
UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2008

SAMPLE COSTS TO PRODUCE
PRUNES
(DRIED PLUMS)



SACRAMENTO VALLEY

French Variety & Low-Volume Irrigation

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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

**SAMPLE COSTS TO ESTABLISH
A PRUNE ORCHARD and PRODUCE PRUNES
(Dried Plums)
Sacramento Valley - 2008**

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INTRODUCTION

Sample costs to produce prunes in the Sacramento Valley are presented in this study. The study is intended as a guide only, and can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. The practices described are based on production procedures considered typical for this crop and area, and will not apply to every situation. Sample costs for labor, materials, equipment and custom services are based on current figures. A blank column, “*Your Costs*”, is provided to enter your actual costs on Tables 1 and 2.

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

Current and many archived Sample Cost of Production Studies for many commodities are available and can be downloaded from the Department of Agricultural and Resource Economics website at <http://coststudies.ucdavis.edu> or obtained from your local UC Cooperative Extension office. These studies as well as archived studies not on the website can be requested through the department by calling (530) 752-1517.

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ASSUMPTIONS

The assumptions refer to Tables 1 through 7 and pertain to sample costs to prunes under micro sprinkler or low volume irrigation in the Sacramento 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 of 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. The study is intended as a guide only. **The use of trade names and cultural 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.**

Farm. The hypothetical farm consists of 105 contiguous acres farmed by the owner. Smaller non-contiguous parcels may have additional costs for travel time and equipment re-calibration. Larger farms will have increased efficiencies and lower per acre costs. Prunes are being established on 100 acres; roads, irrigation systems and farmstead occupy five acres. The land is assumed to be adequately drained class II soil. The owner farms the land.

Trees. The prune variety Improved French, is planted on an 18-foot X 18-foot diamond spacing, 15.6 feet between rows at 155 trees per acre. Orchard life is estimated to be 30 years.

Production Cultural Practices and Material Inputs

Pruning. Hand pruning every year, and mechanical topping in alternate years, are done during the winter months, (November - Early March); most mechanical pruning might be done early because of wet soils in normal winters. Topping begins in the seventh year and one-half of the cost is charged to the orchard each year. Topping costs will vary depending on age of orchard (size of trees) – single pass versus a double pass. The trees are topped just prior to pruning. Prunings are placed in the row middles and shredded using a flail mower.

Irrigation. The field is irrigated an average of twice weekly through a micro-sprinkler system from April through September. A total of 30 acre inches is applied. The water costs in this study are based on grower pumping costs and the labor is estimated. The water is pumped from an onsite well and cost \$54.96 per acre-foot (\$4.58/acre inch). Water costs will vary depending on the irrigation district, power source, well characteristics, and irrigation setup. No assumption is made regarding effective rainfall.

Nutrition. Nitrogen (N) as UN-32 is injected through the irrigation system in equal amounts, three times between April and June for a seasonal total of 150 pounds of N per acre. Potassium levels are maintained with sulfate of potash applications injected in equal amounts through the micro sprinkler system, also from April through June for a total of 300 pounds of material per acre per year. Labor for managing the fertilizer is included in the irrigation labor.

Sampling. Leaf samples are collected in July at one sample per 25 acres. An ATV is used to move around the field and it is assumed that it takes two hours (0.02 hours/acre) to collect and package the samples.

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

recommended for use with some pesticides, but are not included in this study. Pesticide costs vary by location and volume purchased. Pesticide costs in this study are taken from a single dealer and shown as full retail.

Pest Control Adviser (PCA). The PCA or crop consultant monitors the field for agronomic problems including pests and nutrition and writes pesticide recommendations. Growers may hire private PCAs or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. A private Crop Consultant is hired in this study.

Weeds. Surflan, Goal, and Roundup are applied in November as a dormant strip spray. Roundup is applied as a summer strip or spot spray in May. Vegetation in the row middles is managed by mowing five times, one time per month from April through August.

Insects. Aphids, peach twig borer (PTB), San Jose scale (SJS) and spider mites are the primary insects considered. The insecticide program rotates over a two year period. In the first rotation, Supreme Oil and Asana are applied as a dormant application in January to control aphids, low to moderate levels of scale, European red and brown almond mites and PTB. The oil also can advance

Table D. Two Year Disease/Insect Spray Program

| MONTH | Rotation 1 | | Rotation 2 | |
|-----------|--------------------------------|-------------|----------------|--------------------|
| | PEST | MATERIAL | PEST | MATERIAL |
| Jan | Scale, PTB, Mites ¹ | Oil*+Asana* | | |
| early Mar | Brown Rot | Vanguard | Brown Rot, PTB | Vanguard+Dipel* |
| mid Mar | Rot, Scab | Bravo+Orbit | Rot, Scab, PTB | Bravo+Orbit+Dipel* |
| May | Rust | Sulfur | Rust | Sulfur |
| Jun | Spider mites | Vendex* | | |
| Aug | Brown Rot | Orbit** | | |
| Nov | Aphid | Asana* | | |

*Oil, Asana, Dipel, Vendex = one time per two years

**Orbit = one time per five years

¹ European red mites and Brown almond mites

bloom. Asana is applied as a predormant spray in November for aphid control the following year. In the second rotation, Dipel is added to the two March bloom disease sprays for peach twig borer control. Spider mites may occur in any year, but not necessarily every year; therefore in this study, an in-season miticide spray of Vendex in June is applied every-other year to represent the occasional need to control spider mites. Applications not made every year are prorated so that a portion of the cost is included each year.

