

**2022**

**SAMPLE COSTS TO ESTABLISH  
AN ORCHARD AND PRODUCE PRUNES**



**French Variety (Dried Plums)  
In the Sacramento Valley**

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**INTRODUCTION**

Sample costs to establish a prune orchard and produce dried prunes, ‘Improved French’ variety, are presented in this study. It is intended as a guide only, and can be used to make production decisions, estimate potential returns, prepare budgets and evaluate production loans. Practices described are based on production practices considered typical for the crop and area, but these same practices will not apply to every farming operation. The sample costs for labor, materials, equipment and custom services are based on September 2022 figures. A blank column titled “Your Cost”, 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 University of California, Davis, Department of Agricultural and Resource Economics, at 530-752-4651 or [jmmurdock@ucdavis.edu](mailto:jmmurdock@ucdavis.edu). You can contact the local UCCE Advisor through the county offices: [http://ucanr.edu/County\\_Offices/](http://ucanr.edu/County_Offices/)

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representatives who provided information, assistance, and expert advice. **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.** *The University is an affirmative action/equal opportunity employer.*

## ASSUMPTIONS

The assumptions refer to Tables 1 through 8 and pertain to sample costs to establish an orchard and produce prunes under drip 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 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, and insect and disease pressure.

**Farm.** The hypothetical farm consists of 100 contiguous acres farmed by the owner/manager. Prunes are being established on 100 acres. Smaller non-contiguous parcels may have additional costs for travel time and equipment re-calibration. The land requirement of a cement slab is minimal for the well head, drip system filters and main-line hookups. There are no access roads or farmstead on this property. This orchard would be part of a larger farming operation with additional acreage planted to other tree crops.

### Establishment Cultural Practices and Material Inputs

**Land Preparation.** The orchard is established on ground previously planted to prunes. Land preparation by a custom operator begins with tree removal of the previous orchard. The trees are knocked over and pushed to the edge of the field for chipping. Root ripping (2x), breaks the roots up and helps bring the roots to the soil surface. The field is chiseled (2x) to get the roots to the soil surface. Hand crews make three separate passes across the field between operations to pick up the roots.

After orchard removal is completed, the entire field is deep ripped at a two to three foot depth in two opposite directions to break up underlying compaction. The ground is disced three times and floated two to three times to level and smooth the surface. The tree rows are fumigated with Chloropicrin and the entire acreage is fumigated with Telone II. Berms on which the trees are planted are made by the grower.

**Trees.** Potted trees of the variety ‘Improved French’ on Krymsk-86 rootstock are planted on an 18-foot X 16-foot spacing, 151 trees per acre. Orchard life is estimated to be 20 years.

**Planting.** The trees are planted in November. A planting contractor marks the tree sites, digs the holes, plants, paints and places tree wraps over the tree. Tree wraps are supplied by the nursery and the paint cost is included. In the second year, 2 percent or 4 trees per acre are replanted.

All pre-plant operations, planting, irrigation system installation and cultural practices for the first 15 months are shown in the first year of establishment costs (Refer to Table 1).

**Prune/Train.** New trees are pruned back to the main stem at planting. For the purposes of this publication, a November planting is considered a dormant planting (same timing as a Jan-March planting the next spring). Pruning and training begins in the first dormant season: January-March of the second year. Trees are treated with Topsin-M after pruning to protect pruning wounds from Cytospora and/or Botryosphaeria canker infection (see disease section). Mechanical topping begins in the sixth year. Prunings are placed in the row middles and chopped using a heavy flail mower.

**Fertilizer.** Nitrogen (N) and potassium (K), the major nutrients required for proper tree growth and yield, are applied through the irrigation system. Nitrogen (UAN 32) is applied beginning in the first year with the total applied N split over three monthly applications between April and June. Nitrogen should be applied during the second half of the irrigation set to avoid nitrate leaching. Annual rates of actual N per acre, assuming good crop set, are shown in Table A. Beginning in the fourth year, solution grade sulfate of potash (ultra-fine SOP) applications are solubilized and injected in equal amounts through the drip system, from April through June for a total of 300 pounds of material per acre per year. Crop load determines tree N and K demand and should therefore be considered before applying fertilizers.

*Leaf Sampling.* Beginning in year three, leaf samples are collected in July at one sample per 40 acres. The samples are collected by a pest control adviser (PCA) and the costs shown are for the lab analysis.

| Table A. Applied N |         | Table B. Applied Water |          |
|--------------------|---------|------------------------|----------|
| Year               | Lbs./Ac | Year                   | AcIn/Yr. |
| 1                  | 10      | 1                      | 9        |
| 2                  | 25      | 2                      | 18       |
| 3                  | 40      | 3                      | 24       |
| 4                  | 75      | 4+                     | 30       |
| 5                  | 100     |                        |          |
| 6                  | 110     |                        |          |
| 7+                 | 120     |                        |          |

**Irrigation System.** The orchard is irrigated with a pressurized, above ground drip system. Main lines and lateral lines are trenched/installed after the berms are made but before planting. The drip lines are laid out and hooked up at the time of planting. The costs for the system including labor for installation are included in the establishment costs (Table 1).

*Water Costs.* Water charges will vary depending on the irrigation district, power source, well characteristics, and irrigation setup. Water is pumped from a well assuming a cost of \$200 per acre-foot (\$16.67/acre inch). Applied water for each year is estimated in Table B. Water costs are expected to rise as new regulations on groundwater are implemented in areas with long-term ground water overdraft.

*Chemical Buildup/Acid Flush.* The drip system requires chemical flushing to retard chemical buildup and emitter clogging. The flushing is performed after harvest with N-pHuric acid applied through the drip system with 0.10 acre-inches of water.

*Well Test/Water Analysis.* An annual well test is performed during the winter to monitor pumping level and efficiency (gallons/minute). A water analysis should be done annually to determine nitrate availability and to maintain regulatory records. A water sample is taken and analyzed for nitrogen and other minerals. Costs for these tests are allocated over the entire acreage the pump can service.

**Pest Management.** The pesticides and rates mentioned are listed in UC Integrated Pest Management Guidelines, Prunes. For information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at [ipm.ucanr.edu](http://ipm.ucanr.edu). For information and pesticide use permits, contact the local county agricultural commissioner's office.

*Pest Control Adviser/Certified Crop Advisor (PCA/CCA).* An individual who is licensed as a PCA and/or a CCA may monitor the orchard for pests and disease and collect samples for nutrient analyses. A CCA emphasizes nutrient, soil, water and crop management issues. If pest management advice is provided by a PCA, that individual is required to provide the grower written recommendations for pesticides that they advise a grower to use. In this region, a written recommendation by a CCA for applying fertilizers is currently not required. An independent PCA, who is not associated with a retail supplier of agricultural chemicals, is hired by the grower to monitor the orchard

for disease and insect pests weekly for nine months. The annual per acre fee for monitoring the orchard is less during the establishment years.

*Application Methods.* Pesticide and fertilizer applications are made by either chemigation (pesticides and/or fertilizers applied through the irrigation water), by ATV-mounted ground or spot sprayer or foliar broadcast by tractor-pulled air-blast sprayer. Check individual pesticide labels for compatibility, mixing and usage.

*Weeds.* Roundup is applied to tree rows after planting. In the first year, Prowl H2O, Roundup and Rely 280 are applied in November. Gramoxone is applied twice per season to control broadleaf weeds during the summer of the first year. Beginning in the second year, Prowl H2O, Goal XL, Roundup and Rely 280 are applied as a dormant strip spray. Roundup plus Shark EW is applied in May or as necessary as a spot or summer strip spray. Vegetation in the row middles is managed by mowing once per month, over the course of five months, from March through August.

**NOTE:** Nursery wraps or grow tubes are used to keep herbicide spray off of the green bark of young trees. Painting the trunks does not protect against herbicide damage. Growers should consult with their PCA regarding herbicide selection in young orchards.

*Insects/Mites.* Aphids, peach twig borer (PTB), and spider mites are the primary insects considered. PTB is treated with Intrepid 2F in May of the first and second years with Intrepid 2F. Aphids and mites are treated as needed.

Beginning in the fourth year, the pest management program varies in response to pest pressure (Table D). Rotation of materials and selection of least toxic pesticides is encouraged. Supreme 440 oil plus Asana are applied as a dormant application in January to control aphids, low-moderate levels of scale, European red and brown almond mites, and PTB. Alternatively, Asana (alone) is applied in November as a pre-dormant spray to control aphids the following year. Dipel is added to two March bloom disease sprays for PTB control. Spidermites may occur in any year, but not necessarily every year. An in-season (June) miticide spray of Agri- Mek (abamectin) is applied every-other year to represent the occasional need to control spider mites. For operations or materials not applied every year, a percentage of that cost is charged each year.

*Diseases.* Beginning in the second year, Topsin M is applied to protect pruning wounds from *Cytospora* and/or *Botryosphaeria* canker infection. Russet scab is not a disease, but a physiological condition affecting the fruit skin. Application of certain fungicides at full bloom can reduce russet scab, so scab management practices and costs are included with diseases. Treatments begin in the fourth year. Bloom sprays, one with Vanguard at green-tip in early March and one with Bravo and Tilt approximately 10 days later at full bloom are applied to control blossom brown rot and reduce the incidence of russet scab. Wettable or spray sulfur is applied in May for rust control ahead of forecast rain. Rain at harvest can occur occasionally but not every year, so Quadris Top with an oil spray is included once every five years to control fruit brown rot.

*Vertebrate Pests.* During the first three establishment years, gophers are managed in the spring (March) with the use of poison bait placed underground using a mechanical bait applicator. It is assumed that the gopher population is under control by the end of the third year and only spot treatments are necessary. Beginning in the fourth year, ground squirrels are baited from May through October using anti-coagulants in bait stations on the field perimeter.

*Endangered Species.* It is important to know if your orchard is located in an area where endangered species reside. Trapping and killing endangered species can result in fines. Contact your County Agricultural Commissioner or visit this website for additional information.

<https://ecos.fws.gov/ecp0/reports/species-listed-by-state-report?state=CA>

**Pollination.** Good bee activity is essential to consistently set a marketable crop. Beginning in the fourth establishment year, first harvest year, one hive per acre is placed in the orchard during bloom.



