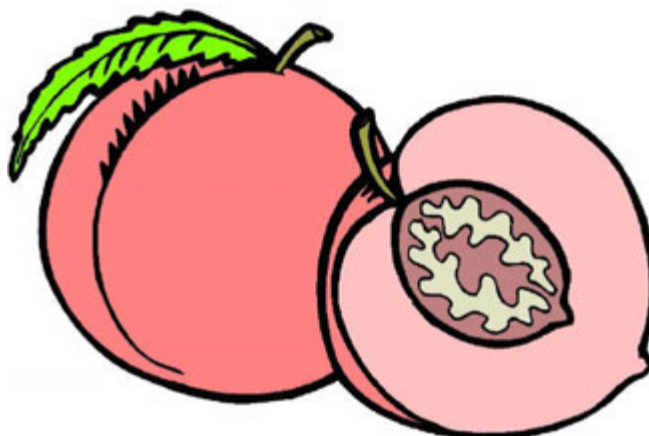

UNIVERSITY OF CALIFORNIA AGRICULTURE AND NATURAL RESOURCES
COOPERATIVE EXTENSION
AGRICULTURAL ISSUES CENTER
UC DAVIS DEPARTMENT OF AGRICULTURAL AND RESOURCE ECONOMICS

SAMPLE COSTS FOR PROCESSING PEACHES



ESTABLISH AND PRODUCE PROCESSING PEACHES Cling and Freestone Late Harvested Varieties SACRAMENTO and SAN JOAQUIN VALLEY 2017

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CONTENTS

INTRODUCTION	2
ASSUMPTIONS	3
Establishment Cultural Practices and Material Inputs	3
Production Cultural Practices and Material Inputs	6
Labor, Interest and Equipment	8
Cash Overhead	9
Non-Cash Overhead	10
REFERENCES	12
Table 1. COSTS PER ACRE TO ESTABLISH A PEACH ORCHARD	13
Table 2. COSTS PER ACRE TO PRODUCE CLING PEACHES	15
Table 3. COSTS AND RETURNS PER ACRE TO PRODUCE CLING PEACHES	17
Table 4. MONTHLY CASH COSTS PER ACRE TO PRODUCE CLING PEACHES	19
Table 5. RANGING ANALYSIS	20
Table 6. WHOLE FARM EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD	21
Table 7. HOURLY EQUIPMENT COSTS	21
Table 8. OPERATIONS WITH EQUIPMENT & MATERIAL INPUTS	22

INTRODUCTION

Sample costs to produce late harvested varieties of processing peaches in the Sacramento and San Joaquin Valleys are shown in this study. This study is intended as a guide only. It can be used to help guide production decisions, estimate potential returns, prepare budgets and evaluate production loans. Sample costs given for labor, materials, equipment and contract services are based on January 2017 figures. Practices described are based on production practices considered typical for the crop and area, but will not apply to every situation. A blank column titled Your Costs is provided in Tables 2 and 3 to enter your estimated costs.

For an explanation of calculations used in the study refer to the section titled Assumptions. For more information contact Jeremy Murdock; University of California Agriculture and Natural Resources, Agricultural Issues Center, Department of Agricultural and Resource Economics, at 530-752-4651 or jmmurdock@ucdavis.edu.

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

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ASSUMPTIONS

The following assumptions refer to Tables 1 to 8 and pertain to sample costs to produce late harvested varieties of processing peaches (cling and freestone) in the Sacramento and San Joaquin Valleys. Cultural practices and costs for late harvested processing peaches vary considerably among growers within the region; therefore, many of the costs, practices, and materials in this study will not be applicable to every farm. The practices and inputs used in this cost study serve as a guide only. **The use of trade names and cultural practices in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products or cultural practices.**

Land. The hypothetical farm consists of 100 contiguous acres. Establishment and production costs are based on the 40 acres planted to a late harvested variety of cling peach. The remaining acreage is in other mature tree crops. The grower owns and farms the orchard.

Establishment Cultural Practices and Material Inputs Table 1

Orchard Removal. Orchard removal includes tree removal and cleanup. The irrigation hoses are rolled up and removed, trees removed, then chiseled once with a clod breaker attached, root and pipe removal followed by discing twice.

Land Preparation. The orchard is established on ground previously planted to another tree crop. The land is assumed to be well drained class 1 soil. Growers should have nematode sampling done before deciding whether to fumigate. The site is ripped twice to a depth of at least four feet followed by more root and pipe removal and then disced twice to pulverize large clods. The ground is laser leveled to remove high and low spots to allow for efficient irrigation. Tree rows are strip fumigated with Telone II to treat for nematodes. Subsequently, berms are made in the tree rows. All land preparation operations are contracted and done in the year prior to planting with the costs shown in the first year.

Trees. No specific variety is planted in this study, except that it is a late variety of cling (or freestone) peaches delivered for processing. The rootstock is either Nemaguard, which is commonly planted in the San Joaquin Valley, or Lovell, which is common in the Sacramento Valley. The trees are planted on 16 X 18 foot spacing, 151 trees per acre. The tree cost is \$5.50 per tree. Some of the late cling varieties have an additional royalty cost, which has not been included in the tree cost for this study. For example, the Late Ross variety has an additional royalty fee of 75 cents per tree. The life of the orchard at the time of planting is 18 years.

Plant, Train, and Prune. Planting starts by surveying and marking tree sites. Trees are planted in January through March on berms, then pruned, painted and covered with tree protectors. The protectors are placed around the trees for protection from above ground rodents and herbicide sprays, while painting protects against sunburn and borers. Pruning, training and suckering begins in the first year. Summer pruning begins in June of the third year.

Fruit Thinning. Cling peaches usually set excessive fruit and need to be thinned to increase fruit size. Timing and method of thinning are crucial to producing a good crop. The variety and weather play a role in determining the proper thinning time. Normally, the earlier the thinning is done, the greater the increase in fruit size. Thinning begins in the first year of fruit set, which can occur in the second year. In this study thinning begins in the third year in May and/or June. Thinning is done

mechanically, chemically, or by hand with hand thinning being the most common. Hand thinning is used in this study.

Roping and Wiring Trees. Peach trees are susceptible to limb breakage due to vigorous shoot growth and heavy fruit loads. Besides pruning and thinning, ropes or wires are wrapped around the perimeter of the tree to support the branches and reduce breakage from heavy loads. Nylon rope is typically used to wrap the trees from the third through fifth year. The rope is replaced with wire in the sixth year and left permanently around the tree.