Diseases. Bloom sprays, one with Vanguard at green tip in early March and one with Bravo and Orbit approximately 10 days later at full bloom, control brown rot and reduce the incidence of prune scab. Wettable or spray sulfur is applied in May to control prune rust. Wet conditions at harvest occur occasionally, so an Orbit spray is included once every five years for possible brown rot infections. One fifth of the cost is included each year.

Vertebrate Pests. Gophers are assumed to be under control and in March bait treatments are made as necessary in the orchard. Squirrels are managed using anti-coagulant bait stations on the field perimeter and the stations are maintained during April, May, June, September and October. The grower uses an ATV to move around the field.

Fruit Thinning. In some years crop load may be excessive and mechanical thinning may be necessary. In this study, it is assumed that over the life of the orchard, thinning will be needed every other year. Therefore, one half of the cost is charged to the orchard each year.

Pollination. Bees are considered essential for setting a marketable crop. Normally, the natural bee population is sufficient, however in some years supplemental bees may be needed. Typically one to 1.5 hives are used. It is assumed in this study that supplemental bees will be needed every other year; therefore one-half the cost of one hive is charged to the orchard each year.

Harvest. In this study, the crop is harvested and hauled by custom operators. Custom harvest operations are charged on fresh (undried) tons. The custom harvester shakes the trees, catches the fruit, and dumps fruit into bins which are left in the field. The bins are picked up by self propelled bin carriers that deliver fruit to the staging area where the bins are forklifted onto flatbed trucks and driven to dehydrators. The custom operator furnishes the forklift. If fruit size is excessively small, bar sizing on the harvester is available for an additional cost. Sizing is not needed every year and the cost will vary depending on how much it slows down the harvesting operation. In this study, it assumed that sizing is needed in alternate years, therefore, one-half the cost is charged to the operation each year. The grower pays the drying costs and hauling costs.

Yields/Drying. Drying reduces the weight of fresh prunes by approximately 3:1 dry ratio. Annual yields for prunes are measured in dry tons per acre. Over the years, a well managed mature prune orchard can average four dry tons per year.

Returns. A return of \$1,450 is based on the average price received in 2007 (News Release, Prune Bargaining Association). The estimated return also provides a basis for a range of yields and prices shown in Table 4. Returns are based on prune size with large size prunes receiving a higher price than small prunes.

Assessments. Under a state marketing order, the California Dried Plum Board (CDPB) collects mandatory assessment fees. This assessment is charged to the grower to fund prune marketing, advertising, and research programs administered by the CDPB. The portion of the assessment paid by the grower is \$25 per dry ton. Many growers belong to the Prune Bargaining Association. The association provides industry communication, industry leadership and price negotiations. The annual dues may vary each year and currently are \$8.00 per salable ton. No cost is shown for membership in the association.

Pickup/ATV. The study assumes business use mileage of 3,000 miles per year for the pickup. The All Terrain Vehicle (ATV) is used for weed spraying, baiting squirrels and gophers and is included in those costs. Additional ATV uses for checking the orchard, diseases and irrigation system are shown as a line item. The travel is estimated and not taken from any specific data.

Labor, Interest and Equipment

Labor. Hourly wages for workers are \$10.66 for machine operators and \$8.00 per hour non-machine labor. Adding 37% for the employer's share of federal and state payroll taxes, workers compensation insurance for fruit crops (code 0016) and other possible benefits gives the labor rates shown of \$14.60 and \$10.96 per hour for machine labor and non-machine labor, respectively. Workers' compensation costs will vary among growers, but for this study the cost is based upon the average industry final rate as of January 1, 2008 (personal email from California Department of Insurance, March 11, 2008)). Labor for operations involving machinery are 20% higher than the operation time given in Table 1 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 Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum power takeoff (PTO) horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are \$4.05 and \$3.45 per gallon, respectively. The costs are based on 2007-2008 (November to April) American Automobile Association (AAA) and Department of Energy (DOE) monthly data. The cost includes a 2% local sales tax on diesel fuel and 8% sales tax on gasoline. Gasoline also includes federal and state excise tax, which are refundable for on-farm use when filing your income tax. The fuel, lube, and repair cost per acre for each operation in Table 1 is determined by

multiplying the total hourly operating cost in Table 6 for each piece of equipment used for the selected operation by the hours per acre. Tractor time is 10% higher than implement time for a given operation to account for setup, 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 6.75% 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 April 2008.

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.

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% on the assessed value of the property. In some counties special assessment districts exist and charge additional taxes on property including equipment, buildings, and improvements. For this study, county taxes are calculated as 1% of the average value of the property. Average value equals new cost plus salvage value divided by 2 on a per acre basis.

Insurance. Insurance for farm investments varies depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.740% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$693 for the entire farm.

Office Expense. Office and business expenses are estimated at \$100 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, shop and office utilities and miscellaneous administrative costs.

Sanitation Services. Sanitation services provide a double portable toilet with washing equipment for the orchard and cost the farm \$1,250 annually. The cost includes delivery and five months of weekly service.

Supervisor/Management Salaries. Wages for management are not included as a cash cost. Returns above total costs are considered a return to management and risk.

Non-Cash Overhead.

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

Capital Recovery Costs. Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). It is equivalent to the annual payment on a loan for the investment with the down payment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but more accurately represents the annual

costs of ownership because it takes the time value of money into account (Boehlje and Eidman). The formula for the calculation of the annual capital recovery costs is $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$.

Salvage Value. Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (e.g., 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 wearout 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 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 used and the life of the machine.