*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>

**Harvest.** Prunes begin economic production in the fourth year and reach full production in the seventh year. The crop is harvested and hauled by a custom operator. Custom harvest operations are charged on a fresh or green ton basis. Dehydration reduces the weight of fresh prunes by approximately 3:1. This analysis assumes a 3:1 dry ratio and the grower pays the drying costs.

**Yields and Revenue.** See Harvest/Yields/Revenue in the Production section. Typical yields from the fourth year of orchard establishment to maturity are shown in Table C.

| Year | *Green | Dry  |
|------|--------|------|
| 4    | 2.40   | 0.80 |
| 5    | 4.00   | 1.33 |
| 6    | 8.00   | 2.67 |
| 7+   | 10.50  | 3.50 |

\*3 tons green = 1 ton dry

### Production Cultural Practices and Material Inputs

**Pruning.** Trees are hand pruned every other year and tipped mechanically (topping) in alternate years. These operations are performed during the winter months, (November - early March). Mechanical pruning is done in the early fall because machines are heavy and cannot operate on wet soils. One-half of this cost is charged to the orchard each year. Prunings are placed in the row middles and chopped using a heavy flail mower. Trees are treated with Topsin-M after pruning to protect pruning wounds from Cytospora and/or Botryosphaeria canker infection (see disease section).

**Irrigation.** The orchard is irrigated an average of twice weekly using drip irrigation from April through September. A total of 30 acre inches are applied annually. Total water use will vary year to year based on local conditions. The cost of monitoring with a pressure chamber to provide water potential readings helping determine irrigation timing has been included in this study. Irrigation costs are based on grower pumping costs and estimated labor. Water costs will vary depending on the irrigation district, power source, well characteristics, and irrigation setup.

**Fertilizer.** Nitrogen (N) as (UAN 32) is injected through the drip irrigation system in equal amounts, three times between April and June for a seasonal total of 120 pounds of N per acre. Adjustments for nitrogen contributions from groundwater should be accounted for in the season total. Potassium levels are maintained with solution grade sulfate of potash (ultra-fine SOP) applications solubilized and injected in equal amounts through the drip system, also from April through June/July for a total of 600 pounds of material per acre per year. Zinc is commonly applied annually as a tank mix in a foliar spray, either in the spring or fall. In this study, Zinc is applied in the spring.

**Fruit Thinning.** In some years, trees may over-crop and mechanical thinning is necessary in late April or early May. It is assumed that over the life of the orchard, thinning will be needed every other year. Therefore, one half of the fruit thinning cost is charged to the orchard each year.

*Prop Boards.* Planks of wood are used to hold up branches with heavy loads of fruit. The planks are usually 1” x6” and 5’ to 6’ feet long. If the trees are thinned properly, these boards are not needed. No costs are shown.

**Pest Management.** Pesticides and rates suggested are listed in *UC Integrated Pest Management Guidelines, Prunes*. Additional information on other pesticides, pest identification, monitoring, and management can be found

at the UC IPM website [ipm.ucanr.edu](http://ipm.ucanr.edu). Written recommendations are required for many pesticide applications and are made by licensed PCAs. For information and pesticide use permits, contact the local county agricultural commissioner's office. Pesticides mentioned in this study are used to calculate rates and costs. Although the pesticides mentioned are commonly used by growers, many other pesticides are available. Adjuvants or surfactants may be recommended for use with some pesticides, but the costs are not included.

*Weeds.* Alion, Roundup and Rely 280 are applied in November as a dormant strip spray. Roundup plus Shark EW is applied as a summer strip or spot treatment in May. Vegetation in the row middles is managed by mowing five times, from March through August.

*Insects/Mites.* Aphids, peach twig borer (PTB), scale and spider mites are the primary insects considered. (Mites are not insects but are included in this section). Orchards should be monitored weekly and pests treated accordingly when levels exceed thresholds per UC IPM website. Supreme Oil and Asana are applied as a dormant application in January to control aphids, low levels of scale, European red and brown almond mites and PTB in year 1. In alternate years, Asana is applied as a pre-dormant spray in November for aphid control the following year and Dipel is added to the two March bloom disease sprays for PTB control. Spider mites may occur in any year, but not necessarily every year; therefore in this study, an in-season miticide spray of Agri-Mek (abamectin) in June is applied every-other year to account for the occasional need to control spider mites. For applications applied in alternating years, one half of the annual cost is included each year.

*Diseases.* Topsin M and Rally 40WSP are applied to protect pruning or hedging wounds from Cytospora and/or Botryosphaeria canker infection. Bloom sprays, one with Vanguard and Topsin at green tip in early March and a second with Bravo and Tilt approximately 10 days later at full bloom, control blossom brown rot and reduce russet scab. Wettable or spray sulfur is applied in May in wet springs for rust control, so listed as every other year in Table D. Rain at harvest will occur occasionally, so Quadris Top plus oil spray is included once every five years for possible fruit brown rot infections. One fifth of the cost is included each year.

**Table D. Alternating Disease/Insect Spray Program**

| Mature Year 1 |                            |                   | Mature Year 2                |                  |
|---------------|----------------------------|-------------------|------------------------------|------------------|
| Month         | Pest                       | Material          | Pest                         | Material         |
| January       | Aphids, PTB, Mites, Scale* | Oil**+Asana**     | -                            | -                |
| January       | Cytospora, BOT             | Topsin+Rally‡     | Cytospora, BOT               | Topsin+Rally ‡   |
| Early-March   | Blossom brown rot          | Vanguard          | Blossom brown rot, PTB       | Vanguard+Dipel   |
| Mid-March     | Blossom brown rot, Scab    | Bravo+Tilt        | Blossom brown rot, Scab, PTB | Bravo+Tilt+Dipel |
| May           | Rust                       | Sulfur            | -                            | -                |
| June          | Spider mites               | Agri-Mek**        | -                            | -                |
| August        | Fruit brown rot            | Quadris Top + Oil | -                            | -                |
| November      | -                          | -                 | Aphid                        | Asana*           |

\*European red mites and brown almond mites

\*\*Oil+Asana (January) and Agri-Mek + oil (June) = one time per two years

‡Topsin = every year following pruning or hedging

\*\*\*Quadris Top + oil = one time per five years

*Vertebrate Pests.* Gophers are assumed to be well managed in the mature orchard and March bait treatments are only made as necessary. Squirrels are managed using anti-coagulant bait stations on the field perimeter and the stations are maintained during May, June, September and October.

**Pollination.** Bees are considered essential for setting a marketable crop. One hive per acre is rented during bloom for the mature orchard. Hives are placed together in an area where they can pollinate multiple acres of trees without movement and are workable by the beekeeper.

## Harvest/Yields/Revenue

**Harvest.** The crop is harvested and hauled by custom operators. Custom harvest operations are charged on a per tree basis with this charge covering equipment delivery, shaking and bin movement. The custom harvester shakes, catches and moves 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 bins are fork lifted onto flatbed trucks and driven to dehydrators. The grower provides the forklift and labor to operate the forklift. A custom operator hauls the fruit to the dehydrator at a rate of \$12.00 per ton. If fruit size is excessively small, bar sizing on the harvester is available for an additional cost. Sizing is assumed to be needed every year and the cost will vary depending on how much it slows down the harvesting operation. The grower pays the hauling and drying costs.

*Yields/Drying.* Dehydration reduces the weight of fresh prunes by approximately 3:1 (dry ratio). Drying costs are charged by the fresh ton, while growers are paid per dry ton. Annual yields for prunes are measured in dry tons per acre. This cost study assumes production over the life of the orchard to be three and a half dry tons per acre.

*Revenue.* A price of \$2,000 per dry ton is based on grower information and annual crop reports. The estimated return also provides a basis for a range of yields and prices shown in Table 5. Returns are based on prune size with large size prunes receiving a higher price than small prunes.

*Ranging Analysis.* Table 5 shows a range of yields, 2.0 to 5.0 tons per acre over a range of prices, \$1,600 – \$2,400 per ton. Dried fruit producers target yields and prices such that in general, lower yields tend to be associated with higher prices. Therefore, the ranging analysis does not show the cases of very high yields with very high return prices or very low yields with very low return prices.

**Assessments.** Under a state marketing order, the California Prune Board (California Dried Plum Board) <http://Californiadriedplums.org>, collects mandatory assessment fees. This assessment is charged to the grower to fund prune marketing, advertising, and research programs administered by the California Prune Board. The portion of the assessment paid by the grower is \$43.25 per dry ton.

**Pickup/4WD All-Terrain Vehicle, (ATV).** The study assumes business use of one and a half-hours per acre per year for the pickup. The ATV is used for weed spraying, vertebrate pest control and is included in those costs. Additional ATV uses for checking the orchard, monitoring diseases and the irrigation system are shown as a line item. The travel is estimated and not taken from any specific data.

## Labor, Equipment and Interest

**Labor.** Hourly wages for workers are \$18.00 for machine operators and \$15.50 per hour non-machine labor. Adding 45 percent for the employer's share of federal and state payroll taxes, workers compensation insurance, for fruit crops and other possible benefits gives the labor rates shown of \$26.10 and \$22.48 per hour for machine labor and non-machine labor, respectively. Workers' compensation costs will vary among growers. The cost is based upon the average industry final rate as of September, 2022. Labor for operations involving machinery are 20 percent higher than the actual operation time given to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

**Supervisor/Management Salaries.** Management salaries are not included as a cash cost. Any returns above total costs are considered returns on investment or management.

**Equipment Operating Costs.** Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by American Society of Agricultural and Biological Engineers (ASABE). Fuel and lubrication costs are also determined by ASABE equations based on maximum power takeoff (PTO) horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are \$6.00 and \$5.60 per gallon, respectively. The cost includes a 13.0 percent local sales tax on diesel fuel and 10.17 percent sales tax on gasoline.



Gasoline also includes federal and state excise tax, which may be refundable for on-farm use when filing your income tax.

*Fuel/Lube/Repair.* The fuel, lube, and repair cost per acre for each operation in Table 2 is determined by multiplying the total hourly operating cost in Table 7 for each piece of equipment used for the selected operation by the hours per acre. Tractor time is 10 percent higher than implement time for a given operation to account for setup, travel and down time.

