Investment Repairs	19	19	19	19	19	19	19	19	19	19	19	205
<b>TOTAL CASH OVERHEAD COSTS</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>151</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>165</b>	<b>25</b>	<b>545</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>268</b>	<b>347</b>	<b>255</b>	<b>198</b>	<b>755</b>	<b>187</b>	<b>200</b>	<b>9,267</b>	<b>162</b>	<b>220</b>	<b>52</b>	<b>11,911</b>

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 5. RANGING ANALYSIS - PLUMS**  
 San Joaquin Valley - South 2016

COSTS PER ACRE AND PER BOX AT VARYING YIELDS TO PRODUCE PLUMS

	YIELD (BOXES)						
	825.00	850.00	875.00	900.00	925.00	950.00	975.00
OPERATING COSTS/ACRE:							
Cultural	2,570	2,570	2,570	2,570	2,570	2,570	2,570
Harvest	8,007	8,249	8,490	8,732	8,973	9,215	9,456
Interest on Operating Capital @ 4.25%	62.31	63.17	64.02	64.88	65.73	66.59	67.44
TOTAL OPERATING COSTS/ACRE	10,639	10,882	11,124	11,366	11,609	11,851	12,094
TOTAL OPERATING COSTS/BOX	12.90	12.80	12.71	12.63	12.55	12.47	12.40
CASH OVERHEAD COSTS/ACRE	551	551	551	551	551	551	551
TOTAL CASH COSTS/ACRE	11,190	11,432	11,674	11,917	12,159	12,402	12,644
TOTAL CASH COSTS/BOX	13.56	13.45	13.34	13.24	13.15	13.05	12.97
NON-CASH OVERHEAD COSTS/ACRE	1,527	1,527	1,527	1,527	1,527	1,527	1,527
TOTAL COSTS/ACRE	12,717	12,959	13,202	13,444	13,687	13,929	14,171
TOTAL COSTS/BOX	15.00	15.00	15.00	15.00	15.00	15.00	15.00

Net Return per Acre above Operating Costs for Plums

PRICE (\$/box)	YIELD (Boxes/acre)						
	825.00	850.00	875.00	900.00	925.00	950.00	975.00
Production Year							
10.00	-2,389	-2,382	-2,374	-2,366	-2,359	-2,351	-2,344
12.00	-739	-682	-624	-566	-509	-451	-394
14.00	911	1,018	1,126	1,234	1,341	1,449	1,556
16.00	2,561	2,718	2,876	3,034	3,191	3,349	3,506
18.00	4,211	4,418	4,626	4,834	5,041	5,249	5,456
20.00	5,861	6,118	6,376	6,634	6,891	7,149	7,406
22.00	7,511	7,818	8,126	8,434	8,741	9,049	9,356

Net Return per Acre above Cash Costs for Plums

PRICE (\$/box)	YIELD (Boxes/acre)						
	825.00	850.00	875.00	900.00	925.00	950.00	975.00
Production Year							
10.00	-2,934	-2,926	-2,919	-2,911	-2,904	-2,896	-2,888
12.00	-1,284	-1,226	-1,169	-1,111	-1,054	-996	-938
14.00	366	474	581	689	796	904	1,012
16.00	2,016	2,174	2,331	2,489	2,646	2,804	2,962
18.00	3,666	3,874	4,081	4,289	4,496	4,704	4,912
20.00	5,316	5,574	5,831	6,089	6,346	6,604	6,862
22.00	6,966	7,274	7,581	7,889	8,196	8,504	8,812

Net Return per Acre above Total Costs for Plums

PRICE (\$/box)	YIELD (Boxes/acre)						
	825.00	850.00	875.00	900.00	925.00	950.00	975.00
Production Year							
10.00	-4,446	-4,439	-4,431	-4,424	-4,416	-4,408	-4,401
12.00	-2,796	-2,739	-2,681	-2,624	-2,566	-2,508	-2,451
14.00	-1,146	-1,039	-931	-824	-716	-608	-501
16.00	504	661	819	976	1,134	1,292	1,449
18.00	2,154	2,361	2,569	2,776	2,984	3,192	3,399
20.00	3,804	4,061	4,319	4,576	4,834	5,092	5,349
22.00	5,454	5,761	6,069	6,376	6,684	6,992	7,299