Irrigation. The irrigation water is supplied by an irrigation district. The price varies by district and by region. In this study, district water costs \$5.00 per acre-inch or \$60 per acre-foot. The cost of the actual water is assumed to cost \$40 per acre-foot and the the cost for electricity to pressurize the micro-sprinkler irrigation system is an additional \$20 per acre-foot. The \$5.00 per acre-inch water cost is typical in the Sacramento Valley. Northern San Joaquin Valley water costs are lower (Modesto and Turlock water districts). A water cost of \$3.50 per acre-inch could be added to the “Your Cost” column in Tables 2 and 3 to factor in the lower water cost in Northern San Joaquin Valley. Total water costs may vary depending on weather (i.e. temperature, rainfall, or frost protection), district or well water availability, and electricity costs.

Micro-sprinkler irrigation systems are used in the Sacramento Valley. Flood irrigation and double line drip irrigation is used in the Northern San Joaquin Valley. In this study, micro-sprinkler irrigation is used. The irrigation system is laid out on the berms prior to planting and an irrigation system installation cost has been included in planting costs section under Table 1. The annual water requirements assumed in this study are shown in Table A. Post harvest irrigations through mid September are essential.

Year	Acre-Inch
1	12
2	18
3	24
4	30
5	42

<ul style="list-style-type: none"> Assumes prunings are not removed from orchard 2.69 lbs. N are removed per ton yield 19 lbs. for perennial part of tree 90% recycle of leaves & prunings (~9 pounds) Assumes 70% N use efficiency 	
Yield (tons/acre)	N (lb/acre)
6	63
12	86
18	109
24	132
30	155

Fertilize. In the first year an NPK fertilizer (15-15-15) is hand applied three times (April, June, July) around the tree at a total annual rate of 100 lbs. per acre or 15 lbs. of N per acre. Beginning in the second year, liquid fertilizers are injected through the micro-sprinkler system. In the second year equal amounts of N are injected as CAN 17 in April and UAN-32 in June and August totaling 30 lbs. of N per acre per year. After the second year, UAN-32 is injected in three equal applications annually. In this study, 60 lbs. of N is applied in year 3 and 75 lbs. of N is applied in year 4.

Cropload should ultimately drive the demand for N fertilization. Refer to Table B for recommended N requirements. Between 2-3 lbs. of N is needed per ton of harvested fruit factoring in 70 percent efficiency of nitrogen usage.

Pest Management. The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Peaches*. For information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at www.ipm.ucdavis.edu **Although growers commonly use the pesticides mentioned, many other pesticides are available. Check with your PCA and/or the UC IPM website for current recommendations.** To purchase pesticides for commercial use, a grower must be a Certified Private Applicator to obtain a Pesticide Identification number. **For information and pesticide use permits, contact the local county agricultural commissioner's office.** Pesticides with different active ingredients, modes of action, and sites of action should be rotated as needed to combat species shift and resistance. Adjuvants are recommended for use with many pesticides for effective control, the adjuvants and their costs are not included in this study.

Pest Control Adviser (PCA). Written recommendations are required for many pesticides and are available from licensed pest control or certified crop advisers. In addition, the PCA or an independent consultant will monitor the field during the growing season for fertilizer recommendations. Growers may hire a private PCA or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. In this study, the cost of a third party PCA is included in the farm managers salary.

Application Methods. Pesticide and fertilizer applications are made by either chemigation (pesticides and/or fertilizers applied through the irrigation water), by tractor mounted ground sprayer or foliar-broadcast with tractor mounted air blast sprayer. Insecticides and fungicides can be tank mixed and applied to the crop in the same operation. Check individual pesticide labels for compatibility, mixing requirements and usage. See tables 3 & 8 for a list of chemicals used for the applications.

Weeds (Orchard Floor Management). Orchard floor management consists of row middles (drive rows) and tree rows or berms which are treated differently to combat weeds. At planting, weeds in the tree rows are controlled with a post-emergent (Gramoxone) and pre-emergent (Prowl) herbicide spray. Beginning in the first year, the middles are mowed four times (February, April, May, June). A dormant strip spray (Roundup, Matrix, and Surflan combination) is applied in the late fall, winter, or early spring. One spot spray (Gramoxone) is applied in June of the first year. Starting the second year two spot sprays are needed: one Roundup application in April and one Gramoxone application in June to control persistent or perennial weeds.

Insects, Mites and Diseases. Various insects and diseases occur throughout the year depending on tree growth, weather and pest development. Refer to the **Peach Year-Round IPM program** at <http://ipm.ucdavis.edu/PMG/C602/m602yi01.html>. The typical growth stages mentioned in this study are prebloom, partial bloom, bloom, petal fall, and leaf fall (dormant). During the early years, the trees require less material to effectively treat the young trees. Treatments are made using an airblast sprayer. Air applications may be necessary when wet conditions exist on the orchard floor. Asana is applied in May and July during the first year for peach twig borer (PTB) and oriental fruit moth (OFM) control. The dormant/delayed dormant spray beginning in January of the second year (based on calendar year) includes oil for European Red Mite and San Jose scale, a copper fungicide (Kocide) for peach leaf curl (PLC) and may include an insecticide (Dimilin) for PTB. An alternative spray timing for PTB is during bloom. Oriental Fruit Moth (OFM) control starts in the third season (first bearing year) with Checkmate OFM Flowable combined with the OFM and PTB sprays in May (Asana), June (Intrepid), July (Altacor) and possibly August (Asana). Applications for OFM may start in the second season if a crop is harvested, but is not included in this study. Agri-Mek for web spinning mite control is added to the May or June spray. In season sprays are a combination of different pesticides that control several different pests such as web spinning mites, PTB, OFM and

powdery mildew. Powdery mildew is treated at petal fall with Quintec and two or more sulfur applications are made from April to pit hardening depending on weather to control powdery mildew and possibly rust. Rust can be a problem in cool, wet springs. Shot hole control begins at leaf drop in late November mainly in the Sacramento Valley. Ziram is applied for both shothole and peach leaf curl.

Harvest. Harvest normally starts in the third establishment year. A small 3 to 5 ton crop is often harvested during the second second year, but is not included in this study. Harvest costs will vary according to yield. The crop is harvested by hand and hauled to a processor. The grower provides necessary tractors and bin trailers.

Year	Tons/Acre
3	6
4	12
5	15
6	18
7+	20

Yields and Returns. Although peaches begin bearing an economic crop in the third year after planting, yield maturity is not reached until the sixth or seventh year. Typical annual yields are shown in Table C.

Production Cultural Practices and Material Inputs in a Mature Orchard Tables 2-8

Pruning/Tree Wire. In this study, pruning is done by hand with contract labor crews during the dormant months (November through February). In-house labor is approximately 20 percent less costly. Prunings are normally stacked in the middles and shredded with a flail mower. Additional pruning is done in the summer (also done by contract labor). Wires wrapped around the tree are repaired in the dormant months.