**Interest on Operating Capital.** Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 7.00 percent per year. A nominal interest rate is the typical market cost of borrowed funds. The interest cost of post-harvest operations is discounted back to the last harvest month using a negative interest charge. The rate will vary depending upon various factors, but the rate in this study is considered a typical lending rate by a farm lending agency as of September 2022.

**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 the profitability and economic viability of tree 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. Moreover, Table 5 of this study reflects a ranging analysis of returns based on various assumptions which is therefore hypothetical in nature. It is important to realize that actual results may differ from the returns contained in this study. Any returns above total costs are considered returns on risk and investment to management (or owners).

### Cash Overhead

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm and not to a particular operation. These costs include property taxes, interest on operating capital, office expense, liability and property insurance, sanitation services, equipment repairs, and management.

**Property Taxes.** Counties charge a base property tax rate of 1 percent on the assessed value of the property. In some counties special assessment districts exist and charge additional taxes on property including equipment, buildings, and improvements. County taxes are calculated as 1 percent 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.* This provides coverage for property loss and is charged at 0.846 percent of the average value of the assets over their useful life.

*Liability Insurance.* A standard farm liability insurance policy of \$653 is included as a cost for the entire farm. A standard farm liability insurance policy will help cover the expenses for which the grower becomes legally obligated to pay for bodily injury claims on owned property and damages to another person's property as a result of a covered accident. Common liability expenses covered under a policy include attorney fees and court costs, medical expenses for people injured on this farm, or injury or damage to another's property.

*Crop Insurance.* A significant number of growers purchase crop insurance in this region. Due to variability in coverages, none is purchased in this study. This is available to dried plum growers for unavoidable loss of production, damage or poor quality resulting from adverse weather conditions such as excessive heat, cool wet weather, freeze, frost, hail, 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 farm. Actual insurance coverage is by unit, not by acre. <https://rma.usda.gov/en/Fact-Sheets/Davis-Regional-Office-Fact-Sheets/Prunes-2016-CA>

**Office Expense.** Office and business expenses are estimated at \$100 per acre. These expenses include office supplies, telephones/internet, bookkeeping, accounting, office utilities and miscellaneous administrative costs.

**Sanitation Services.** Sanitation services provide single portable toilets with wash basins for 5 months. The cost includes delivery and weekly cleaning service. The number of sanitation facilities will vary depending upon local regulations and size of labor force. In many cases labor contractors furnish the sanitation facilities for their crews and it is included in the contractor's labor overhead.

### **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 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 (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 and Biological Engineers (ASABE) based on equipment type and years of life. The life in years is estimated by dividing the wear-out life, as given by ASABE by the annual hours of use in 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 6.

*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 6.50 percent 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 September 2022.

**Building.** The 2,500 sqft metal shop building is on a cement slab with an attached pole barn that is used for equipment storage. The shop is located at another site and no charges are shown.

**Irrigation System.** The estimated costs are based on one 100 horsepower electric pump lifting 30 acre-inches from a water level depth of 250 feet. The well, pumps, and filter costs are included as a non-cash overhead cost and include a 500-foot deep well with a steel shaft. The 45 horsepower booster pump is connected to and used for pressurizing the drip system. The cost of the irrigation system is for the filtration/fertilizer injection station, connectors, main lines, lateral lines and drip lines. The labor to install the system is included in these costs. The life of the irrigation system is estimated to be 20 years.

**Fuel Tanks.** Two fuel tanks, one for diesel and one for gasoline are placed on stands in cement containment areas that meet Federal, State, and local regulations.

**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 inventory.

**Land.** Prunes are grown on class I, II and III soils. Crop or bare land values of class I & II soils range from \$10,000 to \$30,000 per acre. The orchard site is assumed to be on previously farmed orchard ground. The basic land value used in this analysis is \$20,000 per acre. (TRENDS®).

**Pressure Chamber Instrument.** The instrument produces pressure in the chamber to take water potential readings. This provides data to determine timing of irrigation events. A separate pressure chamber monitoring cost has been included as an operating expense.

**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 (Year 4) less returns from production. The *Accumulated Net Cash Cost* in the fourth year shown in Table 1 represents the establishment cost per acre. The cost is \$16,671 per acre or \$1,667,100 for the 100-acre orchard. The establishment costs added to the bare land value is consistent with the value of an established mature orchard, ( $\$20,000 + \$16,671 = \$36,671$ ). Establishment cost is amortized beginning in the fifth year over the remaining 16 years of production. Annual irrigation repairs are calculated at 2 percent of the irrigation system cost. This irrigation system repair cost of \$48 per acre is included in the establishment costs.

**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 Table 6. 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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**Table 1. COSTS PER ACRE TO ESTABLISH A PRUNE ORCHARD**

Sacramento Valley French Variety (Dried plums)-2022

|   | Year:              | 1st           | 2nd          | 3rd          | 4th          | 5th          | 6th          |
|---|--------------------|---------------|--------------|--------------|--------------|--------------|--------------|
|   | Dry Tons Per Acre: | 0             | 0            | 0            | 0.8          | 1.33         | 2.67         |
| <b>Pre-Planting Costs:</b>  |                    |               |              |              |              |              |              |
| Orchard Removal   |                    | 1,500         |              |              |              |              |              |
| Rip, Disk, Float  |                    | 600           |              |              |              |              |              |
| Fumigate: Telone II (Full) Chloropicrin (Strip)                       |                    | 2,200         |              |              |              |              |              |
| Build Berms   |                    | 86            |              |              |              |              |              |
| Drip Irrigation System: Materials & Installation                      |                    | 2,400         |              |              |              |              |              |
| <b>TOTAL PRE-PLANTING COSTS</b>                                       |                    | <b>6,786</b>  |              |              |              |              |              |
| <b>Planting Costs:</b>  |                    |               |              |              |              |              |              |
| Layout Orchard: Dig, Plant, Wrap, Paint                               |                    | 485           | 12           |              |              |              |              |
| Trees: 151 Per Acre (2% replant in 2nd year)                          |                    | 1,752         | 46           |              |              |              |              |
| Weeds: Strip Spray post-planting (Roundup)                            |                    | 27            |              |              |              |              |              |
| <b>TOTAL PLANTING COSTS</b>   |                    | <b>2,263</b>  | <b>58</b>    |              |              |              |              |
| <b>Cultural Costs:</b>  |                    |               |              |              |              |              |              |
| Well Test/Water Analysis  |                    | 6             | 6            | 6            | 6            | 6            | 6            |
| Prune: Pruning and/or Suckering                                       |                    | 142           | 354          | 528          | 562          | 562          | 562          |
| Prune: Mechanical, Hedging/Topping                                    |                    |               |              |              |              |              | 60           |
| Disease: Dormant-Cytospora, BOT (Topsin M)                            |                    |               | 66           | 66           | 66           | 66           | 66           |
| Vertebrate Pests: bait  |                    | 23            | 22           | 22           | 30           | 30           | 30           |
| Fertilize: (UAN32)  |                    | 12            | 31           | 49           | 92           | 122          | 134          |
| Irrigate: (water & labor)   |                    | 217           | 368          | 462          | 568          | 568          | 568          |
| Irrigate: Acid Flush  |                    | 13            | 13           | 13           | 13           | 13           | 13           |
| Weeds: Mow Middles 5x   |                    | 61            | 61           | 61           | 61           | 61           | 61           |
| Insects: PTB (Intrepid)   |                    | 58            | 58           |              |              |              |              |
| Monitoring with Pressure Chamber                                      |                    | 15            | 15           | 15           | 15           | 15           | 15           |
| Weeds: Summer Spray (Yr1 GramoxoneSL 2x/Yr2 Roundup+SharkEW)          |                    | 31            | 33           | 33           | 35           | 33           | 33           |
| Weeds: Dormant Strip Spray (tank mix)                                 |                    | 84            | 84           | 84           | 87           | 87           | 87           |
| Fertilize: Leaf Sampling Analysis (1/40ac)                            |                    |               |              | 4            | 4            | 4            | 4            |
| Prune: Brush Disposal (in field chopping)                             |                    |               | 16           | 16           | 22           | 22           | 27           |
| Insects: Dormant-Scale, PTB, Mites (Oil, Asana) Alt Yrs.              |                    |               |              |              | 38           | 39           | 39           |
| Insects: Aphid (Asana) Alt Yrs.                                       |                    |               |              |              | 20           | 20           | 20           |
| Disease: Brown rot, Scab (Vanguard). Insect: PTB (Dipel*) @ green-tip |                    |               |              |              | 68           | 68           | 68           |
| Disease: Brown rot, Scab (Bravo, Tilt). Insect: PTB (Dipel*) @ bloom  |                    |               |              |              | 82           | 82           | 82           |
| Fertilize: (SOP)  |                    |               |              |              | 147          | 147          | 147          |
| Insect: Mites (Agri-Mek + Oil) Alt Yrs.                               |                    |               |              |              | 35           | 35           | 35           |
| Pollination: Bee Hives  |                    |               |              |              | 30           | 30           | 40           |
| Disease: Rust (Sulfur) Alt Yrs.                                       |                    |               |              |              | 44           | 44           | 44           |
| Disease: Brown rot, Oil 1x/5 Yrs.                                     |                    |               |              |              | 51           | 51           | 51           |
| PCA/CCA Services  |                    | 20            | 20           | 20           | 30           | 30           | 30           |
| Pickup Truck Use  |                    | 66            | 66           | 66           | 74           | 74           | 74           |
| ATV Use   |                    | 72            | 72           | 72           | 72           | 72           | 72           |
| <b>TOTAL CULTURAL COSTS</b>   |                    | <b>820</b>    | <b>1,283</b> | <b>1,516</b> | <b>2,251</b> | <b>2,281</b> | <b>2,359</b> |
| <b>Harvest Costs:</b>   |                    |               |              |              |              |              |              |
| Shake/Catch/Size  |                    |               |              |              | 328          | 340          | 450          |
| Load & Haul To Dryer  |                    |               |              |              | 36           | 59           | 111          |
| Dry Fruit   |                    |               |              |              | 420          | 700          | 1,400        |
| California Prune Board  |                    |               |              |              | 35           | 58           | 115          |
| <b>TOTAL HARVEST COSTS</b>  |                    |               |              |              | <b>811</b>   | <b>1,157</b> | <b>2,076</b> |
| Interest On Operating Capital @ 7.0%                                  |                    | 741           | 58           | 68           | 61           | 63           | 72           |
| <b>TOTAL OPERATING COSTS/ACRE</b>                                     |                    | <b>10,609</b> | <b>1,399</b> | <b>1,584</b> | <b>3,122</b> | <b>3,501</b> | <b>4,508</b> |