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 6. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS**  
 San Joaquin Valley - South 2016

ANNUAL EQUIPMENT COSTS								
Yr.	Description	Price	Yrs. Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insurance	Taxes	
16	Harvest Bin Trailer #1	1,900	20	99	133	1	10	144
16	Harvest Bin Trailer #2	1,900	20	99	133	1	10	144
16	90 HP 4WD Tractor	76,839	15	14,959	6,030	39	459	6,527
16	48HP4WD Tractor	32,218	15	6,272	2,528	16	192	2,737
16	34HP2WD Tractor	21,261	12	5,316	1,874	11	133	2,018
16	ATV-4WD	8,500	12	2,125	749	4	53	807
16	Orch.Sprayer 500 Gal PTO	25,000	10	4,421	2,672	12	147	2,831
16	Flail Mower 14'	12,790	10	2,262	1,367	6	75	1,448
16	ATV sprayer 200 gal 18'	9,700	10	1,715	1,037	5	57	1,098
16	Pickup Truck 1/2 Ton	28,000	5	12,549	3,917	17	203	4,137
TOTAL		218,108	-	49,817	20,439	113	1,340	21,892
60% of New Cost*		130,865	-	29,890	12,264	68	804	13,135

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

ANNUAL INVESTMENT COSTS								
Description	Price	Yrs. Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insurance	Taxes	Repairs	
INVESTMENT								
Building: 1800SqFt	270,000	30	0	15,144	114	1,350	5,400	22,007
Land - Plums	180,000	20	180,000	6,750	152	1,800	0	8,702
Shop Tools	15,000	20	1,050	1,043	7	80	300	1,430
Irrigation System-Drip Double Line	18,000	20	0	1,295	8	90	360	1,753
Irrigation System-Booster Pump/Filter	23,000	20	1,610	1,600	10	123	460	2,193
Fuel Tanks-1,000 Gal (2)	10,975	20	768	763	5	59	220	1,047
Establishment Cost-Plums	78,070	17	0	6,293	33	390	1,561	8,278
TOTAL INVESTMENT	595,045	-	183,428	32,889	328	3,892	8,301	45,410

ANNUAL BUSINESS OVERHEAD COSTS				
Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Office Expense	10	Acre	75.00	750
Sanitation Fees	10	Acre	12.00	120

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 7. HOURLY EQUIPMENT COSTS**  
 San Joaquin Valley - South 2016

Yr.	Description	Plum-Prod Hours Used	Capital Recovery	Cash Overhead		Operating		Total Oper.	Total Costs/Hr.
				Insurance	Taxes	Lube & Repairs	Fuel		
16	90 HP 4WD Tractor	21	3.39	0.02	0.26	3.80	11.93	15.73	19.41
16	48HP4WD Tractor	11	1.42	0.01	0.11	1.80	6.36	8.16	9.70
16	34HP2WD Tractor	6	1.12	0.01	0.08	1.67	4.51	6.18	7.39
16	Pickup Truck 1/2 Ton	8	5.88	0.03	0.30	3.11	6.75	9.86	16.06
16	Orch.Sprayer 500 Gal PTO	17	8.01	0.04	0.44	4.36	0.00	4.36	12.85
16	Harvest Bin Trailer #1	5	0.40	0.00	0.03	0.04	0.00	0.04	0.47
16	Harvest Bin Trailer #2	5	0.40	0.00	0.03	0.04	0.00	0.04	0.47
16	Flail Mower 14'	1	4.10	0.02	0.23	6.34	0.00	6.34	10.69
16	ATV-4WD	18	2.71	0.02	0.19	0.76	0.91	1.67	4.59
16	ATV sprayer 200 gal 18'	13	4.15	0.02	0.23	2.63	0.00	2.63	7.02

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**TABLE 8. OPERATIONS WITH EQUIPMENT & MATERIALS**  
 San Joaquin Valley - South 2016