Fertilization. Fertilizer usage is based on crop removal, so fertilizer rates will vary based on yield. In this study 117 lbs. of N per acre in the form of UAN-32 is applied annually based on a yield of 20 tons. The UAN-32 is injected in three equal applications from March to August.

A leaf tissue analysis is conducted in July to determine nutrient deficiencies. Some orchards may be deficient in potassium and/or zinc, but additional fertilizer applications are not included in this study. Potassium may be soil applied in the fall and zinc may be soil or foliar applied.

Thinning and Propping. Thinning is done by hand with contract labor crews in the spring, May and/or June. In some years, some blocks will need to be re-thinned if sizing is a problem. Limbs are propped with boards in June or July (approximately one month prior to harvest) to prevent limb breakage as fruit size increases. Props are removed at harvest.

Irrigation. Irrigation water is supplied by a water district. The price per acre or acre-foot varies by district in this region. In this study district water costs \$5.00 per acre-inch or \$60.00 per acre foot. The annual water requirements assumed is 42 acre-inches. Water requirements can be significantly affected by rainfall. Pumping costs for spring frost protection may also be a consideration, but are not included in this study.

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

Weeds (Orchard Floor Management). The tree rows are sprayed with an herbicide or a mixture of herbicides and the row middles are mowed four times. In this study, Roundup in April and Gramoxone in June are applied as spot sprays in the tree rows. A dormant strip spray mixture of Roundup, Matrix and Surflan is applied to the tree row in the fall or winter (November through January).

Insects and Mites. In this study, insect and mite management begins with a dormant or delayed dormant spray for control of European red mite, San Jose scale, PLC and PTB. The dormant spray of horticultural oil, basic copper (Kocide) and insecticide (Dimilin) is made before bud swell during January or early February. The in-season treatments used in this study for OFM and PTB occur in May (Asana), June (Intrepid), July (Altacor) and for extra late harvested varieties, possibly August (Asana), also. Flowable pheromone (Checkmate OFM) is commonly added to these sprays. Some growers use pheromone mating disruption dispensers rather than sprays for OFM which are applied by early March. AgriMek is added to the May or June spray to control web spinning mites. All of the insect sprays are made with a tractor and an airblast (orchard) sprayer, except when the orchard is not accessible to ground equipment.

Diseases. Control of bloom, foliar, and fruit diseases become more critical in bearing orchards. Peach leaf curl, brown rot, powdery mildew, and rust are the main peach diseases, but other diseases may require treatment. In this study, peach leaf curl is treated with copper fungicide in the dormant spray to prevent damage later in the growing season. Two brown rot treatments are made at early and full bloom: February with Rovral and March with Pristine. Powdery mildew is treated in March (petal fall) with Quintec. Mildew and rust is treated in April and May with wettable sulfur. Shot hole control begins at leaf drop in late November mainly in the Sacramento Valley. Ziram is applied for shothole and also controls peach leaf curl.

No costs are shown, but in some years a preharvest fungicide spray to prevent ripe fruit rot is applied during July or August if it rains prior to harvest. Fungicides are applied using either an orchard sprayer or by air when the orchard is inaccessible to ground sprays or for quicker coverage.

Harvest. Yield maturity is reached between the fifth and seventh year. In this cost study the grower contracts to have the crop hand harvested in August. Peaches are handpicked, field sorted, and placed into bins left throughout the orchard. In the Sacramento Valley, fruit is sorted from the bins. In the North San Joaquin Valley, fruit is sorted on tables before placing into bins. The bins are moved out of the orchard to the roadside and are loaded onto trucks and hauled to the grading/receiving station. Some growers, primarily in the Sacramento Valley, machine harvest.

Machine harvesting peaches is the alternative to hand harvesting. Growers must notify the cannery in advance if they will machine harvest so the cannery can pressure test the peaches in the orchard prior to harvest. Machine harvesting is allowed on younger trees and if the fruit is not overripe. The

peaches need to be harvested at night and arrive at the grading station by 8:00 am. The mechanical harvester sorts and drops all undersized fruit in the field. The cannery will subtract \$20/ton for all machine harvested peaches. Refer to Table D for additional machine harvest costs.

Operation	\$/acre
Bin Distribution	35
Harvest (Machine Pick)	800
Fruit Sorters	110
Bin Roller/Prop Man	25
Canner Dockage Fee	650
Total Harvest	1,620

Yields and Returns. Cling peaches yields fluctuate over years by grower, variety and region. Nine counties produce the majority of the reported cling peaches grown in California and the United States. In this study, the average yield over the life of a mature orchard is 20 tons per acre. The contracted price for the 2016 season was \$490 per ton and is used to determine potential profits/losses. Table 5 shows income, costs, and net returns at varying yields and prices.

Assessment. The Cling Peach Board (CPB) assesses all cling peaches, commercially grown in the state, to pay for cling peach promotion and research. The mandatory assessment is \$2.90 per ton.

The California Canning Peach Association is a grower organization which negotiates contract prices with processors and supports cling peach mechanized research. Membership is voluntary except for Stanislaus and Tuolumne variety plantings. The assessment rate is \$1.25 per paid ton. No cost is shown in this study.

Pickup/ATV. The grower uses the pickup for business use. It is assumed that 5,000 miles are for business use. The ATV is used for inspecting and monitoring the orchard. It is also used for irrigating and checking the system, but is not included as an irrigation cost.

Labor, Interest, and Equipment

Labor. Hourly wages for workers are \$15.00 for machine operators and \$11.00 per hour non-machine labor. Adding 46 percent for the employers' share of federal and state payroll taxes, insurance, and other possible benefits gives the labor rates shown of \$21.90 and \$16.06 per hour for machine labor and non-machine labor, respectively. The overhead includes the employer's share of federal and California state payroll taxes, workers' compensation insurance for orchards and a percentage for other possible benefits. Workers' compensation insurance costs will vary among growers. The cost is based on the average industry rate as of January, 2017. Labor for operations involving machinery are 20 percent higher than the operation time given in Table 2 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

Equipment Operating Costs. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by American Society of Agricultural and Biological Engineers (ASABE). Fuel and lubrication costs are also determined by ASABE equations based on maximum power takeoff (PTO) horsepower, and fuel type. Average prices for on-farm delivery of diesel and gasoline based on January, 2017 data from the Energy Information Administration are \$2.87 and \$2.76 per gallon, respectively. The cost includes a 9.25 percent sales tax, a \$0.13/gal excise tax on diesel fuel, an 8 percent sales tax, and a \$0.30/gal excise tax on gasoline. It is noted that

federal and state excise taxes are refundable for on-farm use when filing the farm income tax return. The fuel, lube, and repair cost per acre for each operation is determined by multiplying the total hourly operating cost 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 4.50 percent year. A nominal interest rate is the typical market cost of borrowed funds. The interest cost of post-harvest operations is discounted back to the last harvest month using a negative interest charge. The rate will vary depending upon various factors, but the rate in this study is considered a typical lending rate by a farm lending agency as of January, 2017.