UC COOPERATIVE EXTENSION- AGRICULTURAL AND RESOURCE ECONOMICS, UC DAVIS

**Table 1. Continued**  
 Sacramento Valley French Variety (Dried plums)-2022

|  | Cost Per Acre |               |               |               |               |               |               |
|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|  | Year:         | 1st           | 2nd           | 3rd           | 4th           | 5th           | 6th           |
| Dry Tons Per Acre:                         |               | 0             | 0             | 0             | 0.80          | 1.33          | 2.67          |
| Cash Overhead Costs:                       |               |               |               |               |               |               |               |
| Office Expense                             |               | 100           | 100           | 100           | 100           | 100           | 100           |
| Liability Insurance                        |               | 7             | 7             | 7             | 7             | 7             | 7             |
| Field Sanitation Costs                     |               | 9             | 9             | 9             | 9             | 9             | 9             |
| Property Taxes                             |               | 217           | 217           | 216           | 218           | 301           | 301           |
| Property Insurance                         |               | 1             | 1             | 1             | 2             | 9             | 9             |
| Investment Repairs                         |               | 55            | 55            | 55            | 55            | 56            | 56            |
| <b>TOTAL CASH OVERHEAD COSTS</b>           |               | <b>389</b>    | <b>389</b>    | <b>388</b>    | <b>390</b>    | <b>481</b>    | <b>481</b>    |
| <b>TOTAL CASH COSTS/ACRE</b>               |               | <b>10,998</b> | <b>1,788</b>  | <b>1,972</b>  | <b>3,513</b>  | <b>3,983</b>  | <b>4,989</b>  |
| <b>INCOME/ACRE FROM PRODUCTION</b>         |               | <b>0</b>      | <b>0</b>      | <b>0</b>      | <b>1,600</b>  | <b>2,660</b>  | <b>5,340</b>  |
| <b>NET CASH COSTS/ACRE FOR THE YEAR</b>    |               | <b>10,998</b> | <b>1,788</b>  | <b>1,972</b>  | <b>1,913</b>  | <b>1,323</b>  | <b>0</b>      |
| <b>PROFIT/ACRE ABOVE CASH COSTS</b>        |               | <b>0</b>      | <b>0</b>      | <b>0</b>      | <b>0</b>      | <b>0</b>      | <b>351</b>    |
| <b>ACCUMULATED NET CASH COSTS/ACRE</b>     |               | <b>10,998</b> | <b>12,786</b> | <b>14,758</b> | <b>16,671</b> | <b>17,994</b> | <b>17,643</b> |
| Non-Cash Overhead (Capital Recovery Cost): |               |               |               |               |               |               |               |
| Fuel Storage Tanks and Pumps               |               | 8             | 8             | 8             | 8             | 8             | 8             |
| Shop/Field Tools                           |               | 13            | 13            | 13            | 13            | 13            | 13            |
| Land                                       |               | 1,300         | 1,300         | 1,300         | 1,300         | 1,300         | 1,300         |
| Well/Pumps/Filter- 100 Acres               |               | 191           | 191           | 191           | 191           | 191           | 191           |
| Pressure Chamber Instrument                |               | 1             | 1             | 1             | 1             | 1             | 1             |
| Orchard Establishment                      |               |               |               |               |               | 1,707         | 1,707         |
| Equipment                                  |               | 60            | 51            | 40            | 86            | 87            | 89            |
| <b>TOTAL CAPITAL RECOVERY COST</b>         |               | <b>1,574</b>  | <b>1,565</b>  | <b>1,554</b>  | <b>1,600</b>  | <b>3,308</b>  | <b>3,310</b>  |
| <b>TOTAL COST/ACRE FOR THE YEAR</b>        |               | <b>12,572</b> | <b>3,352</b>  | <b>3,526</b>  | <b>5,112</b>  | <b>7,290</b>  | <b>8,299</b>  |
| <b>INCOME/ACRE FROM PRODUCTION</b>         |               | <b>0</b>      | <b>0</b>      | <b>0</b>      | <b>1,600</b>  | <b>2,660</b>  | <b>5,340</b>  |
| <b>TOTAL NET COST/ACRE FOR THE YEAR</b>    |               | <b>12,572</b> | <b>3,352</b>  | <b>3,526</b>  | <b>3,512</b>  | <b>4,630</b>  | <b>2,959</b>  |
| <b>NET PROFIT/ACRE ABOVE TOTAL COST</b>    |               | <b>0</b>      | <b>0</b>      | <b>0</b>      | <b>0</b>      | <b>0</b>      | <b>0</b>      |
| <b>TOTAL ACCUMULATED NET COST/ACRE</b>     |               | <b>12,572</b> | <b>15,924</b> | <b>19,450</b> | <b>22,962</b> | <b>27,592</b> | <b>30,551</b> |

\*Dipel applied alternate years.

## UC COOPERATIVE EXTENSION-AGRICULTURAL AND RESOURCE ECONOMICS, UC DAVIS

**Table 2. COSTS PER ACRE TO PRODUCE PRUNES**

Sacramento Valley French Variety (Dried plums)-2022

| Operation                              | Equipment           |               | Cash and Labor Costs per Acre |                   |                  |                 |              | Total Cost | Your Cost |
|--|---------------------|---------------|-------------------------------|-------------------|------------------|-----------------|--------------|------------|-----------|
|  | Time<br>(Hrs./Acre) | Labor<br>Cost | Fuel                          | Lube<br>& Repairs | Material<br>Cost | Custom/<br>Rent |              |            |           |
| Cultural:                              |                     |               |                               |                   |                  |                 |              |            |           |
| Well Test/Water Analysis               | 0.00                | 0             | 0                             | 0                 | 0                | 6               | 6            |            |           |
| Pruning & Sucker (Alt. Yrs.)           | 0.00                | 0             | 0                             | 0                 | 0                | 378             | 378          |            |           |
| Prune: Top Mechanical (Alt. Yrs.)      | 0.00                | 0             | 0                             | 0                 | 0                | 30              | 30           |            |           |
| Brush Disposal                         | 0.42                | 13            | 10                            | 5                 | 0                | 0               | 27           |            |           |
| Disease: Cytosporia/BOT Canker         | 0.43                | 13            | 10                            | 5                 | 37               | 0               | 66           |            |           |
| Insects/Disease: Aphids/Mites/BO       | 0.25                | 8             | 6                             | 3                 | 23               | 0               | 39           |            |           |
| Disease: Green tip/Brot/PTB & Zinc     | 0.50                | 16            | 12                            | 5                 | 44               | 0               | 77           |            |           |
| Disease: Bloom/Brot/Scab/PTB           | 0.50                | 16            | 12                            | 5                 | 49               | 0               | 82           |            |           |
| Pollinate: Hives                       | 0.00                | 0             | 0                             | 0                 | 30               | 0               | 30           |            |           |
| Vertebrate Pests: (bait) 5x            | 0.00                | 13            | 0                             | 0                 | 17               | 0               | 30           |            |           |
| Fertigate: (UAN 32) 3x                 | 0.00                | 0             | 0                             | 0                 | 146              | 0               | 146          |            |           |
| Fertigate: Potassium 3x                | 0.00                | 0             | 0                             | 0                 | 294              | 0               | 294          |            |           |
| Irrigate                               | 0.00                | 67            | 0                             | 0                 | 500              | 0               | 568          |            |           |
| Weeds: Mow Middles 5x                  | 0.92                | 29            | 22                            | 10                | 0                | 0               | 61           |            |           |
| Thin Fruit: Shake Trees (Alt. Yrs.)    | 0.00                | 0             | 0                             | 0                 | 0                | 43              | 43           |            |           |
| Weeds: Strip Spray Summer              | 0.25                | 8             | 1                             | 1                 | 24               | 0               | 33           |            |           |
| Disease: Rust (Sulfur) (Alt. Yrs.)     | 0.50                | 16            | 12                            | 5                 | 12               | 0               | 44           |            |           |
| Pressure Chamber Monitoring            | 0.00                | 0             | 0                             | 0                 | 0                | 15              | 15           |            |           |
| Insects Mites (AltYrs)                 | 0.25                | 8             | 6                             | 3                 | 19               | 0               | 35           |            |           |
| Leaf Analysis (1/40Ac)                 | 0.00                | 0             | 0                             | 0                 | 0                | 4               | 4            |            |           |
| Disease: Fruit BR (1X5 Yrs.)           | 0.13                | 4             | 3                             | 1                 | 40               | 0               | 48           |            |           |
| Vertebrate Pests: Gopher Trapping      | 0.00                | 30            | 0                             | 0                 | 0                | 0               | 30           |            |           |
| Irrigate: Acid Flush                   | 0.00                | 6             | 0                             | 0                 | 7                | 0               | 13           |            |           |
| Weeds: Strip Spray Dormant             | 0.33                | 10            | 1                             | 1                 | 74               | 0               | 87           |            |           |
| Insect: Aphid (Alt. Yrs.)              | 0.25                | 8             | 6                             | 3                 | 3                | 0               | 20           |            |           |
| Pickup Truck Use                       | 1.50                | 47            | 20                            | 7                 | 0                | 0               | 74           |            |           |
| ATV Use                                | 2.00                | 63            | 7                             | 2                 | 0                | 0               | 72           |            |           |
| PCA/CCA Services                       | 0.00                | 0             | 0                             | 0                 | 0                | 30              | 30           |            |           |
| <b>TOTAL CULTURAL COSTS</b>            | <b>8.23</b>         | <b>375</b>    | <b>128</b>                    | <b>55</b>         | <b>1,320</b>     | <b>505</b>      | <b>2,383</b> |            |           |
| Harvest:                               |                     |               |                               |                   |                  |                 |              |            |           |
| Harvest: Shake/Catch/Size              | 0.00                | 0             | 0                             | 0                 | 0                | 450             | 450          |            |           |
| Load & Haul To Dryer                   | 0.42                | 13            | 5                             | 1                 | 0                | 126             | 145          |            |           |
| Dry Fruit                              | 0.00                | 0             | 0                             | 0                 | 0                | 1,838           | 1,838        |            |           |
| California Prune Board                 | 0.00                | 0             | 0                             | 0                 | 151              | 0               | 151          |            |           |
| <b>TOTAL HARVEST COSTS</b>             | <b>0.00</b>         | <b>13</b>     | <b>5</b>                      | <b>1</b>          | <b>151</b>       | <b>2,414</b>    | <b>2,584</b> |            |           |
| Interest on Operating Capital at 7.00% |                     |               |                               |                   |                  |                 |              |            | 70        |
| <b>TOTAL OPERATING COSTS/ACRE</b>      | <b>9</b>            | <b>388</b>    | <b>133</b>                    | <b>56</b>         | <b>1,472</b>     | <b>2,919</b>    | <b>5,037</b> |            |           |

