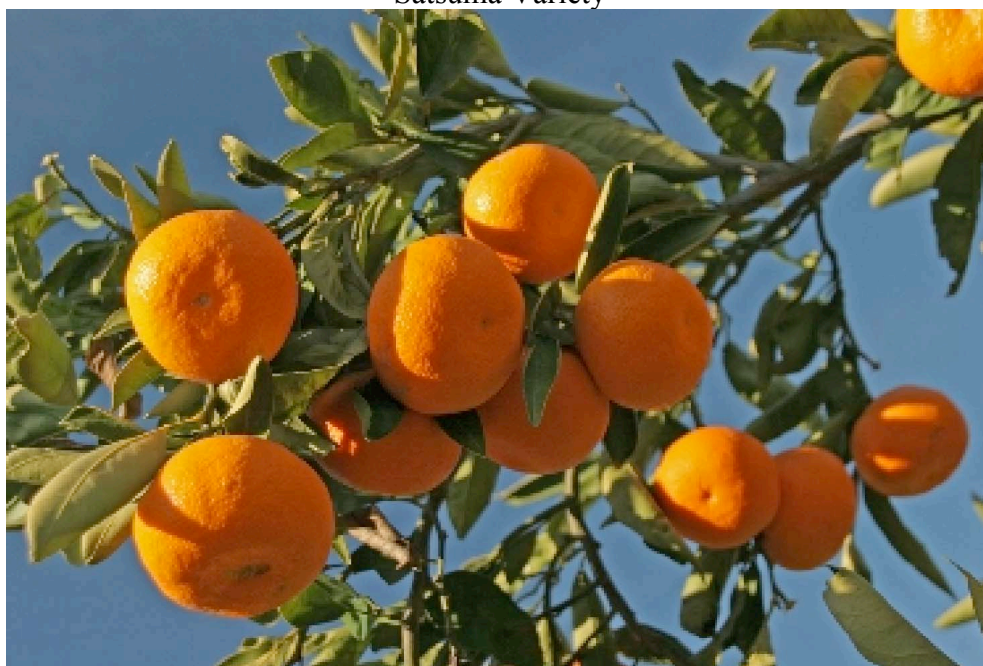

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2008

SAMPLE COSTS TO ESTABLISH
A MANDARIN ORCHARD AND PRODUCE

MANDARINS

Satsuma Variety



INTERMOUNTAIN - SIERRA NEVADA FOOTHILLS
Placer & Nevada Counties

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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

SAMPLE COSTS TO ESTABLISH A MANDARIN ORCHARD AND PRODUCE MANDARINS (Satsuma)

Intermountain - Sierra Nevada Foothills, Placer/Nevada Counties 2008

CONTENTS

INTRODUCTION	2
ASSUMPTIONS	3
Establishment Cultural Practices and Material Inputs.....	3
Mature Production Cultural Practices and Material Inputs.....	5
Labor, Equipment and Interest	7
Cash Overhead	8
Non-Cash Overhead.....	9
ACKNOWLEDGEMENTS	10
REFERENCES	11
Table 1. COSTS PER ACRE TO ESTABLISH A MANDARIN ORCHARD.....	12
Table 2. COSTS PER ACRE TO PRODUCE MANDARINS	14
Table 3. COSTS AND RETURNS PER ACRE TO PRODUCE MANDARINS	15
Table 4. MONTHLY CASH COSTS – MANDARINS	17
Table 5. RANGING ANALYSIS.....	18
Table 6. WHOLE FARM EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS.....	19
Table 7. HOURLY EQUIPMENT COSTS	20
Table 8. OPERATIONS WITH EQUIPMENT & MATERIALS	21

INTRODUCTION

Sample costs to establish a mandarin orchard and produce mandarins under microsprinkler irrigation in the Intermountain Region, Sierra Nevada Foothills, Placer and Nevada counties are presented in this study. The study is intended as a guide only, and can be used to make production decisions, determine potential returns, prepare budgets, and evaluate production loans. Practices described are based on production practices considered typical for the crop and area, but will not apply to every situation. Sample costs for labor, materials, equipment, and custom services are based on current figures. A blank column, “Your Costs”, in Tables 2 and 3 is provided for entering your farm costs.

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

Sample Cost of Production Studies for many commodities (current and archived) can be downloaded from the Department of Agricultural and Resource Economics’ website at <http://coststudies.ucdavis.edu>. Studies can also be requested through Agricultural and Resource Economics, UC Davis, (530) 752-1517 or obtained from selected county UC Cooperative Extension offices.