Risk. The risks associated with crop production should not be minimized. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks, which affect profitability and economic viability of cling peach production. Because of so many potential risk factors, effective risk management must combine specific tactics in a detailed manner, in various combinations for a sustainable operation.

Cash Overhead Costs

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

Property Taxes. Counties charge a base property tax rate of 1 percent on the assessed value of the property. In some counties special assessment districts exist and charge additional taxes on property including equipment, buildings, and improvements. For this study, county taxes are calculated as 1 percent of the average value of the property.

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

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

Liability insurance. A standard farm liability insurance policy will help cover the expenses for which you become legally obligated to pay for bodily injury claims on your property and damages to another person's property as a result of a covered accident. Common liability expenses covered under your policy include attorney fees and court costs, medical expenses for people injured on your property, injury or damage to another's property. In this study, liability insurance costs \$640 for the entire farm.

Crop Insurance. This is available to peach growers for any unavoidable loss of production, damage or poor quality resulting from adverse weather conditions such as cool wet weather, freeze, frost, hail, heat, rain, wind and damage from birds, drought, earthquakes and fire. Coverage levels are from 50-85 percent of the approved average yield as established by verifiable production records from the orchard. Actual insurance coverage is by unit, not by acre. A significant number of growers purchase crop insurance in this region. Due to variability in coverages, crop insurance is not included in this study. <http://www.rma.usda.gov/policies/2016policy.html>

Office Expense. Office and business expenses are estimated at \$75 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, shop and office utilities, regulatory fees, worker and food safety, and miscellaneous administrative charges.

Sanitation Services. Sanitation services provide portable toilets for the orchard and costs the farm \$1,290 annually or \$12.90 per acre. The cost includes a double toilet, delivery and 6 months of weekly service.

Management/Supervisor Wages. A salary for a farm manager for the 100-acre farm is included to indicate that a cash cost for professional supervision of the orchard is incurred. An expense of \$60,000 per year which includes 46 percent for payroll overhead and insurance benefits is used in this study. The total cost for a farm manager in this study is \$600 per acre.

Investment Repairs. Annual maintenance is calculated as 2 percent of the purchase price except on orchard establishment which is 0.5 percent to cover costs for tree replacement.

Non-Cash Overhead Costs

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

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

Salvage Value. Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements), the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the American Society of Agricultural and Biological Engineers (ASABE) based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASABE, by the annual hours of use in the operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value for land is the purchase price because land does not depreciate. The purchase price and salvage value for equipment and investments are shown in Table 5.

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

Interest Rate. An interest rate of 5.00 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 January 2017.

Land. Cropland with irrigation availability plantable to peaches is valued at \$22,000 per acre. For this study, the producing acreage estimated worth is \$29,939 per acre. It is the crop land value plus the establishment cost (\$22,000 + \$7,939).

Irrigation System. The orchard is irrigated using a micro-sprinkler system. Water is delivered to the orchard from the district ditch and distributed through to the orchard by way of underground mainlines and valves. The life of the irrigation system is estimated at 18 years. The irrigation system is installed before the orchard is planted. The micro-sprinkler irrigation system is considered an improvement to the property and is shown in the capital recovery sections of Tables 1, 2, and 3, and Investments in Table 6. It is the standard method of irrigation in the Sacramento Valley, however, in San Joaquin Valley the more common method is flood irrigation or double-line drip.

Establishment Cost. The establishment cost is the sum of cash costs for land preparation, planting, trees, production expenses, and cash overhead for growing cling peach trees through the first year fruit is harvested minus any returns from production. The *Total Accumulated Net Cash Cost* in the third year shown in Table 1 represents the establishment cost per acre. For this study, the cost is \$7,939 per acre or \$317,560 for the 40 acres planted to processing peaches. Establishment cost is amortized over the remaining 15 years that the orchard is assumed to be in production. Establishment cost is used to determine the annual capital recovery expense and interest on investment for production years.

Buildings. The shop building is a 1,800 square foot metal building and/or open structures on a cement slab.

Shop Tools, Pruning Equipment, and Ladders. This includes an assortment of shop tools, various pruning equipment, and 12 foot orchard ladders. The ladders are used for pruning , thinning, and harvesting.

Fuel Tanks. Two 250-gallon fuel tanks using gravity feed are on metal stands. The tanks are setup in a cement containment pad that meets federal, state, and county regulations.

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

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

Acknowledgment. Appreciation is expressed to those growers and other cooperators who provided information for this study.

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UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
TABLE 1. COSTS PER ACRE TO ESTABLISH A PEACH ORCHARD
 SACRAMENTO AND SAN JOAQUIN VALLEY – 2017

	Year:	Cost Per Acre			
		1st	2nd	3rd	4th
	Yield: Tons Per Acre			6	12
Planting Costs:					
Orchard Removal: Trees (custom)		350			
Orchard Removal: Field Cleanup (custom)		200			
Rip 2X (custom)		500			
Laser Level (custom)		180			
Fumigate- Strip (custom)		1000			
Disc & Roll 2X (custom)		90			
Layout & Ridge (custom)		100			
Trees: 151 per acre		831			
Irrigation System Installation		200			
Survey and Mark Orchard (custom)		38			
Plant, Paint, Wrap Trees (labor & materials)		161			
Weeds: Spray Berms (Gramoxone, Prowl)		25			
TOTAL PLANTING COSTS		3,675			
Cultural Costs:					
Prune, Train, Sucker		13	24	222	257
Fertilizer: 3X (Yr 1, 15-15-15. Yr 2, CAN 17 & UAN-32. Y3+, UAN-32)		89	22	36	45
Weeds: Mow Middles 4X (February, April, May, and June)		72	72	72	72
Irrigate (water & labor)		101	131	160	191
Weeds: Spot Spray (Yr 1, Gramoxone, Yr 2+, Roundup 1X, Gramoxone 1X)		14	30	30	30
Insects: OFM/PTB (Asana)		57			
Weeds: Dormant Strip (Roundup, Matrix, Surflan)		68	68	68	68
Disease: Shothole/PLC (Ziram)		33	43	54	64
Disease/Insects: Dormant Spray (Oil, Kocide, Dimilin)			85	127	126
Shred Prunings			18	18	18
Disease: Brown Rot @ Early Bloom (Rovral)			42	52	62
Disease: Mildew (Quintec)			59	59	59
Disease: Brown Rot @ Full Bloom (Pristine)				57	64
Rope/Wire Trees				79	89
Disease: Mildew, Rust (Sulfur) 2X				52	52
Insect: PTB, OFM (Asana, Checkmate)				105	105
Thin Fruit: Hand				369	466
Insect: PTB, OFM, Mites (Intrepid, Checkmate, AgriMek)				88	88
Prune: Hand (summer prune)				48	48
Leaf Tissue Analysis				2	2
Insect: PTB, OFM (Altacor, Checkmate)				108	108
Pickup (Business Use)		100	100	100	100
ATV		83	83	83	83
TOTAL CULTURAL COSTS		630	777	1,989	2,197
Harvest Costs:					
Pick Fruit & Field Sort				473	945
Haul to Processor				72	144
Bin Distribution in Field				12	22
TOTAL HARVEST COSTS				557	1,111
Assessment Costs:					
Cling Peach Board				17	35
TOTAL ASSESSMENT COSTS				17	35
Interest On Operating Capital @ 4.50%		158	19	60	74
TOTAL OPERATING COSTS/ACRE		4,463	796	2,623	3,417