**Table 2. Continued**  
 Sacramento Valley French Variety (Dried plums)-2022

| Operation                             | Equipment           |                       | Fuel | Cash and Labor Costs per Acre   |                  |                 | Total Cost   | Your Cost |
|---------------------------------------|---------------------|-----------------------|------|---------------------------------|------------------|-----------------|--------------|-----------|
|                                       | Time<br>(Hrs./Acre) | Labor<br>Cost         |      | Lube<br>& Repairs               | Material<br>Cost | Custom/<br>Rent |              |           |
| CASH OVERHEAD:                        |                     |                       |      |                                 |                  |                 |              |           |
| Liability Insurance                   |                     |                       |      |                                 |                  |                 | 7            |           |
| Office Expense                        |                     |                       |      |                                 |                  |                 | 100          |           |
| Sanitation Fee                        |                     |                       |      |                                 |                  |                 | 9            |           |
| Property Taxes                        |                     |                       |      |                                 |                  |                 | 301          |           |
| Property Insurance                    |                     |                       |      |                                 |                  |                 | 26           |           |
| Investment Repairs                    |                     |                       |      |                                 |                  |                 | 56           |           |
| <b>TOTAL CASH OVERHEAD COSTS/ACRE</b> |                     |                       |      |                                 |                  |                 | <b>498</b>   |           |
| <b>TOTAL CASH COSTS/ACRE</b>          |                     |                       |      |                                 |                  |                 | <b>5,535</b> |           |
| NON-CASH OVERHEAD:                    |                     |                       |      |                                 |                  |                 |              |           |
|                                       |                     | Per Producing<br>Acre |      | Annual Cost<br>Capital Recovery |                  |                 |              |           |
| Fuel Storage Tanks & Pumps            |                     | 110                   |      | 8                               |                  |                 | 8            |           |
| Well/Pumps/Filters- 100 Acres         |                     | 2,488                 |      | 191                             |                  |                 | 191          |           |
| Land-Prunes                           |                     | 20,000                |      | 1,300                           |                  |                 | 1,300        |           |
| Shop/Field Tools                      |                     | 150                   |      | 13                              |                  |                 | 13           |           |
| Orchard Establishment                 |                     | 16,671                |      | 1,707                           |                  |                 | 1,707        |           |
| Pressure Chamber Instrument           |                     | 16                    |      | 1                               |                  |                 | 1            |           |
| Equipment                             |                     | 719                   |      | 90                              |                  |                 | 90           |           |
| <b>TOTAL NON-CASH OVERHEAD COSTS</b>  |                     |                       |      |                                 |                  |                 | <b>3,310</b> |           |
| <b>TOTAL COSTS/ACRE</b>               |                     |                       |      |                                 |                  |                 | <b>8,846</b> |           |

**Table 3. COST AND RETURNS PER ACRE TO PRODUCE PRUNES**

Sacramento Valley French Variety (Dried plums)-2022

|  | Quantity/<br>Acre | Unit  | Price or<br>Cost/Unit | Cost/Acre | Your<br>Cost |
|--|-------------------|-------|-----------------------|-----------|--------------|
| <b>GROSS RETURNS</b>                     |                   |       |                       |           |              |
| Dried Plums                              | 3.5               | Ton   | 2000.00               | 7,000     |              |
| <b>TOTAL GROSS RETURNS</b>               |                   |       |                       |           |              |
|  | 3.5               | Ton   |                       | 7,000     |              |
| <b>OPERATING COSTS</b>                   |                   |       |                       |           |              |
| <b>Herbicide:</b>                        |                   |       |                       |           |              |
| Roundup PowerMax                         | 3.00              | Pt    | 8.75                  |           | <b>98</b>    |
| Shark EW                                 | 1.00              | FIOz  | 10.56                 |           | 26           |
| Alion                                    | 3.50              | FIOz  | 14.50                 |           | 11           |
| Rely 280                                 | 12.00             | FIOz  | 0.87                  |           | 51           |
| <b>Insecticide:</b>                      |                   |       |                       |           |              |
| Supreme 440 Oil                          | 3.00              | gal   | 9.55                  |           | 10           |
| Asana XL                                 | 8.00              | floz  | 0.87                  |           | <b>96</b>    |
| Dipel DF                                 | 2.00              | lLb   | 20.95                 |           | 29           |
| Agri-Mek 0.15EC                          | 2.50              | FIOz  | 3.07                  |           | 7            |
| Superior 415 Oil                         | 1.00              | Gal   | 11.00                 |           | 42           |
| <b>Fungicide:</b>                        |                   |       |                       |           |              |
| Topsin M70 WSB                           | 1.50              | LB    | 10.39                 |           | 8            |
| Rally 40WSP                              | 6.00              | Oz    | 3.64                  |           | <b>122</b>   |
| Vanguard WG                              | 5.00              | FIOz  | 2.90                  |           | 16           |
| Bravo Weather Stik                       | 4.00              | pt    | 6.36                  |           | 22           |
| Tilt                                     | 4.00              | FIOz  | 0.77                  |           | 15           |
| Sulfur - Wettable                        | 10.00             | LB    | 1.15                  |           | 25           |
| Quadris Top                              | 12.80             | FIOz  | 2.35                  |           | 3            |
| <b>Rodenticide:</b>                      |                   |       |                       |           |              |
| Bait                                     | 10.00             | LB    | 1.70                  |           | 12           |
| <b>Fertilizer:</b>                       |                   |       |                       |           |              |
| Neutral Zinc (50%)                       | 5.00              | LB    | 1.80                  |           | 30           |
| UAN 32                                   | 120.00            | Lbs N | 1.22                  |           | <b>17</b>    |
| SOPotashFine0-0-50                       | 600.00            | lb    | 0.49                  |           | 17           |
| <b>Pollination:</b>                      |                   |       |                       |           |              |
| Pollination Fee                          | 1.00              | Hive  | 30.00                 |           | 17           |
| <b>Water:</b>                            |                   |       |                       |           |              |
| Water - Pumped                           | 30.11             | AcIn  | 16.67                 |           | <b>508</b>   |
| N-pHuric Acid                            | 0.12              | Gal   | 47.54                 |           | 502          |
| <b>Custom:</b>                           |                   |       |                       |           |              |
| Well Test/Water Analysis                 | 1.00              | Acre  | 6.00                  |           | 6            |
| Hand Pruning                             | 0.50              | Acre  | 755.00                |           | 378          |
| Top Trees                                | 0.50              | Tree  | 60.00                 |           | 30           |
| Thin Fruit- Mechanical                   | 0.50              | Acre  | 85.00                 |           | 43           |
| Pressure Chamber Monitoring              | 1.00              | Acre  | 15.00                 |           | 15           |
| Leaf Analysis                            | 0.10              | Each  | 40.00                 |           | 4            |
| Harvest (Prod. Year)- shake, size        | 1.00              | Acre  | 450.00                |           | 450          |
| Haul Fruit                               | 10.50             | Ton   | 12.00                 |           | 126          |
| Dry Fruit (Fresh Ton)                    | 10.50             | Ton   | 175.00                |           | 1,838        |
| PCA/CCA Production                       | 1.00              | Acre  | 30.00                 |           | 30           |
| <b>Assessment:</b>                       |                   |       |                       |           |              |
| California Prune Board                   | 3.50              | Ton   | 43.25                 |           | <b>151</b>   |
| <b>Labor</b>                             |                   |       |                       |           |              |
| Equipment Operator Labor                 | 10.38             | hrs   | 26.10                 |           | 271          |
| Non-Machine Labor                        | 1.95              | hrs   | 22.48                 |           | 44           |
| Irrigation Labor                         | 3.25              | hrs   | 22.48                 |           | 73           |
| <b>Machinery</b>                         |                   |       |                       |           |              |
| Fuel-Gas                                 | 5.47              | gal   | 5.45                  |           | 30           |
| Fuel-Diesel                              | 17.65             | gal   | 5.85                  |           | 103          |
| Lube                                     |                   |       |                       |           | 20           |
| Machinery Repair                         |                   |       |                       |           | 36           |
| Interest on Operating Capital @ 7.00%    |                   |       |                       |           | 70           |
| <b>TOTAL OPERATING COSTS/ACRE</b>        |                   |       |                       | 5,037     |              |
| <b>TOTAL OPERATING COSTS/TON</b>         |                   |       |                       | 1,439     |              |
| <b>NET RETURNS ABOVE OPERATING COSTS</b> |                   |       |                       | 1,963     |              |