Interest Rate. An interest rate of 4.25% is used to calculate capital recovery. The rate will vary depending upon loan amount and other lending agency conditions, but is the basic suggested rate by a farm lending agency as of April 2008.

Building. The metal building(s) are on a cement slab and total approximately 2,400 square feet. The buildings are used for shops and equipment storage.

Land. Crop or bare land values range from \$3,000 to \$6,500. The orchard site is assumed to be on previously farmed orchard ground. The basic land value in this study is \$5,500 per acre or \$5,775 per producing acre (100 acres).

Irrigation System. The cost is based on one 75 horsepower electric pump lifting 30 acre-inches from a water level depth of 90 feet. The pump and 300-foot deep well already existed on the site, and the cost of the irrigation system is for the recasing of the well, refurbishment of the pump and the installation of a new filtration system, and micro sprinklers. Water is pumped through a filtration station into a micro-sprinkler system, one sprinkler per tree. The life of the irrigation system is estimated to be 30 years for the pump and filtration system, and 15 years for the micro-sprinklers.

Fuel Tanks. Two 250-gallon fuel tanks are placed on stands in cement containment meeting Federal, State, and local regulations. Fuel is delivered to the equipment by gravity feed.

Shop/Field Tools. Includes shop tools/equipment, hand tools and field tools such as pruning equipment. The cost is estimated and not based on any specific data.

Establishment Cost. Costs to establish the orchard are used to determine the non-cash overhead expenses, capital recovery, and interest on investment for the production years. The establishment cost is the sum of cash costs for land preparation, planting, trees, production expenses, and cash overhead for growing prune trees through the first year fruit is harvested less returns from production. The *Accumulated Net Cash Cost* in the fourth year represents the establishment cost per acre. See *2007 Sample Costs to Establish a Prune Orchard and Produce Prunes, Sacramento Valley* for orchard establishment information. For this study, the cost is \$5,522 per acre or \$552,200 for the 100-acre orchard. Establishment cost is amortized beginning in the fifth year over the remaining 26 years of production.

Equipment. Farm equipment is purchased new or used, but the study shows the current purchase price for new equipment. The new purchase price is adjusted to 60% to indicate a mix of new and used equipment. Annual ownership costs for equipment and other investments are shown in Table 5. Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. Both of the overhead factors have been discussed in previous sections. The operating costs consist of repairs, fuel, and lubrication and are discussed under operating costs.

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

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

UC COOPERATIVE EXTENSION
Table 1. COSTS PER ACRE TO PRODUCE PRUNES
 Sacramento Valley - 2008

| Operation | Operation Time (Hrs/A) | Cash and Labor Costs per acre | | | | | Total Cost | Your Cost |
|---|------------------------------|-------------------------------|-------------------------|------------------|-----------------|--------------|---------------|--------------|
| | | Labor Cost | Fuel, Lube & Repairs | Material Cost | Custom/ Rent | | | |
| Cultural: | | | | | | | | |
| Prune: Hand | 32.00 | 351 | 0 | 0 | 0 | 351 | | |
| Prune: Top Trees (alternate years) | 0.00 | 0 | 0 | 0 | 15 | 15 | | |
| Prune: Shred Brush | 0.21 | 4 | 5 | 0 | 0 | 9 | | |
| Insect: Dormant-Scale, Mites, PTB (Oil, Asana) alt years | 0.29 | 5 | 7 | 13 | 0 | 25 | | |
| Disease: Rot, Scab (Vanguard). Insect: PTB (Dipel) @ greentip | 0.57 | 10 | 14 | 39 | 0 | 63 | | |
| Disease: Rot, Scab Bravo, Orbit). Insect: PTB (Dipel) @ bloom | 0.57 | 10 | 14 | 68 | 0 | 92 | | |
| Pollinate: Hives (alternate years) | 0.00 | 0 | 0 | 13 | 0 | 13 | | |
| Vertebrate: Gophers (bait) | 0.08 | 1 | 0 | 2 | 0 | 3 | | |
| Vertebrate: Squirrels (bait) | 0.00 | 0 | 0 | 4 | 0 | 4 | | |
| Fertilize: N (UN32) through sprinklers | 0.00 | 0 | 0 | 113 | 0 | 113 | | |
| Fertilize: K (potassium sulfate) through sprinklers | 0.00 | 0 | 0 | 114 | 0 | 114 | | |
| Irrigate: water & labor | 1.20 | 13 | 0 | 137 | 0 | 151 | | |
| Weed: Mow Centers 5X | 1.04 | 18 | 24 | 0 | 0 | 42 | | |
| Thin Fruit: Shake Trees (alternate years) | 0.00 | 0 | 0 | 0 | 33 | 33 | | |
| Weed: Summer Strip (Roundup) | 0.40 | 7 | 7 | 9 | 0 | 23 | | |
| Disease: Rust (Sulfur) | 0.57 | 10 | 14 | 1 | 0 | 25 | | |
| Insect: Mites (Vendex) alternate years | 0.29 | 5 | 7 | 26 | 0 | 38 | | |
| Fertilize: Leaf Sampling | 0.01 | 0 | 0 | 0 | 1 | 2 | | |
| Disease: Brown Rot (Orbit) once every 5 years | 0.11 | 2 | 3 | 4 | 0 | 9 | | |
| Weed: Dormant Strip (Goal, Surflan, Roundup) | 0.40 | 7 | 7 | 99 | 0 | 113 | | |
| Insect: Aphid (Asana) alternate years | 0.29 | 5 | 7 | 3 | 0 | 15 | | |
| Pickup | 1.00 | 18 | 12 | 0 | 0 | 30 | | |
| ATV | 2.00 | 35 | 6 | 0 | 0 | 41 | | |
| PCA Service | 0.00 | 0 | 0 | 0 | 25 | 25 | | |
| TOTAL CULTURAL COSTS | 41.03 | 501 | 128 | 642 | 74 | 1,345 | | |
| Harvest: | | | | | | | | |
| Shake & Catch. Size in alternate years | 0.00 | 0 | 0 | 0 | 498 | 498 | | |
| Haul to Dryer | 0.00 | 0 | 0 | 0 | 153 | 153 | | |
| Dry | 0.00 | 0 | 0 | 0 | 1,500 | 1,500 | | |
| CPB Assessment | 0.00 | 0 | 0 | 100 | 0 | 100 | | |
| TOTAL HARVEST COSTS | 0.00 | 0 | 0 | 100 | 2,151 | 2,251 | | |
| Interest on operating capital @ 6.75% | | | | | | 46 | | |
| TOTAL OPERATING COSTS/ACRE | | 501 | 128 | 743 | 2,225 | 3,642 | | |
| CASH OVERHEAD: | | | | | | | | |
| Office | | | | | | 100 | | |
| Liability Insurance | | | | | | 7 | | |
| Sanitation Service | | | | | | 13 | | |
| Property Taxes | | | | | | 106 | | |
| Property Insurance | | | | | | 36 | | |
| Investment Repairs | | | | | | 90 | | |
| TOTAL CASH OVERHEAD COSTS | | | | | | 350 | | |
| TOTAL CASH COSTS/ACRE | | | | | | 3,992 | | |