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 1. CONTINUED

SACRAMENTO AND SAN JOAQUIN VALLEY – 2017

	Cost Per Acre				
	Year:	1st	2 nd	3rd	4th
Yield: Tons Per Acre				6	12
Cash Overhead Costs:					
Office Expense	75	75	75	75	
Liability Insurance	6	6	6	6	
Sanitation Fees (toilets)	13	13	13	13	
Field Manager Salary	600	600	600	600	
Property Taxes	234	234	234	275	
Property Insurance	20	20	20	23	
Investment Repairs	51	51	51	91	
TOTAL CASH OVERHEAD COSTS	999	999	999	1,083	
TOTAL CASH COSTS/ACRE	5,462	1,795	3,622	4,500	
INCOME/ACRE FROM PRODUCTION			2,940	5,880	
NET CASH COSTS/ACRE FOR THE YEAR	5,462	1,795	682		
PROFIT/ACRE ABOVE CASH COSTS				1,380	
ACCUMULATED NET CASH COSTS/ACRE	5,462	7,257	7,939	6,559	
Capital Recovery Cost:					
Building: 1800 sq. ft.	35	35	35	35	
Fuel Tanks: 2-250 Gal.	4	4	4	4	
Shop & Field Tools	15	15	15	15	
Irrigation System: Micro-sprinklers	154	154	154	154	
Land	1,100	1,100	1,100	1,100	
Equipment	64	73	116	119	
Orchard Establishment				765	
TOTAL NON-CASH OVERHEAD COST/ACRE	1,372	1,381	1,424	2,192	
TOTAL COST/ACRE FOR THE YEAR	6,834	3,176	5,046	6,692	
INCOME/ACRE FROM PRODUCTION			2,940	5,880	
TOTAL NET COST/ACRE FOR THE YEAR	6,834	3,176	2,106	812	
NET PROFIT/ACRE ABOVE TOTAL COST					
TOTAL ACCUMULATED NET COST/ACRE	6,834	10,010	12,116	12,928	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 2. COSTS PER ACRE TO PRODUCE CLING PEACHES
SACRAMENTO AND SAN JOAQUIN VALLEY 2017

Operation	Operation		Cash and Labor Costs per Acre				Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/Rent		
Cultural:								
Hand Prune & Sucker	0.00	0	0	0	0	578	578	
Tree Wire Repair	0.00	26	0	0	25	0	51	
Disease/Insect: Dormant Spray	0.50	13	5	4	105	0	127	
Shred Prunings	0.40	11	4	3	0	0	18	
Disease: Brown Rot @ Early Bloom	0.50	13	5	4	40	0	62	
Disease: Brown Rot @ Full Bloom	0.50	13	5	4	42	0	64	
Disease:Mildew (Quintec)	0.50	13	5	4	36	0	59	
Irrigate 8x	0.00	41	0	0	210	0	251	
Weed: Spot Spray 2X	0.66	17	7	3	3	0	30	
Weeds: Mow Middles 4X	1.60	42	16	13	0	0	72	
Fertigate: UAN-32 3X	0.00	0	0	0	70	0	70	
Disease: Mildew/Rust 2X	1.00	26	10	8	7	0	52	
Insect: PTB/OFM 2X (Asana)	0.50	26	10	8	60	0	104	
Prune: Summer	0.00	0	0	0	0	342	342	
Thin Fruit	0.00	0	0	0	0	1,177	1,177	
Insect: PTB/OFM/Mite (Intepid)	0.50	13	5	4	59	0	82	
Insect: PTB/OFM (Altacor)	0.50	13	5	4	85	0	108	
Prop Limbs/Remove Props	0.50	61	5	2	0	0	68	
Leaf Tissue Analysis	0.00	0	0	0	0	2	2	
Disease: Shotehole/PLC	0.50	13	5	4	42	0	64	
Weeds: Dormant Strip Spray	0.33	9	3	2	54	0	68	
Pickup Truck Use	2.85	75	16	9	0	0	100	
ATV Use	2.85	75	5	3	0	0	83	
TOTAL CULTURAL COSTS	14.69	502	113	81	839	2,099	3,634	
Harvest:								
Bin Field Distribution	0.80	21	12	2	0	0	35	
Hand Pick & Field Sort Fruit	0.00	0	0	0	0	1,575	1,575	
Haul Fruit	0.00	0	0	0	0	240	240	
Assessments	0.00	0	0	0	58	0	58	
TOTAL HARVEST COSTS	0.80	21	12	2	58	1,815	1,908	
Interest on Operating Capital at 4.50%							61	
TOTAL OPERATING COSTS/ACRE	15	523	125	83	897	3,914	5,603	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
TABLE 2. CONTINUED
 SACRAMENTO AND SAN JOAQUIN VALLEY 2017

Operation	Operation		Cash and Labor Costs per Acre				Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/Rent		
CASH OVERHEAD:								
Liability Insurance							6	
Office Expense							75	
Sanitation Fees							13	
Field Manager Salary							600	
Property Taxes							275	
Property Insurance							23	
Investment Repairs							91	
TOTAL CASH OVERHEAD COSTS/ACRE							1,083	
TOTAL CASH COSTS/ACRE							6,686	
NON-CASH OVERHEAD:								
		Per Producing Acre		Annual Cost Capital Recovery				
Building: 1800 sq. ft.		540		35			35	
Fuel Tanks: 2-250 Gal.		63		4			4	
Land		22,000		1,100			1,100	
Irrigation System: Micro-sprinklers		1,800		154			154	
Shop & Field Tools		156		15			15	
Orchard Establishment		8,560		825			765	
Equipment		1,092		124			124	
TOTAL NON-CASH OVERHEAD COSTS		34,211		2,257			2,197	
TOTAL COSTS/ACRE							8,883	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
TABLE 3. COSTS AND RETURNS PER ACRE TO PRODUCE CLING PEACHES
 SACRAMENTO AND SAN JOAQUIN VALLEY 2017