**Table 3. Continued**  
Sacramento Valley French Variety (Dried plums)-2022

|   | Quantity/<br>Acre | Unit | Price or<br>Cost/Unit | Value or<br>Cost/Acre | Your<br>Cost |
|---|-------------------|------|-----------------------|-----------------------|--------------|
| <b>CASH OVERHEAD COSTS</b>                        |                   |      |                       |                       |              |
| Liability Insurance                               |                   |      |                       | 7                     |              |
| Office Expense                                    |                   |      |                       | 100                   |              |
| Sanitation Fee                                    |                   |      |                       | 9                     |              |
| Property Taxes                                    |                   |      |                       | 301                   |              |
| Property Insurance                                |                   |      |                       | 26                    |              |
| Investment Repairs                                |                   |      |                       | 56                    |              |
| <b>TOTAL CASH OVERHEAD COSTS/ACRE</b>             |                   |      |                       | <b>498</b>            |              |
| <b>TOTAL CASH OVERHEAD COSTS/TON</b>              |                   |      |                       | <b>142</b>            |              |
| <b>TOTAL CASH COSTS/ACRE</b>                      |                   |      |                       | <b>5,535</b>          |              |
| <b>TOTAL CASH COSTS/TON</b>                       |                   |      |                       | <b>1,582</b>          |              |
| <b>NET RETURNS ABOVE CASH COSTS</b>               |                   |      |                       | <b>1,465</b>          |              |
| <b>NON-CASH OVERHEAD COSTS (Capital Recovery)</b> |                   |      |                       |                       |              |
| Fuel Storage Tanks & Pumps                        |                   |      |                       | 8                     |              |
| Well/Pumps/Filters- 100 Acres                     |                   |      |                       | 191                   |              |
| Land-Prunes                                       |                   |      |                       | 1,300                 |              |
| Shop/Field Tools                                  |                   |      |                       | 13                    |              |
| Orchard Establishment                             |                   |      |                       | 1,707                 |              |
| Pressure Chamber Instrument                       |                   |      |                       | 1                     |              |
| Equipment   |                   |      |                       | 90                    |              |
| <b>TOTAL NON-CASH OVERHEAD COSTS/ACRE</b>         |                   |      |                       | <b>3,310</b>          |              |
| <b>TOTAL NON-CASH OVERHEAD COSTS/TON</b>          |                   |      |                       | <b>946</b>            |              |
| <b>TOTAL COST/ACRE</b>                            |                   |      |                       | <b>8,846</b>          |              |
| <b>TOTAL COST/TON</b>                             |                   |      |                       | <b>2,527</b>          |              |
| <b>NET RETURNS ABOVE TOTAL COST</b>               |                   |      |                       | <b>-1,846</b>         |              |



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**Table 4. MONTHLY CASH COSTS PER ACRE TO PRODUCE PRUNES**

Sacramento Valley French Variety (Dried plums)-2022

|                                      | JAN<br>22  | FEB<br>22  | MAR<br>22  | APR<br>22  | MAY<br>22  | JUN<br>22  | JUL<br>22  | AUG<br>22    | SEP<br>22  | OCT<br>22 | NOV<br>22  | Total        |
|--------------------------------------|------------|------------|------------|------------|------------|------------|------------|--------------|------------|-----------|------------|--------------|
| Cultural:                            |            |            |            |            |            |            |            |              |            |           |            |              |
| Well Test/Water Analysis             | 6          |            |            |            |            |            |            |              |            |           |            | 6            |
| Pruning & Sucker (Alt. Yrs.)         | 378        |            |            |            |            |            |            |              |            |           |            | 378          |
| Prune: Top Mechanical (Alt. Yrs.)    | 30         |            |            |            |            |            |            |              |            |           |            | 30           |
| Brush Disposal                       | 27         |            |            |            |            |            |            |              |            |           |            | 27           |
| Disease: Cytosporia/BOT Canker       | 66         |            |            |            |            |            |            |              |            |           |            | 66           |
| Insects/Disease: Aphids/Mites        | 39         |            |            |            |            |            |            |              |            |           |            | 39           |
| Disease: Green tip/Brot/PTB & Zinc   |            |            | 77         |            |            |            |            |              |            |           |            | 77           |
| Disease: Bloom/Brot/Scab/PTB         |            |            | 82         |            |            |            |            |              |            |           |            | 82           |
| Pollinate: Hives                     |            |            | 30         |            |            |            |            |              |            |           |            | 30           |
| Vertebrate Pests: (bait) 5x          |            | 6          |            |            | 6          | 6          |            |              | 6          | 6         |            | 30           |
| Fertigate: (UAN 32) 3x               |            |            |            | 49         | 49         | 49         |            |              |            |           |            | 146          |
| Fertigate: Potassium 3x              |            |            |            | 98         | 98         | 98         |            |              |            |           |            | 294          |
| Irrigate                             |            |            |            | 59         | 84         | 111        | 124        | 106          | 83         |           |            | 568          |
| Weeds: Mow Middles 5x                |            |            | 12         |            | 12         | 12         | 12         | 12           |            |           |            | 61           |
| Thin Fruit: Shake Trees (Alt. Yrs.)  |            |            |            |            | 43         |            |            |              |            |           |            | 43           |
| Weeds: Strip Spray Summer            |            |            |            |            | 33         |            |            |              |            |           |            | 33           |
| Disease: Rust (Sulfur) (Alt. Yrs.)   |            |            |            |            | 44         |            |            |              |            |           |            | 44           |
| Pressure Chamber Monitoring          |            |            |            |            |            | 15         |            |              |            |           |            | 15           |
| Insects Mites (Alt. Yrs.)            |            |            |            |            |            | 35         |            |              |            |           |            | 35           |
| Leaf Analysis (1/40Ac)               |            |            |            |            |            |            | 4          |              |            |           |            | 4            |
| Disease: Fruit BR (1X5 Yrs.)         |            |            |            |            |            |            |            | 48           |            |           |            | 48           |
| Vertebrate Pests: Gopher Trapping    |            |            |            |            |            |            |            |              | 30         |           |            | 30           |
| Irrigate: Acid Flush                 |            |            |            |            |            |            |            |              | 13         |           |            | 13           |
| Weeds: Strip Spray Dormant           |            |            |            |            |            |            |            |              |            |           | 87         | 87           |
| Insect: Aphid (Alt. Yrs.)            |            |            |            |            |            |            |            |              |            |           | 20         | 20           |
| Pickup Truck Use                     | 7          | 7          | 7          | 7          | 7          | 7          | 7          | 7            | 7          | 7         | 7          | 74           |
| ATV Use                              | 7          | 7          | 7          | 7          | 7          | 7          | 7          | 7            | 7          | 7         | 7          | 72           |
| PCA/CCA Services                     |            |            |            |            |            |            |            |              | 30         |           |            | 30           |
| <b>TOTAL CULTURAL COSTS</b>          | <b>559</b> | <b>13</b>  | <b>221</b> | <b>219</b> | <b>382</b> | <b>339</b> | <b>154</b> | <b>180</b>   | <b>176</b> | <b>19</b> | <b>120</b> | <b>2,383</b> |
| Harvest:                             |            |            |            |            |            |            |            |              |            |           |            |              |
| Harvest: Shake/Catch/Size            |            |            |            |            |            |            |            | 450          |            |           |            | 450          |
| Load & Haul To Dryer                 |            |            |            |            |            |            |            | 145          |            |           |            | 145          |
| Dry Fruit                            |            |            |            |            |            |            |            | 1,838        |            |           |            | 1,838        |
| California Prune Board               |            |            |            |            |            |            |            | 151          |            |           |            | 151          |
| <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>2,584</b> | <b>0</b>   | <b>0</b>  | <b>0</b>   | <b>2,584</b> |
| Interest on Operating Capital @7.00% | 3          | 3          | 5          | 6          | 8          | 10         | 11         | 27           | -2         | -1        | -1         | 70           |
| <b>TOTAL OPERATING COSTS/ACRE</b>    | <b>562</b> | <b>17</b>  | <b>226</b> | <b>225</b> | <b>391</b> | <b>350</b> | <b>165</b> | <b>2,772</b> | <b>144</b> | <b>19</b> | <b>119</b> | <b>5,037</b> |
| CASH OVERHEAD                        |            |            |            |            |            |            |            |              |            |           |            |              |
| Liability Insurance                  |            |            | 7          |            |            |            |            |              |            |           |            | 7            |
| Office Expense                       | 9          | 9          | 9          | 9          | 9          | 9          | 9          | 9            | 9          | 9         | 9          | 100          |
| Sanitation Fee                       |            |            |            |            |            |            |            |              | 9          |           |            | 9            |
| Property Taxes                       |            | 150        |            |            |            | 150        |            |              |            |           |            | 301          |
| Property Insurance                   |            | 13         |            |            |            | 13         |            |              |            |           |            | 26           |
| Investment Repairs                   | 5          | 5          | 5          | 5          | 5          | 5          | 5          | 5            | 5          | 5         | 5          | 56           |
| <b>TOTAL CASH OVERHEAD COSTS</b>     | <b>14</b>  | <b>177</b> | <b>21</b>  | <b>14</b>  | <b>14</b>  | <b>177</b> | <b>14</b>  | <b>14</b>    | <b>23</b>  | <b>14</b> | <b>14</b>  | <b>498</b>   |
| <b>TOTAL CASH COSTS/ACRE</b>         | <b>576</b> | <b>194</b> | <b>246</b> | <b>239</b> | <b>405</b> | <b>527</b> | <b>179</b> | <b>2,805</b> | <b>166</b> | <b>33</b> | <b>133</b> | <b>5,535</b> |

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**Table 5. RANGING ANALYSIS**  
Sacramento Valley French Variety (Dried plums)-2022