Operation	Operation Month	Tractor	Implement	Labor Type/ Material	Rate/ acre	Unit	
Weeds-Dormant Strip Spray	Dec	40 HP 2WD Tractor	Weed Sprayer 100 G	Equipment Operator Labor	0.34	hour	
				Surflan 4 AS	2.00	Pint	
				Goal 2 XL	2.00	Pint	
Prune-Dormant-Hand Crew	Dec			Pruning	25.00	hours	
	Jan			Pruning	25.00	hours	
Shred Brush	Jan	90 HP 4WD Tractor	Flail Mower 14'	Equipment Operator	0.18	hour	
	Apr			Equipment Operator	0.18	hour	
Insects/Fertilizer	Jan	90 HP 4WD Tractor	Orch.Sprayer 500 Gal PTO	Equipment Operator	0.41	hour	
				Neutral Zinc 50%	20.00	Lb	
				Dormant Oil	6.00	Gal	
				Diazinon 50W	4.00	Lb	
				Pollination-Bee Hives	1.00	each	
Pests-Diseases	Feb	90 HP 4WD Tractor	Orch.Sprayer 500 Gal PTO	Equipment Operator	0.41	hour	
	Feb			Orbit	4.00	FIOz	
Weeds-Spray Middles	Feb		ATV-4WD	Equipment Operator	0.28	hour	
				Roundup UltraMax	1.00	Pint	
	Apr		ATV sprayer 200 gal 18'	ATV-4WD	Equipment Operator	0.28	hour
					Roundup UltraMax	1.00	Pint
	June		ATV sprayer 200 gal 18'	ATV-4WD	Equipment Operator	0.28	hour
					Roundup UltraMax	1.00	Pint
	Sept		ATV sprayer 200 gal 18'	ATV-4WD	Equipment Operator	0.28	hour
					Roundup UltraMax	1.00	Pint
Fertilize-UAN32	Mar	48HP4WD Tractor		Equipment Operator	0.30	hour	
	Sept			UAN-32	62.50	lb N	
Insects-CM/Katydid	Apr	90 HP 4WD Tractor	Orch.Sprayer 500 Gal PTO	Equipment Operator	0.30	hour	
				UAN-32	62.50	lb N	
Rake-Row Middles Irrigate 12X	Apr	90 HP 4WD Tractor	Brush Rake 9'	Equipment Operator	0.28	hour	
	Apr			Water - Plums	9.00	AcIn	
	May			Water - Plums	9.00	AcIn	
	June			Water - Plums	9.00	AcIn	
	July			Water - Plums	9.00	AcIn	
	Aug			Water - Plums	8.00	AcIn	
	Thin Fruit-Hand Crew			Apr		ATV-4WD	Thinning
Weeds-Spot Spray	May	Equipment Operator	0.06	hour			
	July	Roundup UltraMax	0.10	Pint			
Fertilize: Leaf Samples Insects-Mites	June	90 HP 4WD Tractor	Orch.Sprayer 500 Gal PTO	ATV sprayer 200 gal 18'	0.06	hour	
				ATV-4WD	0.10	Pint	
				ATV sprayer 200 gal 18'			
Irrigation Labor Fertilize - Fall Zn	July	90 HP 4WD Tractor	Orch.Sprayer 500 Gal PTO	Leaf Analysis	1.00	Acre	
	Oct			Equipment Operator	0.41	hour	
Pickup Truck Use ATV Use	Oct		Pickup Truck 1/2 Ton	Acramite 50WS	1.00	Lb	
				Equipment Operator	13.50	hours	
Pick Fruit	July	34HP2WD Tractor	Harvest Bin Trailer #1	Irrigation Labor	10.00	lb	
	July			Equipment Operator	0.90	hour	
Haul To Shed Pack Fruit	July	48HP4WD Tractor	Harvest Bin Trailer #2	Zinc Sulfate 36%	0.60	hour	
				Non-Machine Labor	15.00	hours	
Sell	July			Haul Fruit	28.00	Bin	
				Pack Fruit	900.00	Box	
				Sell Plums @ 10%	900.00	Box	