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Cling Peach	20	Ton	490.00	9,800	
TOTAL GROSS RETURNS				9,800	
OPERATING COSTS					
Herbicide:					57
Roundup Ultra Max	1.30	Pint	4.31	6	
Gramoxone Inteon	0.30	Pint	5.25	2	
Matrix SG	1.32	Oz	22.69	30	
Surflan 4 AS	1.50	Pint	13.07	20	
Insecticide:					295
Superior Oil	5.00	Gal	4.50	23	
Dimilin 2L	14.00	FLOz	2.26	32	
Quintec	7.00	FLOz	5.16	36	
Asana XL	19.20	FLOz	0.77	15	
Checkmate OFM (F)	5.20	FLOz	17.38	90	
Intrepid 2F	12.80	FLOz	2.10	27	
Agri-Mek 0.15EC	8.00	FLOz	1.25	10	
Altacor	4.00	Oz	15.72	63	
Fungicide:					182
Kocide 3000	5.00	Lb	10.15	51	
Rovral 4F	2.00	Pint	20.01	40	
Pristine	12.00	Oz	3.50	42	
Sulfur - Wettable	20.00	lb	0.37	7	
Ziram 76DF	8.00	Lb	5.26	42	
Fertilizer:					70
UAN-32	117.00	lb N	0.60	70	
Water:					210
Water - Peach	42.00	AcIn	5.00	210	
Custom:					3,914
Hand Prune- Winter	1.00	Acre	578.00	578	
Hand Prune- Summer	1.00	Acre	342.00	342	
Thin Fruit	1.00	Acre	1177.00	1,177	
Leaf Analysis	1.00	Acre	2.00	2	
Harvest - Hand	20.00	Ton	78.75	1,575	
Haul Fruit	20.00	Ton	12.00	240	
Tree Aids:					25
Tree Rope	1.00	Acre	25.00	25	
Assessment:					58
CPB Assessment Fee	20.00	Ton	2.90	58	
Labor					523
Equipment Operator Labor	18.59	hrs	21.90	407	
Pruning Labor	1.65	hrs	16.06	26	
Irrigation Labor	2.56	hrs	16.06	41	
Non-Machine Labor	3.00	hrs	16.06	48	
Machinery					208
Fuel-Gas	7.60	gal	2.76	21	
Fuel-Diesel	36.16	gal	2.87	104	
Lube				19	
Machinery Repair				64	
Interest on Operating Capital @ 4.50%				61	
TOTAL OPERATING COSTS/ACRE				5,603	
TOTAL OPERATING COSTS/TON				280	
NET RETURNS ABOVE OPERATING COSTS				4,197	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
TABLE 3. CONTINUED
 SACRAMENTO AND SAN JOAQUIN VALLEY 2017

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
CASH OVERHEAD COSTS					
Liability Insurance				6	
Office Expense				75	
Sanitation Fees				13	
Field Manager Salary				600	
Property Taxes				275	
Property Insurance				23	
Investment Repairs				91	
TOTAL CASH OVERHEAD COSTS/ACRE				1,083	
TOTAL CASH OVERHEAD COSTS/TON				54	
TOTAL CASH COSTS/ACRE				6,686	
TOTAL CASH COSTS/TON				334	
NET RETURNS ABOVE CASH COSTS				3,114	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Building: 1800 sq. ft.				35	
Fuel Tanks: 2-250 Gal.				4	
Land				1,100	
Irrigation System: Micro-sprinklers				154	
Shop & Field Tools				15	
Orchard Establishment				765	
Equipment				124	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				2,197	
TOTAL NON-CASH OVERHEAD COSTS/TON				113	
TOTAL COST/ACRE				8,883	
TOTAL COST/TON				444	
NET RETURNS ABOVE TOTAL COST				917	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
Table 4. MONTHLY CASH COSTS PER ACRE TO PRODUCE CLING PEACHES
 SACRAMENTO AND SAN JOAQUIN VALLEY 2017

	JAN 17	FEB 17	MAR 17	APR 17	MAY 17	JUN 17	JUL 17	AUG 17	SEP 17	OCT 17	NOV 17	Total
Cultural:												
Hand Prune & Sucker	578											578
Tree Wire Repair	51											51
Disease/Insect: Dormant Spray		127										127
Shred Prunings			18									18
Disease: Brown Rot @ Early Bloom		62										62
Disease: Brown Rot @ Full Bloom			64									64
Disease:Mildew (Quintec)			59									59
Irrigate 8X				31	63	63	63	31				251
Weed: Spot Spray 2X				15		15						30
Weeds: Mow Middles 4X				18	18	18	18					72
Fertigate: UAN-32 3X			23			23		23				70
Disease: Mildew/Rust 2X				26	26							52
Insect: PTB/OFM 2X					52			52				104
Prune: Summer						342						342
Thin Fruit						1,177						1,177
Insect: PTB/OFM/Mite						82						82
Insect: PTB/OFM							108					108
Prop Limbs/Remove Props							42	26				68
Leaf Tissue Analysis							2					2
Disease: Shot-hole/PLC											64	64
Weeds: Dormant Strip Spray											68	68
Pickup Truck Use	9	9	9	9	9	9	9	9	9	9	9	100
ATV Use	8	8	8	8	8	8	8	8	8	8	8	83
TOTAL CULTURAL COSTS	646	206	181	107	176	1,737	249	150	17	17	149	3,634
Harvest:												
Bin Field Distribution								35				35
Hand Pick & Field Sort Fruit								1,575				1,575
Haul Fruit								240				240
Assessments								58				58
TOTAL HARVEST COSTS	0	0	0	0	0	0	0	1,908	0	0	0	1,908
Interest on Operating Capital @ 4.50%	2	3	4	4	5	11	12	20	-1	-1	-1	61
TOTAL OPERATING COSTS/ACRE	649	210	185	111	181	1,748	262	2,078	16	16	148	5,603
CASH OVERHEAD												
Liability Insurance												6
Office Expense	6	6	6	6	6	6	6	6	6	6	6	75
Sanitation Fees	1	1	1	1	1	1	1	1	1	1	1	13
Field Manager Salary	50	50	50	50	50	50	50	50	50	50	50	600
Property Taxes		275										275
Property Insurance		23										23
Investment Repairs	8	8	8	8	8	8	8	8	8	8	8	91
TOTAL CASH OVERHEAD COSTS	66	364	66	66	66	66	66	66	66	66	66	1,083
TOTAL CASH COSTS/ACRE	714	574	250	177	246	1,813	328	2,143	82	82	214	6,686