**COST PER ACRE PER TON AT VARYING YIELDS TO PRODUCE PRUNES**

|                                       | YIELD(TON) |          |          |          |          |          |          |
|---------------------------------------|------------|----------|----------|----------|----------|----------|----------|
|                                       | 2.00       | 2.50     | 3.00     | 3.50     | 4.00     | 4.50     | 5.00     |
| OPERATING COSTS/ACRE:                 |            |          |          |          |          |          |          |
| Cultural                              | 2,383      | 2,383    | 2,383    | 2,383    | 2,383    | 2,383    | 2,383    |
| Harvest                               | 1,484      | 1,849    | 2,219    | 2,584    | 2,949    | 3,318    | 3,684    |
| Interest on Operating Capital @ 7.00% | 64         | 66       | 68       | 70       | 72       | 74       | 77       |
| TOTAL OPERATING COSTS/ACRE            | 3,931      | 4,298    | 4,670    | 5,037    | 5,404    | 5,776    | 6,143    |
| TOTAL OPERATING COSTS/TON             | 1,965.44   | 1,719.25 | 1,556.64 | 1,439.19 | 1,351.11 | 1,283.60 | 1,228.69 |
| CASH OVERHEAD COSTS/ACRE              | 498        | 498      | 498      | 498      | 498      | 498      | 498      |
| TOTAL CASH COSTS/ACRE                 | 4,429      | 4,796    | 5,168    | 5,535    | 5,903    | 6,275    | 6,642    |
| TOTAL CASH COSTS/TON                  | 2,214.59   | 1,918.58 | 1,722.74 | 1,581.56 | 1,475.68 | 1,394.34 | 1,328.35 |
| NON-CASH OVERHEAD COSTS/ACRE          | 3,310      | 3,310    | 3,310    | 3,310    | 3,310    | 3,310    | 3,310    |
| TOTAL COSTS/ACRE                      | 7,739      | 8,107    | 8,478    | 8,846    | 9,213    | 9,585    | 9,952    |
| TOTAL COSTS/TON                       | 3,870.00   | 3,243.00 | 2,826.00 | 2,527.00 | 2,303.00 | 2,130.00 | 1,990.00 |

Net Return per Acre Above Operating Costs for Prunes

| PRICE (\$/ton) | YIELD (ton/acre) |       |       |       |       |       |       |
|----------------|------------------|-------|-------|-------|-------|-------|-------|
|                | 2.00             | 2.50  | 3.00  | 3.50  | 4.00  | 4.50  | 5.00  |
| Dried Plums    |                  |       |       |       |       |       |       |
| 1600.00        | -731             | -298  | 130   | 563   | 996   | 1,424 | 1,857 |
| 1800.00        | -331             | 202   | 730   | 1,263 | 1,796 | 2,324 | 2,857 |
| 1900.00        | -131             | 452   | 1,030 | 1,613 | 2,196 | 2,774 | 3,357 |
| 2000.00        | 69               | 702   | 1,330 | 1,963 | 2,596 | 3,224 | 3,857 |
| 2100.00        | 269              | 952   | 1,630 | 2,313 | 2,996 | 3,674 | 4,357 |
| 2200.00        | 469              | 1,202 | 1,930 | 2,663 | 3,396 | 4,124 | 4,857 |
| 2400.00        | 869              | 1,702 | 2,530 | 3,363 | 4,196 | 5,024 | 5,857 |

Net Return per Acre Above Cash Costs for Prunes

| PRICE (\$/ton) | YIELD (ton/acre) |       |       |       |       |       |       |
|----------------|------------------|-------|-------|-------|-------|-------|-------|
|                | 2.00             | 2.50  | 3.00  | 3.50  | 4.00  | 4.50  | 5.00  |
| Dried Plums    |                  |       |       |       |       |       |       |
| 1600.00        | -1,229           | -796  | -368  | 65    | 497   | 925   | 1,358 |
| 1800.00        | -829             | -296  | 232   | 765   | 1,297 | 1,825 | 2,358 |
| 1900.00        | -629             | -46   | 532   | 1,115 | 1,697 | 2,275 | 2,858 |
| 2000.00        | -429             | 204   | 832   | 1,465 | 2,097 | 2,725 | 3,358 |
| 2100.00        | -229             | 454   | 1,132 | 1,815 | 2,497 | 3,175 | 3,858 |
| 2200.00        | -29              | 704   | 1,432 | 2,165 | 2,897 | 3,625 | 4,358 |
| 2400.00        | 371              | 1,204 | 2,032 | 2,865 | 3,697 | 4,525 | 5,358 |

Net Return per Acre Above Total Costs for Prunes

| PRICE (\$/ton) | YIELD (ton/acre) |        |        |        |        |        |        |
|----------------|------------------|--------|--------|--------|--------|--------|--------|
|                | 2.00             | 2.50   | 3.00   | 3.50   | 4.00   | 4.50   | 5.00   |
| Dried Plums    |                  |        |        |        |        |        |        |
| 1600.00        | -4,539           | -4,107 | -3,678 | -3,246 | -2,813 | -2,385 | -1,952 |
| 1800.00        | -4,139           | -3,607 | -3,078 | -2,546 | -2,013 | -1,485 | -952   |
| 1900.00        | -3,939           | -3,357 | -2,778 | -2,196 | -1,613 | -1,035 | -452   |
| 2000.00        | -3,739           | -3,107 | -2,478 | -1,846 | -1,213 | -585   | 48     |
| 2100.00        | -3,539           | -2,857 | -2,178 | -1,496 | -813   | -135   | 548    |
| 2200.00        | -3,339           | -2,607 | -1,878 | -1,146 | -413   | 315    | 1,048  |
| 2400.00        | -2,939           | -2,107 | -1,278 | -446   | 387    | 1,215  | 2,048  |

UC COOPERATIVE EXTENSION-AGRICULTURAL AND RESOURCE ECONOMICS, UC DAVIS  
**Table 6. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS**  
 Sacramento Valley French Variety (Dried plums)-2022

ANNUAL EQUIPMENT COSTS

| Yr.              | Description          | Price   | Yrs.<br>Life | Salvage<br>Value | Capital<br>Recovery | Cash Overhead |       | Total  |
|------------------|----------------------|---------|--------------|------------------|---------------------|---------------|-------|--------|
|                  |                      |         |              |                  |                     | Insurance     | Taxes |        |
| 22               | 75HP 4WD Tractor     | 78,450  | 15           | 15,273           | 7,712               | 40            | 469   | 8,220  |
| 22               | ATV 4WD              | 9,350   | 6            | 3,855            | 1,386               | 6             | 66    | 1,457  |
| 22               | Mower - Flail 16'    | 13,900  | 10           | 2,458            | 1,751               | 7             | 82    | 1,840  |
| 22               | Air Blast-PTO 500Gal | 32,000  | 6            | 9,225            | 5,304               | 17            | 206   | 5,528  |
| 22               | Weed Sprayer 100Gal  | 3,400   | 10           | 601              | 428                 | 2             | 20    | 450    |
| 22               | Pickup Truck 1/2 Ton | 35,000  | 8            | 12,215           | 4,536               | 20            | 236   | 4,792  |
| 22               | Forklift             | 42,500  | 15           | 2,100            | 4,433               | 19            | 223   | 4,675  |
| TOTAL            |                      | 214,600 | -            | 45,727           | 25,551              | 110           | 1,302 | 26,963 |
| 60% of New Cost* |                      | 128,760 | -            | 27,436           | 15,330              | 66            | 781   | 16,178 |

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

ANNUAL INVESTMENT COSTS

| Description                   | Price     | Yrs.<br>Life | Salvage<br>Value | Capital<br>Recovery | Cash Overhead |        |         | Total   |
|-------------------------------|-----------|--------------|------------------|---------------------|---------------|--------|---------|---------|
|                               |           |              |                  |                     | Insurance     | Taxes  | Repairs |         |
| INVESTMENT                    |           |              |                  |                     |               |        |         |         |
| Fuel Storage Tanks & Pumps    | 10,975    | 30           | 768              | 832                 | 5             | 59     | 220     | 1,115   |
| Well/Pumps/Filters- 100 Acres | 248,800   | 30           | 0                | 19,052              | 105           | 1,244  | 4,976   | 25,378  |
| Land-Prunes                   | 2,000,000 | 25           | 2,000,000        | 130,000             | 1,692         | 20,000 | 0       | 151,692 |
| Shop/Field Tools              | 15,000    | 20           | 1,050            | 1,334               | 7             | 80     | 300     | 1,721   |
| Establishment                 | 1,667,100 | 16           | 0                | 170,674             | 705           | 8,336  | 48      | 179,762 |
| Pressure Chamber Instrument   | 1,600     | 20           | 112              | 142                 | 1             | 9      | 32      | 184     |
| TOTAL INVESTMENT              | 3,943,475 | -            | 2,001,930        | 322,034             | 2,515         | 29,727 | 5,576   | 359,852 |

ANNUAL BUSINESS OVERHEAD COSTS

| Description         | Farm | Unit | Price/<br>Unit | Total<br>Cost |
|---------------------|------|------|----------------|---------------|
| Liability Insurance | 100  | acre | 6.53           | 653           |
| Office Expense      | 100  | acre | 100.00         | 10,000        |
| Sanitation Fee      | 100  | acre | 8.75           | 875           |

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**Table 7. HOURLY EQUIPMENT COSTS**  
 Sacramento Valley French Variety (Dried plums)-2022

| Yr. | Description          | Hours<br>Used | Hours<br>Used | Cash Overhead       |           |       | Operating        |       | Total<br>Oper. | Total<br>Costs/Hr. |
|-----|----------------------|---------------|---------------|---------------------|-----------|-------|------------------|-------|----------------|--------------------|
|     |                      |               |               | Capital<br>Recovery | Insurance | Taxes | Lube&<br>Repairs | Fuel  |                |                    |
| 22  | 75HP 4WD Tractor     | 456           | 800           | 5.78                | 0.03      | 0.35  | 4.66             | 21.55 | 26.21          | 32.38              |
| 22  | ATV 4WD              | 258           | 333           | 2.50                | 0.01      | 0.12  | 1.23             | 3.63  | 4.87           | 7.49               |
| 22  | Mower - Flail 16'    | 134           | 200           | 5.25                | 0.02      | 0.25  | 5.73             | 0.00  | 5.73           | 11.25              |
| 22  | Air Blast-PTO 500Gal | 281           | 330           | 9.64                | 0.03      | 0.37  | 5.54             | 0.00  | 5.54           | 15.59              |
| 22  | Weed Sprayer 100Gal  | 58            | 150           | 1.71                | 0.01      | 0.08  | 0.91             | 0.00  | 0.91           | 2.71               |
| 22  | Pickup Truck 1/2 Ton | 150           | 250           | 10.89               | 0.05      | 0.57  | 4.59             | 13.63 | 18.22          | 29.72              |
| 22  | Forklift             | 42            | 200           | 13.30               | 0.06      | 0.67  | 2.03             | 11.70 | 13.73          | 27.75              |