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Table 1. CONTINUED
Sacramento Valley - 2008

| Operation | Operation | Cash and Labor Costs per acre | | | | | Total Cost | Your Cost |
|--------------------------------------|--------------------|-------------------------------|----------------------|------------------|-------------|--------------|------------|-----------|
| | Time (Hrs/A) | Labor Cost | Fuel, Lube & Repairs | Material Cost | Custom/Rent | | | |
| Non-cash Overhead: | Per producing Acre | | | Annual Cost | | | | |
| | | | | Capital Recovery | | | | |
| Buildings | 800 | | | 60 | | 60 | | |
| Fuel Tanks 2-250ga | 35 | | | 2 | | 2 | | |
| Shop/Field Tools | 150 | | | 14 | | 14 | | |
| Land | 5,775 | | | 245 | | 245 | | |
| Irrigation System: Pumps, etc | 175 | | | 10 | | 10 | | |
| Sprinkler System | 1,700 | | | 156 | | 156 | | |
| Establishment | 5,522 | | | 355 | | 355 | | |
| Equipment | 963 | | | 96 | | 96 | | |
| TOTAL NON-CASH OVERHEAD COSTS | 15,120 | | | 938 | | 938 | | |
| TOTAL COSTS/ACRE | | | | | | 4,930 | | |

UC COOPERATIVE EXTENSION
Table 2. COSTS AND RETURNS PER ACRE TO PRODUCE PRUNES
 Sacramento Valley - 2008

| | Quantity /Acre | Unit | Price or Cost/Unit | Value or Cost/Acre | Your Cost |
|--|-------------------|------|-----------------------|-----------------------|--------------|
| GROSS RETURNS | | | | | |
| Prunes | 4.00 | ton | 1,450.00 | 5,800 | |
| OPERATING COSTS | | | | | |
| Rodenticide: | | | | | |
| Gopher Getter Ag-Wilco | 0.25 | lb | 6.50 | 2 | |
| Ground Squirrel Bait - Wilco | 0.75 | lb | 5.60 | 4 | |
| Irrigation: | | | | | |
| Water | 30.00 | acin | 4.58 | 137 | |
| Fungicide: | | | | | |
| Vanguard WG | 5.00 | floz | 4.66 | 23 | |
| Bravo Weather Stik | 4.00 | pt | 8.21 | 33 | |
| Orbit | 4.80 | floz | 4.88 | 23 | |
| Spray Sulfur (wetable sulfur) | 5.00 | lb | 0.22 | 1 | |
| Insecticide: | | | | | |
| Supreme Oil | 2.00 | gal | 5.25 | 11 | |
| Asana XL | 4.42 | floz | 1.08 | 5 | |
| Vendex 50WP | 0.75 | lb | 34.59 | 26 | |
| Dipel DF | 2.00 | lb | 15.32 | 31 | |
| Fertilizer: | | | | | |
| UN-32 | 150.00 | lb N | 0.75 | 113 | |
| Potassium Sulfate | 300.00 | lb | 0.38 | 114 | |
| Pollination: | | | | | |
| Hives | 0.50 | hive | 25.00 | 13 | |
| Herbicide: | | | | | |
| Roundup Ultra Max | 1.74 | pt | 8.58 | 15 | |
| Goal 2XL | 3.00 | pt | 16.45 | 49 | |
| Surflan 4AS | 3.00 | pt | 14.52 | 44 | |
| Custom: | | | | | |
| Harvest Shake & Catch | 12.00 | ton | 40.00 | 480 | |
| Size Fruit (alternate years) | 6.00 | ton | 3.00 | 18 | |
| Haul Fruit | 12.00 | ton | 12.75 | 153 | |
| Dry Fruit | 12.00 | ton | 125.00 | 1,500 | |
| PCA Service | 1.00 | acre | 25.00 | 25 | |
| Leaf Analysis | 0.04 | each | 32.00 | 1 | |
| Top Trees (alternate years) | 0.50 | acre | 30.00 | 15 | |
| Thin Fruit (shake) | 0.50 | acre | 65.00 | 33 | |
| Assessment: | | | | | |
| CA Dried Plum Association | 4.00 | ton | 25.00 | 100 | |
| Labor (machine) | 9.39 | hrs | 14.60 | 137 | |
| Labor (non-machine) | 33.21 | hrs | 10.96 | 364 | |
| Fuel - Gas | 3.90 | gal | 3.45 | 13 | |
| Fuel - Diesel | 18.32 | gal | 4.05 | 74 | |
| Lube | | | | 13 | |
| Machinery repair | | | | 27 | |
| Interest on operating capital @ 6.75% | | | | 46 | |
| TOTAL OPERATING COSTS/ACRE | | | | 3,642 | |
| NET RETURNS ABOVE OPERATING COSTS | | | | 2,158 | |