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
TABLE 5. RANGING ANALYSIS
 SACRAMENTO AND SAN JOAQUIN VALLEY 2017

COSTS PER ACRE AND PER TON AT VARYING YIELDS TO PRODUCE CLING PEACHES

	YIELD (TON/ACRE)						
	14.00	16.00	18.00	20.00	22.00	24.00	26.00
OPERATING COSTS/ACRE:							
Cultural	3,634	3,634	3,634	3,634	3,634	3,634	3,634
Harvest	1,346	1,534	1,721	1,908	2,096	2,283	2,470
Interest on Operating Capital @ 4.50%	59	59	60	61	61	62	63
TOTAL OPERATING COSTS/ACRE	5,039	5,227	5,415	5,603	5,791	5,979	6,167
TOTAL OPERATING COSTS/TON	359.92	326.68	300.83	280.15	263.22	249.12	237.19
CASH OVERHEAD COSTS/ACRE							
	1,084	1,084	1,084	1,084	1,084	1,084	1,084
TOTAL CASH COSTS/ACRE	6,123	6,311	6,499	6,687	6,875	7,063	7,251
TOTAL CASH COSTS/TON	437.33	394.42	361.04	334.33	312.49	294.28	278.87
NON-CASH OVERHEAD COSTS/ACRE							
	2,198	2,198	2,198	2,198	2,198	2,198	2,198
TOTAL COSTS/ACRE	8,320	8,508	8,696	8,884	9,072	9,260	9,448
TOTAL COSTS/TON	594.00	532.00	483.00	444.00	412.00	386.00	363.00

Net Return per Acre above Operating Costs for Cling peach

PRICE (\$/ton)	YIELD (Ton/acre)						
Cling Peach	14.00	16.00	18.00	20.00	22.00	24.00	26.00
340.00	-279	213	705	1,197	1,689	2,181	2,673
390.00	421	1,013	1,605	2,197	2,789	3,381	3,973
440.00	1,121	1,813	2,505	3,197	3,889	4,581	5,273
490.00	1,821	2,613	3,405	4,197	4,989	5,781	6,573
540.00	2,521	3,413	4,305	5,197	6,089	6,981	7,873
590.00	3,221	4,213	5,205	6,197	7,189	8,181	9,173
640.00	3,921	5,013	6,105	7,197	8,289	9,381	10,473

Net Return per Acre above Cash Costs for Cling peach

PRICE (\$/ton)	YIELD (Ton/acre)						
Cling Peach	14.00	16.00	18.00	20.00	22.00	24.00	26.00
340.00	-1,363	-871	-379	113	605	1,097	1,589
390.00	-663	-71	521	1,113	1,705	2,297	2,889
440.00	37	729	1,421	2,113	2,805	3,497	4,189
490.00	737	1,529	2,321	3,114	3,905	4,697	5,489
540.00	1,437	2,329	3,221	4,113	5,005	5,897	6,789
590.00	2,137	3,129	4,121	5,113	6,105	7,097	8,089
640.00	2,837	3,929	5,021	6,113	7,205	8,297	9,389

Net Return per Acre above Total Costs for Cling peach

PRICE (\$/ton)	YIELD (Ton/acre)						
Cling Peach	14.00	16.00	18.00	20.00	22.00	24.00	26.00
340.00	-3,560	-3,068	-2,576	-2,084	-1,592	<u>-1,100</u>	<u>-608</u>
390.00	-2,860	-2,268	-1,676	-1,084	<u>-492</u>	100	692
440.00	-2,160	-1,468	<u>-776</u>	<u>-84</u>	608	1,300	1,992
490.00	-1,460	<u>-668</u>	124	917	1,708	2,500	3,292
540.00	-760	132	1,024	1,916	2,808	3,700	4,592
590.00	<u>-60</u>	932	1,924	2,916	3,908	4,900	5,892
640.00	640	1,732	2,824	3,916	5,008	6,100	7,192

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
TABLE 6. WHOLE FARM EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD
 SACRAMENTO AND SAN JOAQUIN VALLEY 2017

ANNUAL EQUIPMENT COSTS

Yr.	Description	Price	Years Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insurance	Taxes	
17	66 HP 2WD Tractor	46,200	15	8,994	4,034	23	276	4,334
17	ATV 4WD	8,350	7	3,167	1,054	5	58	1,116
17	Mower - Flail 10'	10,477	10	1,853	1,210	5	62	1,276
17	Orch.Sprayer 500 G	26,000	8	5,870	3,408	13	159	3,581
17	Pickup Truck - 3/4	32,000	7	12,139	4,039	19	221	4,279
17	Utility Trailer	1,836	20	96	144	1	10	155
17	Weed Sprayer 100 G	4,500	10	796	520	2	26	548
17	Bin Carrier	45,000	10	7,958	5,195	22	265	5,482
TOTAL		174,363	-	40,873	19,604	91	1,076	20,771
60% of New Cost*		104,618	-	24,524	11,762	55	646	12,463

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

Description	Price	Years Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insurance	Taxes	Repairs	
INVESTMENT								
Building: 1800 sq. ft.	54,000	30	0	3,513	23	270	1,080	4,886
Fuel Tanks: 2-250G	6,310	30	442	404	3	34	126	566
Land - Peaches	880,000	20	880,000	44,000	744	8,800	0	53,544
Micro-sprinkler Irrigation System	72,000	18	0	6,159	30	360	1,440	7,990
Pruning Equipment	2,500	10	175	310	1	13	50	374
Shop Tools	13,136	15	920	1,223	6	70	263	1,562
Orchard Establishment Cost	317,560	15	0	30,594	134	1,588	1,588	33,905
TOTAL INVESTMENT	1,345,506	-	881,537	86,203	942	11,135	4,547	102,827

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	40.00	Acre	6.40	256
Office Expense	40.00	Acre	75.00	3,000
Sanitation Fees	40.00	Acre	12.90	516
Field Manager Salary	40.00	Acre	600.00	24,000

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
TABLE 7. HOURLY EQUIPMENT COSTS
 SACRAMENTO AND SAN JOAQUIN VALLEY 2017