UC COOPERATIVE EXTENSION-AGRICULTURAL AND RESOURCE ECONOMICS, UC DAVIS

**Table 8. OPERATIONS WITH EQUIPMENT AND MATERIALS**

Sacramento Valley French Variety (Dried plums)-2022

| Operation                | Operation Month | Tractor          | Implement           | Labor Type/<br>Material     | Rate/<br>acre | Unit  |
|--------------------------|-----------------|------------------|---------------------|-----------------------------|---------------|-------|
| Well Test/Water Analysis | Jan             |                  |                     | Well Test/Water Analysis    | 1.00          | Acre  |
| Pruning & Sucker         | Jan             |                  |                     | Hand Pruning                | 0.50          | Acre  |
| Prune: Top Mechanical    | Jan             |                  |                     | Top Trees                   | 0.50          | Tree  |
| Brush Disposal           | Jan             | 75HP 4WD Tractor | Mower - Flail 16'   | Equipment Operator Labor    | 0.50          | hour  |
| Disease: Cytosporia      | Jan             | 75HP 4WD Tractor | AirBlast-PTO 500Gal | Equipment Operator Labor    | 0.52          | hour  |
|                          |                 |                  |                     | Topsin M70 WSB              | 1.50          | LB    |
|                          |                 |                  |                     | Rally 40WSP                 | 6.00          | Oz    |
| Insects/Disease: Aphid   | Jan             | 75HP 4WD Tractor | AirBlast-PTO 500Gal | Equipment Operator Labor    | 0.30          | hour  |
|                          |                 |                  |                     | Supreme 440 Oil             | 2.00          | gal   |
|                          |                 |                  |                     | Asana XL                    | 4.00          | floz  |
|                          |                 |                  |                     | Asana (AltYrs)              |               |       |
| Disease: Grntip/Brot     | Mar             | 75HP 4WD Tractor | AirBlast-PTO 500Gal | Equipment Operator Labor    | 0.60          | hour  |
|                          |                 |                  |                     | Vanguard WG                 | 5.00          | FIOz  |
|                          |                 |                  |                     | Dipel DF                    | 1.00          | lLb   |
|                          |                 |                  |                     | Neutral Zinc (50%)          | 5.00          | LB    |
| Disease: Blm/Brot/Scale  | Mar             | 75HP 4WD Tractor | AirBlast-PTO 500Gal | Equipment Operator Labor    | 0.60          | hour  |
|                          |                 |                  |                     | Bravo Weather Stik          | 4.00          | pt    |
|                          |                 |                  |                     | Tilt                        | 4.00          | FIOz  |
|                          |                 |                  |                     | Dipel DF                    | 1.00          | lLb   |
| Pollinate: Hives         | Mar             |                  |                     | Pollination Fee             | 1.00          | Hive  |
| Vertebrate Pests         | Mar             |                  |                     | Non-Machine Labor           | 0.12          | hour  |
|                          |                 |                  |                     | Bait                        | 2.00          | LB    |
|                          | May             |                  |                     | Non-Machine Labor           | 0.12          | hour  |
|                          |                 |                  |                     | Bait                        | 2.00          | LB    |
|                          | June            |                  |                     | Non-Machine Labor           | 0.12          | hour  |
|                          |                 |                  |                     | Bait                        | 2.00          | LB    |
|                          | Sept            |                  |                     | Non-Machine Labor           | 0.12          | hour  |
|                          |                 |                  |                     | Bait                        | 2.00          | LB    |
|                          | Oct             |                  |                     | Non-Machine Labor           | 0.12          | hour  |
|                          |                 |                  |                     | Bait                        | 2.00          | LB    |
| Fertigate: (UAN 32)      | Apr             |                  |                     | UAN 32                      | 40.00         | Lbs N |
|                          | May             |                  |                     | UAN 32                      | 40.00         | Lbs N |
|                          | June            |                  |                     | UAN 32                      | 40.00         | Lbs N |
| Fertigate: Potassium     | Apr             |                  |                     | SOPotashFine0-0-50          | 200.00        | lb    |
|                          | May             |                  |                     | SOPotashFine0-0-50          | 200.00        | lb    |
|                          | June            |                  |                     | SOPotashFine0-0-50          | 200.00        | lb    |
| Irrigate                 | Apr             |                  |                     | Irrigation Labor            | 0.50          | hour  |
|                          |                 |                  |                     | Water - Pumped              | 2.86          | AcIn  |
|                          | May             |                  |                     | Irrigation Labor            | 0.50          | hour  |
|                          |                 |                  |                     | Water - Pumped              | 4.38          | AcIn  |
|                          | June            |                  |                     | Irrigation Labor            | 0.50          | hour  |
|                          |                 |                  |                     | Water - Pumped              | 5.98          | AcIn  |
|                          | July            |                  |                     | Irrigation Labor            | 0.50          | hour  |
|                          |                 |                  |                     | Water - Pumped              | 6.79          | AcIn  |
|                          | Aug             |                  |                     | Irrigation Labor            | 0.50          | hour  |
|                          |                 |                  |                     | Water - Pumped              | 5.71          | AcIn  |
|                          | Sept            |                  |                     | Irrigation Labor            | 0.50          | hour  |
|                          |                 |                  |                     | Water - Pumped              | 4.29          | AcIn  |
| Weeds: Mow Middles 5     | Mar             | 75HP 4WD Tractor | Mower - Flail 16'   | Equipment Operator Labor    | 0.22          | hour  |
|                          | May             | 75HP 4WD Tractor | Mower - Flail 16'   | Equipment Operator Labor    | 0.22          | hour  |
|                          | June            | 75HP 4WD Tractor | Mower - Flail 16'   | Equipment Operator Labor    | 0.22          | hour  |
|                          | July            | 75HP 4WD Tractor | Mower - Flail 16'   | Equipment Operator Labor    | 0.22          | hour  |
|                          | Aug             | 75HP 4WD Tractor | Mower - Flail 16'   | Equipment Operator Labor    | 0.22          | hour  |
| Thin Fruit: Shake Tree   | May             |                  |                     | Thin Fruit- Mechanical      | 0.50          | Acre  |
| Weeds: Strip Spray       | May             |                  | ATV 4WD             | Equipment Operator Labor    | 0.30          | hour  |
|                          |                 |                  |                     | Roundup PowerMax            | 1.50          | Pt    |
|                          |                 |                  | Weed Sprayer 100Gal | Shark EW                    | 1.00          | FIOz  |
| Disease: Rust (Sulfur)   | May             | 75HP 4WD Tractor | AirBlast-PTO 500Gal | Equipment Operator Labor    | 0.60          | hour  |
|                          |                 |                  |                     | Sulfur - Wettable           | 10.00         | LB    |
| Pressure Chamber Mon     | June            |                  |                     | Pressure Chamber Monitoring | 1.00          | Acre  |
| Insects Mites (Alt. Yr.) | June            | 75HP 4WD Tractor | AirBlast-PTO 500Gal | Equipment Operator Labor    | 0.30          | hour  |
|                          |                 |                  |                     | Agri-Mek 0.15EC             | 2.50          | FIOz  |
|                          |                 |                  |                     | Superior 415 Oil            | 1.00          | Gal   |
| Leaf Analysis (1/40A)    | July            |                  |                     | Leaf Analysis               | 0.10          | Each  |
| Disease: Fruit BR (1X)   | Aug             | 75HP 4WD Tractor | AirBlast-PTO 500Gal | Equipment Operator Labor    | 0.16          | hour  |
|                          |                 |                  |                     | Quadris Top                 | 12.80         | FIOz  |
|                          |                 |                  |                     | Supreme 440 Oil             | 1.00          | gal   |
| Vertebrate Pests: Gopher | Sept            |                  |                     | Non-Machine Labor           | 1.35          | hours |
| Irrigate: Acid Flush     | Sept            |                  |                     | Irrigation Labor            | 0.25          | hour  |
|                          |                 |                  |                     | Water - Pumped              | 0.10          | AcIn  |
|                          |                 |                  |                     | N-pHuric Acid               | 0.12          | Gal   |

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**Table 8. CONTINUED**

Sacramento Valley French Variety (Dried plums)-2022

| Operation             | Operation |                  | Implement            | Labor Type/                       | Rate/ |       |
|-----------------------|-----------|------------------|----------------------|-----------------------------------|-------|-------|
|                       | Month     | Tractor          |                      | Material                          | acre  | Unit  |
| Weeds: Strip Spray D  | Nov       |                  | ATV 4WD              | Equipment Operator Labor          | 0.40  | hour  |
|                       |           |                  |                      | Alion                             | 3.50  | FLOz  |
|                       |           |                  |                      | Roundup PowerMax                  | 1.50  | Pt    |
| Insect: Aphid (AltYr) | Nov       | 75HP 4WD Tractor | AirBlast-PTO 500Gal  | Rely 280                          | 12.00 | FLOz  |
|                       |           |                  |                      | Equipment Operator Labor          | 0.30  | hour  |
|                       |           |                  |                      | Asana XL                          | 4.00  | floz  |
| Pickup Truck Use      | Nov       |                  | Pickup Truck 1/2 Ton | Equipment Operator Labor          | 1.80  | hours |
| ATV Use               | Nov       |                  | ATV 4WD              | Equipment Operator Labor          | 2.40  | hours |
| PCA/CCA Services      | Sept      |                  |                      | PCA/CCA Production                | 1.00  | Acre  |
| Harvest: Shake/Catch  | Aug       |                  |                      | Harvest (Prod. Year)- shake, size | 1.00  | Acre  |
| Load & Haul To Dryer  | Aug       |                  | Forklift             | Equipment Operator Labor          | 0.50  | hour  |
|                       |           |                  |                      | Haul Fruit                        | 10.50 | Ton   |
|                       |           |                  |                      | Dry Fruit(freshTon)               | 10.50 | Ton   |
| Dry Fruit             | Aug       |                  |                      | Dry Fruit(freshTon)               | 10.50 | Ton   |
| California Prune Boa  | Aug       |                  |                      | California Prune B                | 3.50  | Ton   |