UC COOPERATIVE EXTENSION

Table 2. CONTINUED

Sacramento Valley - 2008

| | Quantity /Acre | Unit | Price or Cost/Unit | Value or Cost/Acre | Your Cost |
|---|-------------------|------|-----------------------|-----------------------|--------------|
| CASH OVERHEAD COSTS: | | | | | |
| Office | | | | 100 | |
| Liability Insurance | | | | 7 | |
| Sanitation Service | | | | 13 | |
| Property Taxes | | | | 106 | |
| Property Insurance | | | | 36 | |
| Investment Repairs | | | | 90 | |
| TOTAL CASH OVERHEAD COSTS/ACRE | | | | 350 | |
| TOTAL CASH COSTS/ACRE | | | | 3,992 | |
| NON-CASH OVERHEAD COSTS (Capital Recovery) | | | | | |
| Buildings | | | | 60 | |
| Fuel Tanks 2-250ga | | | | 2 | |
| Shop/Field Tools | | | | 14 | |
| Land | | | | 245 | |
| Irrigation System: Pumps, etc | | | | 10 | |
| Sprinkler System | | | | 156 | |
| Establishment | | | | 355 | |
| Equipment | | | | 96 | |
| TOTAL NON-CASH OVERHEAD COSTS/ACRE | | | | 938 | |
| TOTAL COSTS/ACRE | | | | 4,930 | |
| NET RETURNS ABOVE TOTAL COSTS | | | | 870 | |

UC COOPERATIVE EXTENSION

Table 3. MONTHLY CASH COSTS PER ACRE TO PRODUCE PRUNES

Sacramento Valley - 2008

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | TOTAL |
|---|------------|-----------|------------|------------|------------|------------|-----------|--------------|-----------|----------|------------|----------|--------------|
| Beginning JAN 08 | 08 | 08 | 08 | 08 | 08 | 08 | 08 | 08 | 08 | 08 | 08 | 08 | |
| Ending DEC 08 | | | | | | | | | | | | | |
| Cultural: | | | | | | | | | | | | | |
| Prune: Hand | 351 | | | | | | | | | | | | 351 |
| Prune: Top Trees (alternate years) | 15 | | | | | | | | | | | | 15 |
| Prune: Shred Brush | 9 | | | | | | | | | | | | 9 |
| Insect: Dormant-Scale, Mites, PTB (Oil, Asana) alt years | 25 | | | | | | | | | | | | 25 |
| Disease: Rot, Scab (Vanguard). Insect: PTB (Dipel) @ greentip | | | | 63 | | | | | | | | | 63 |
| Disease: Rot, Scab Bravo, Orbit). Insect: PTB (Dipel) @ bloom | | | | 92 | | | | | | | | | 92 |
| Pollinate: Hives (alternate years) | | | | 13 | | | | | | | | | 13 |
| Vertebrate: Gophers (bait) | | | | 3 | | | | | | | | | 3 |
| Vertebrate: Squirrels (bait) | | | | | 1 | 1 | 1 | | 1 | 1 | | | 4 |
| Fertilize: N (UN32) through sprinklers | | | | 38 | 38 | 38 | | | | | | | 113 |
| Fertilize: K (potassium sulfate) through sprinklers | | | | 38 | 38 | 38 | | | | | | | 114 |
| Irrigate: water & labor | | | | 14 | 23 | 30 | 34 | 29 | 21 | | | | 151 |
| Weed: Mow Centers 5X | | | | 9 | 9 | 9 | 9 | 9 | | | | | 43 |
| Thin Fruit: Shake Trees (alternate years) | | | | | 33 | | | | | | | | 33 |
| Weed: Summer Strip (Roundup) | | | | | 23 | | | | | | | | 23 |
| Disease: Rust (Sulfur) | | | | | 25 | | | | | | | | 25 |
| Insect: Mites (Vendex) alternate years | | | | | | 38 | | | | | | | 38 |
| Fertilize: Leaf Sampling | | | | | | | 2 | | | | | | 2 |
| Disease: Brown Rot (Orbit) once every 5 years | | | | | | | | 9 | | | | | 9 |
| Weed: Dormant Strip (Goal, Surflan, Roundup) | | | | | | | | | | | 113 | | 113 |
| Insect: Aphid (Asana) alternate years | | | | | | | | | | | 15 | | 15 |
| Pickup | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 30 |
| ATV | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 41 |
| PCA Service | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 25 |
| TOTAL CULTURAL COSTS | 407 | 8 | 179 | 107 | 196 | 161 | 52 | 54 | 30 | 9 | 136 | 6 | 1,345 |
| Harvest: | | | | | | | | | | | | | |
| Shake & Catch. Size in alternate years | | | | | | | | 498 | | | | | 498 |
| Haul to Dryer | | | | | | | | 153 | | | | | 153 |
| Dry | | | | | | | | 1,500 | | | | | 1,500 |
| CPB Assessment | | | | | | | | 100 | | | | | 100 |
| TOTAL HARVEST COSTS | | | | | | | | 2,251 | | | | | 2,251 |
| Interest on operating capital @ 6.75% | 2 | 2 | 3 | 4 | 5 | 6 | 6 | 19 | -1 | -1 | -1 | 0 | 46 |
| TOTAL OPERATING COSTS/ACRE | 410 | 11 | 182 | 111 | 201 | 167 | 59 | 2,324 | 29 | 8 | 135 | 6 | 3,642 |