Yr	Description	ClingPeach Hours Used	Total Hours Used	Capital Recovery	Cash Overhead		Operating		Total Oper.	Total Costs/Hr.
					Insurance	Taxes	Lube & Repairs	Fuel		
17	66 HP 2WD Tractor	396	800	3.03	0.02	0.21	3.44	9.30	12.75	16.00
17	ATV 4WD	114	285	2.22	0.01	0.12	0.89	1.84	2.73	5.08
17	Mower - Flail 10'	80	200	3.63	0.02	0.18	4.40	0.00	4.40	8.23
17	Orch.Sprayer 500 G	220	250	8.18	0.03	0.38	4.52	0.00	4.52	13.11
17	Pickup Truck - 3/4	114	285	8.50	0.04	0.46	3.19	5.52	8.71	17.72
17	Utility Trailer	20	150	0.58	0.00	0.04	0.27	0.00	0.27	0.89
17	Weed Sprayer 100 G	40	150	2.08	0.01	0.11	1.21	0.00	1.21	3.40
17	Bin Carrier	35	300	10.39	0.04	0.53	2.81	13.39	16.20	27.17

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
TABLE 8. OPERATIONS WITH EQUIPMENT AND MATERIALS
 SACRAMENTO AND SAN JOAQUIN VALLEY 2017

Operation	Operation Month	Tractor	Implement	Labor Type/ Material	Rate/ acre	Unit
Hand Prune & Sucker Tree Wire Repair	Jan			Hand Prune- Winter	1.00	Acre
	Jan			Pruning Labor	1.65	hours
				Tree Rope	1.00	Acre
Disease/Insect: Dormant	Feb	66 HP 2WD Tractor	Orch.Sprayer 500 G	Equipment Operator Labor	0.60	hour
				Superior Oil	5.00	Gal
				Kocide 3000	5.00	Lb
				Dimilin 2L	14.00	FLOz
Shred Prunings	Mar	66 HP 2WD Tractor	Mower - Flail 10'	Equipment Operator Labor	0.48	hour
Disease: Brown Rot	Feb	66 HP 2WD Tractor	Orch.Sprayer 500 G	Equipment Operator Labor	0.60	hour
				Rovral 4F	2.00	Pint
Disease: Brown Rot	Mar	66 HP 2WD Tractor	Orch.Sprayer 500 G	Equipment Operator Labor	0.60	hour
Disease:Mildew (Quintec)	Mar	66 HP 2WD Tractor	Orch.Sprayer 500 G	Pristine	12.00	Oz
				Quintec	7.00	FLOz
Irrigate 8X	Apr			Irrigation Labor	0.32	hour
	May			Water - Peach	5.25	AcIn
				Irrigation Labor	0.64	hour
	June			Water - Peach	10.50	AcIn
				Irrigation Labor	0.64	hour
	July			Water - Peach	10.50	AcIn
				Irrigation Labor	0.64	hour
	Aug			Water - Peach	10.50	AcIn
Irrigation Labor				0.32	hour	
Weed: Spot Spray 2X	Apr	66 HP 2WD Tractor	Weed Sprayer 100 G	Equipment Operator Labor	0.40	hour
				Roundup Ultra Max	0.30	Pint
	June	66 HP 2WD Tractor	Weed Sprayer 100 G	Equipment Operator Labor	0.40	hour
				Gramoxone Inteon	0.30	Pint
Weeds: Mow Middles 4X	Apr	66 HP 2WD Tractor	Mower - Flail 10'	Equipment Operator Labor	0.48	hour
	May	66 HP 2WD Tractor	Mower - Flail 10'	Equipment Operator Labor	0.48	hour
	June	66 HP 2WD Tractor	Mower - Flail 10'	Equipment Operator Labor	0.48	hour
	July	66 HP 2WD Tractor	Mower - Flail 10'	Equipment Operator Labor	0.48	hour
Fertigate: UAN-32 3X	March			UAN-32	36.67	lb N
	June			UAN-32	36.67	lb N
	Aug			UAN-32	36.67	lb N
Disease: Mildew/Rust	Apr	66 HP 2WD Tractor	Orch.Sprayer 500 G	Equipment Operator Labor	0.60	hour
	May	66 HP 2WD Tractor	Orch.Sprayer 500 G	Sulfur - Wetttable	10.00	lb
Insect: PTB/OFM 2X	May	66 HP 2WD Tractor	Orch.Sprayer 500 G	Equipment Operator Labor	0.60	hour
				Asana XL	9.60	FLOz
				Checkmate OFM (F)	1.30	FLOz
Insect: PTB/OFM	Aug	66 HP 2WD Tractor	Orch.Sprayer 500 G	Equipment Operator Labor	0.60	hour
				Asana XL	9.60	FLOz
				Checkmate OFM (F)	1.30	FLOz
				Hand Prune- Summer	1.00	Acre
Prune: Summer	June			Thin Fruit	1.00	Acre
Thin Fruit	June			Thin Fruit	1.00	Acre
Insect: PTB/OFM/Mite	June	66 HP 2WD Tractor	Orch.Sprayer 500 G	Equipment Operator Labor	0.60	hour
				Intrepid 2F	12.80	FLOz
				Checkmate OFM (F)	1.30	FLOz
				Agri-Mek 0.15EC	8.00	FLOz
Insect: PTB/OFM	July	66 HP 2WD Tractor	Orch.Sprayer 500 G	Equipment Operator Labor	0.60	hour
				Altacor	4.00	Oz
				Checkmate OFM (F)	1.30	FLOz
				Non-Machine Labor	2.00	hours
Prop Limbs/Remove	July	66 HP 2WD Tractor	Utility Trailer	Non-Machine Labor	1.00	hour
Fertilize: Leaf Tissue	July	66 HP 2WD Tractor	Utility Trailer	Non-Machine Labor	1.00	hour
				Leaf Analysis	1.00	Acre
Disease: Shotehole	Nov	66 HP 2WD Tractor	Orch.Sprayer 500 G	Equipment Operator Labor	0.60	hour
				Ziram 76DF	8.00	Lb
Weeds: Dormant Strip	Nov	66 HP 2WD Tractor	Weed Sprayer 100 G	Equipment Operator Labor	0.40	hour
				Roundup Ultra Max	1.00	Pint
				Matrix SG	1.32	Oz
				Surflan 4 AS	1.50	Pint
Pickup Truck Use	Nov		Pickup Truck - 3/4	Equipment Operator Labor	3.42	hours
ATV Use	Nov		ATV 4WD	Equipment Operator Labor	3.42	hours
Bin Field Distribution	Aug		Bin Carrier	Equipment Operator Labor	0.96	hour
Hand Pick & Field So	Aug			Harvest - Hand	20.00	Ton
Haul Fruit	Aug			Haul Fruit	20.00	Ton
Assessments	Aug			CPB AssessmentFee	20.00	Ton