UC COOPERATIVE EXTENSION

Table 3. CONTINUED

Sacramento Valley - 2008

| Beginning JAN 08 | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | TOTAL |
|----------------------------------|------------|-----------|------------|------------|------------|------------|------------|--------------|-----------|-----------|------------|-----------|--------------|
| Ending DEC 08 | 08 | 08 | 08 | 08 | 08 | 08 | 08 | 08 | 08 | 08 | 08 | 08 | |
| OVERHEAD: | | | | | | | | | | | | | |
| Office | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 100 |
| Liability Insurance | | | | 7 | | | | | | | | | 7 |
| Sanitation Service | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 13 |
| Property Taxes | 53 | | | | | | 53 | | | | | | 106 |
| Property Insurance | 18 | | | | | | 18 | | | | | | 36 |
| Investment Repairs | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 90 |
| TOTAL CASH OVERHEAD COSTS | 88 | 17 | 17 | 24 | 17 | 17 | 88 | 17 | 17 | 17 | 17 | 16 | 350 |
| TOTAL CASH COSTS/ACRE | 497 | 27 | 199 | 135 | 218 | 184 | 146 | 2,341 | 46 | 25 | 152 | 22 | 3,992 |

UC COOPERATIVE EXTENSION

Table 4. RANGING ANALYSIS

Sacramento Valley - 2008

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE PRUNES

| | YIELD (tons/acre) | | | | | | |
|--|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 2.80 | 3.20 | 3.60 | 4.00 | 4.40 | 4.80 | 5.20 |
| OPERATING COSTS | | | | | | | |
| Cultural Cost | 1,345 | 1,345 | 1,345 | 1,345 | 1,345 | 1,345 | 1,345 |
| Harvest Cost (Shake, Catch, Move Bins) | 349 | 398 | 448 | 498 | 548 | 598 | 647 |
| Haul to Dryer | 107 | 122 | 138 | 153 | 168 | 184 | 199 |
| Dry | 1,050 | 1,200 | 1,350 | 1,500 | 1,650 | 1,800 | 1,950 |
| Assessment | 70 | 80 | 90 | 100 | 110 | 120 | 130 |
| Interest on operating capital @ 6.75% | 42 | 43 | 44 | 46 | 47 | 48 | 49 |
| TOTAL OPERATING COSTS | 2,963 | 3,188 | 3,415 | 3,642 | 3,868 | 4,095 | 4,320 |
| Total Operating Costs/ton | 1,058 | 996 | 949 | 911 | 879 | 853 | 831 |
| CASH OVERHEAD COSTS | 350 | 350 | 350 | 350 | 350 | 350 | 350 |
| TOTAL CASH COSTS | 3,313 | 3,538 | 3,765 | 3,992 | 4,218 | 4,445 | 4,670 |
| Total Cash Costs/ton | 1,183 | 1,106 | 1,046 | 998 | 959 | 926 | 898 |
| NON-CASH OVERHEAD COSTS | 938 | 938 | 938 | 938 | 938 | 938 | 938 |
| TOTAL COSTS | 4,251 | 4,476 | 4,703 | 4,930 | 5,156 | 5,383 | 5,608 |
| Total Costs/ton | 1,518 | 1,399 | 1,306 | 1,233 | 1,172 | 1,122 | 1,079 |

NET RETURNS PER ACRE ABOVE OPERATING COSTS

| \$/ton | YIELD (tons/acre) | | | | | | |
|--------|-------------------|-------|-------|-------|-------|-------|-------|
| | 2.80 | 3.20 | 3.60 | 4.00 | 4.40 | 4.80 | 5.20 |
| 1,050 | -23 | 172 | 365 | 558 | 752 | 945 | 1,140 |
| 1,150 | 257 | 492 | 725 | 958 | 1,192 | 1,425 | 1,660 |
| 1,250 | 537 | 812 | 1,085 | 1,358 | 1,632 | 1,905 | 2,180 |
| 1,350 | 817 | 1,132 | 1,445 | 1,758 | 2,072 | 2,385 | 2,700 |
| 1,450 | 1,097 | 1,452 | 1,805 | 2,158 | 2,512 | 2,865 | 3,220 |
| 1,550 | 1,377 | 1,772 | 2,165 | 2,558 | 2,952 | 3,345 | 3,740 |
| 1,650 | 1,657 | 2,092 | 2,525 | 2,958 | 3,392 | 3,825 | 4,260 |

NET RETURNS PER ACRE ABOVE CASH COSTS

| \$/ton | YIELD (tons/acre) | | | | | | |
|--------|-------------------|-------|-------|-------|-------|-------|-------|
| | 2.80 | 3.20 | 3.60 | 4.00 | 4.40 | 4.80 | 5.20 |
| 1,050 | -373 | -178 | 15 | 208 | 402 | 595 | 790 |
| 1,150 | -93 | 142 | 375 | 608 | 842 | 1,075 | 1,310 |
| 1,250 | 187 | 462 | 735 | 1,008 | 1,282 | 1,555 | 1,830 |
| 1,350 | 467 | 782 | 1,095 | 1,408 | 1,722 | 2,035 | 2,350 |
| 1,450 | 747 | 1,102 | 1,455 | 1,808 | 2,162 | 2,515 | 2,870 |
| 1,550 | 1,027 | 1,422 | 1,815 | 2,208 | 2,602 | 2,995 | 3,390 |
| 1,650 | 1,307 | 1,742 | 2,175 | 2,608 | 3,042 | 3,475 | 3,910 |

NET RETURNS PER ACRE ABOVE TOTAL COSTS

| \$/ton | YIELD (tons/acre) | | | | | | |
|--------|-------------------|--------|-------|-------|-------|-------|-------|
| | 2.80 | 3.20 | 3.60 | 4.00 | 4.40 | 4.80 | 5.20 |
| 1,050 | -1,311 | -1,116 | -923 | -730 | -536 | -343 | -148 |
| 1,150 | -1,031 | -796 | -563 | -330 | -96 | 137 | 372 |
| 1,250 | -751 | -476 | -203 | 70 | 344 | 617 | 892 |
| 1,350 | -471 | -156 | 157 | 470 | 784 | 1,097 | 1,412 |
| 1,450 | -191 | 164 | 517 | 870 | 1,224 | 1,577 | 1,932 |
| 1,550 | 89 | 484 | 877 | 1,270 | 1,664 | 2,057 | 2,452 |
| 1,650 | 369 | 804 | 1,237 | 1,670 | 2,104 | 2,537 | 2,972 |

UC COOPERATIVE EXTENSION

Table 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT AND BUSINESS OVERHEAD
Sacramento Valley - 2008

ANNUAL EQUIPMENT COSTS

| Yr | Description | Price | Yrs Life | Salvage Value | Capital Recovery | Cash Overhead | | Total |
|-------|---------------------------|---------|-------------|------------------|---------------------|----------------|-------|--------|
| | | | | | | Insur- ance | Taxes | |
| 08 | 65HP 2WD Tractor | 46,230 | 12 | 11,558 | 4,239 | 214 | 289 | 4,742 |
| 08 | 75HP MFWD Tractor | 43,500 | 15 | 8,469 | 3,566 | 192 | 260 | 4,018 |
| 08 | All Terrain Vehicle (ATV) | 7,430 | 7 | 2,818 | 895 | 38 | 51 | 984 |
| 08 | Mower-Flail 10 ft | 10,272 | 10 | 1,817 | 1,133 | 45 | 60 | 1,238 |
| 08 | Orchard .Sprayer 500 Gal | 21,000 | 10 | 3,714 | 2,316 | 91 | 124 | 2,531 |
| 08 | Pickup 1/2 ton | 28,000 | 7 | 10,621 | 3,374 | 143 | 193 | 3,710 |
| 08 | Weed Sprayer 100 Gal | 4,000 | 10 | 707 | 441 | 17 | 24 | 482 |
| TOTAL | | 160,432 | | 39,704 | 15,964 | 741 | 1,001 | 17,705 |
| | | 96,259 | | 23,822 | 9,578 | 444 | 600 | 10,623 |

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

| Description | Price | Yrs Life | Salvage Value | Capital Recovery | Cash Overhead | | | Total |
|------------------------|-----------|-------------|------------------|---------------------|----------------|-------|---------|---------|
| | | | | | Insur- ance | Taxes | Repairs | |
| INVESTMENT | | | | | | | | |
| Buildings 2400 sqft | 80,000 | 20 | | 6,018 | 296 | 400 | 1,600 | 8,314 |
| Establishment | 552,200 | 26 | | 35,497 | 2,043 | 2,761 | 552 | 40,853 |
| Fuel Tanks 2 - 250 gal | 3,500 | 35 | 1,295 | 177 | 18 | 24 | 70 | 289 |
| Irrigation: Pump, etc. | 17,500 | 30 | | 1,043 | 65 | 88 | 350 | 1,545 |
| Land | 577,500 | 30 | 577,500 | 24,544 | 0 | 5,775 | 0 | 30,319 |
| Irrigation: Sprinklers | 170,000 | 15 | | 15,558 | 629 | 850 | 3,400 | 20,437 |
| Shop/Field Tools | 15,000 | 15 | | 1,373 | 56 | 75 | 3,000 | 4,503 |
| TOTAL INVESTMENT | 1,415,700 | | 578,795 | 84,210 | 3,106 | 9,972 | 8,972 | 106,260 |

ANNUAL BUSINESS OVERHEAD COSTS

| Description | Units/ | | Price/ Unit | Total Cost |
|---------------------|--------|------|----------------|---------------|
| | Farm | Unit | | |
| Liability Insurance | 100 | acre | 6.93 | 693 |
| Office Expense | 100 | acre | 100.00 | 10,000 |
| Sanitation Service | 100 | acre | 12.50 | 1,250 |

UC COOPERATIVE EXTENSION

Table 6. HOURLY EQUIPMENT COSTS
Sacramento Valley - 2008

| Yr | Description | COSTS PER HOUR | | | | | | | Total Costs/Hr. |
|----|---------------------------|-------------------------|---------------------|----------------|-------|-----------|----------------|----------------|--------------------|
| | | Actual Hours Used | Cash Overhead | | | Operating | | | |
| | | | Capital Recovery | Insur- ance | Taxes | Repairs | Fuel & Lube | Total Oper. | |
| 08 | 65HP 2WD Tractor | 87 | 29.12 | 1.47 | 1.98 | 2.14 | 12.58 | 14.72 | 47.29 |
| 08 | 75HP MFWD Tractor | 434 | 4.94 | 0.27 | 0.36 | 1.97 | 17.15 | 19.12 | 24.69 |
| 08 | All Terrain Vehicle (ATV) | 209 | 2.57 | 0.11 | 0.15 | 0.55 | 2.65 | 3.20 | 6.03 |
| 08 | Mower-Flail 10 ft | 125 | 5.45 | 0.22 | 0.29 | 2.3 | 0.00 | 2.30 | 8.26 |
| 08 | Orchard .Sprayer 500 Gal | 269 | 5.16 | 0.20 | 0.28 | 3.64 | 0.00 | 3.64 | 9.28 |
| 08 | Pickup 1/2 ton | 100 | 20.24 | 0.86 | 1.16 | 2.08 | 9.92 | 12.00 | 34.26 |
| 08 | Weed Sprayer 100 Gal | 79 | 3.33 | 0.13 | 0.18 | 1.08 | 0.00 | 1.08 | 4.72 |

UC COOPERATIVE EXTENSION
Table 7. OPERATIONS WITH EQUIPMENT
 SACRAMENTO VALLEY - 2008

| Operation | Operation Month | Equipment Tractor | Implement | Non-Mach | | Broadcast Rate/acre | Unit |
|--|-----------------|-------------------|-----------------|----------------|----------|---------------------|-------|
| | | | | Labor hrs/acre | Material | | |
| Cultural: | | | | | | | |
| Prune: | Mar | | | 28.00 | | | |
| Prune: Top (alternate years) | Mar | Custom | | | | | |
| Prune: Shred Brush | Mar | 75 HP | Flail Mower | | | | |
| Insect: Dormant (alternate years) | Jan | 75 HP | Orchard Sprayer | | *Oil | 2.00 | gal |
| | | | | | *Asana | 2.00 | floz |
| Disease: Rot. Insect: PTB @ greentip | Mar | 75 HP | Orchard Sprayer | | Vanguard | 5.00 | floz |
| | | | | | *Dipel | 1 | lb |
| Disease: @ Bloom. Rot, Scab. Insect: PTB | Mar | 75 HP | Orchard Sprayer | | Bravo | 4.00 | pt |
| | | | | | Orbit | 4.00 | floz |
| | | | | | *Dipel | 1.00 | lb |
| Pollinate: Hives (alternate years) | Mar | Custom | | | Bee Hive | 0.50 | acre |
| Vertebrate: Gopher | Mar | ATV | | | Bait | 0.25 | lb |
| Vertebrate: Squirrel | Apr | ATV | | | Bait | 0.15 | lb |
| | May | ATV | | | Bait | 0.15 | lb |
| | June | ATV | | | Bait | 0.15 | lb |
| | Sept | ATV | | | Bait | 0.15 | lb |
| | Oct | ATV | | | Bait | 0.15 | lb |
| Fertilize: N (through irrigation) | Apr | | | | UN32 | 50.00 | lbs N |
| | May | | | | UN32 | 50.00 | lbs N |
| | June | | | | UN32 | 50.00 | lbs N |
| Fertilize: K (through irrigation) | Apr | | | | SOP | 100.00 | lb |
| | May | | | | SOP | 100.00 | lb |
| | June | | | | SOP | 100.00 | lb |
| Irrigate: | Apr | | | 0.12 | Water | 2.86 | acin |
| | May | | | 0.24 | Water | 4.38 | acin |
| | June | | | 0.24 | Water | 5.98 | acin |
| | July | | | 0.24 | Water | 6.79 | acin |
| | Aug | | | 0.24 | Water | 5.71 | acin |
| | Sept | | | 0.12 | Water | 4.29 | acin |
| Weed: Mow Centers | Apr | 75 HP | Flail Mower | | | | |
| | May | 75 HP | Flail Mower | | | | |
| | June | 75 HP | Flail Mower | | | | |
| | July | 75 HP | Flail Mower | | | | |
| | Aug | 75 HP | Flail Mower | | | | |
| Thin Fruit: Shake (alternate years) | May | Custom | | | | | |
| Weed: Summer Strip | May | 65 HP | Weed Sprayer | | Roundup | 1.02 | pt |
| Disease: Rust | July | 75 HP | Orchard Sprayer | | Sulfur | 5.00 | lb |
| Insect: Mites, Misc (alternate years) | June | 75 HP | Orchard Sprayer | | *Vendex | 0.75 | lb |
| Nutrition: Leaf Samples | July | ATV | | 0.02 | Analysis | 0.04 | each |
| Insect: Brown rot (once per 5 years) | Aug | 75 HP | Orchard Sprayer | | **Orbit | 0.80 | floz |
| Harvest: Shake, Collect, Size, Bin Carrier | Aug | Custom | | | | | |
| Harvest: Haul to Dryer | Aug | Custom | | | | | |
| Harvest: Dry Fruit | Aug | Custom | | | | | |
| Weed: Dormant | Nov | 65 HP | Weed Sprayer | | Surflan | 3.00 | pt |
| | | | | | Goal | 3.00 | pt |
| | | | | | Roundup | 0.72 | pt |
| Insect: Aphid (alternate years) | Nov | 75 HP | Orchard Sprayer | | *Asana | 4.85 | floz |

*alternate years, 1/2 rate allocated each year. **1/5 rate allocated each year.