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ASSUMPTIONS

The assumptions refer to Tables 1 to 8 and pertain to sample costs to establish a mandarin orchard and produce mandarins in the Intermountain Region - Sierra Nevada Foothills, Placer and Nevada counties. The cultural practices described represent production operations and materials considered typical on a well-managed orchard in the region. Costs, materials, and practices in this study will not apply to all farms. Timing of and types of establishment and 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. The study does not represent a single farm and is intended as a guide only. **The use of trade names and cultural practices in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products or cultural practices.**

Land. The hypothetical farm consists of 10 contiguous acres purchased for a homesite and small farm. The homeowner grower is establishing mandarins on five acres. The remaining five acres consist of a home, shop and packing shed, and irrigation system. The five acre orchard is established on land suitable for mandarin production and with no more than a 15% slope; although many orchards may be on a greater slope.

Establishment Cultural Practices and Material Inputs

Table 1

Land Preparation. Soil amendments, lime and gypsum, are applied after soil tests have been taken for nutrient analysis and prior to ripping. A custom operator rips the ground up to 36 inches deep in three different directions. The grower disks two times, then floats two times. All operations that prepare the orchard for planting are done the year prior to planting, but costs are shown in the first year.

Trees. Satsuma Mandarins on Trifoliolate rootstock are planted on 11-foot X 20-foot spacing (tree x row), 198 trees per acre. Depending on the type of planting – square, hedgerow, triangle – planting densities may range from 150 to 500 trees per acre. The trees are alternate bearing (produce a heavy crop followed by minimal production). The productive life of the orchard at the time of planting is estimated to be 40 years.

Plant, Train, and Prune. In April, contract labor marks the tree rows, plants, applies compost around the tree, prunes and wraps the trees. Pruning, training, and suckering begins the first year and costs are shown beginning in the second year. Labor time required for pruning may increase in the subsequent years. The grower continuously suckers the trees each year through year four and then begins maintenance pruning. Times assumed for pruning are 10 minutes per tree in the second and third years and 20 minutes per tree through the fifth year. The prunings are shredded with one of the mowings. If the amount of prunings is large enough to prevent shredding, they may have to be pushed out of the orchard and burned. It is assumed 1% of the trees will be replanted in the second year.

Fertilizer/Soil Amendments. Lime and gypsum each at 1,000 pounds per acre is applied by the grower prior to any land preparation. Composted horse manure is applied on the surface around the tree at planting. The compost is free in the area, therefore no cost is shown. Nitrogen (N) applied from the second through fourth year is one-quarter pound per tree, and increases to one-half to three-fourths pound in the fifth and subsequent years. Phosphorous (P) and potassium (K) are also needed and supplied by using an NPK fertilizer. Beginning in the second year 15-15-15 fertilizer at 250 pounds (37.5 lbs N) per acre is applied in equal amounts two to three times between late February and early June (March and May in this study) and 6-24-24 at 200 pounds (12 lbs N) per acre in July or August (July in this study). Beginning in the fifth year, low biuret urea at 49.5 lbs N or 108 pounds of material, manganese at 2.50 pounds and zinc sulfate at 2.50 pounds are combined and foliar applied in March or April.

Leaf/Soil Analysis. Soil samples are taken prior to land preparation to determine available nutrients and the need for soil amendments. Leaf samples for nutrient analysis are taken in September every other year, beginning in the fourth year. One or two samples (one in this study) per five acres at 20 spots or locations per sample are taken for N, P, K, Zn and B analysis. Also, if using well water, analysis should be done periodically to determine nitrate content. Fertilizer rates in this study are a combination of typical nutrient requirements and nutrient use in the area, but do not take into account soil and water nitrogen.

Irrigation. Microsprinklers are used to irrigate the trees. Water is gravity fed from the irrigation district through a filtration system into the microsprinklers. Water in the district is sold by the miner's inch, which is a continuous flow of water throughout the season through an approved measuring device, equivalent to 11.25 gallons per minute. The water cost is paid monthly by the grower regardless of the amount used on the orchard. The district delivers water for 6 months, April 15 to October 15. The trees are irrigated every five days beginning right after planting and continuing through October. In the following years, the trees are irrigated once per week during the same period and also during the winter as needed and/or determined by water availability. Labor hours are calculated at 1.35 hours per acre per month. The cost (hours) includes time to clean the water box twice a week, flush the filters and walk the irrigation lines. Seasonal maintenance on the irrigation system is done once per year at the beginning of the season (March, April). This includes checking the irrigation lines, valves, filters and sprinklers and takes 2.4 hours per acre. No assumption is made about effective rainfall, evaporation, or runoff.

Pest Management. The pesticides and rates mentioned in this cost study as well as other materials available are listed in *UC Integrated Pest Management Guidelines, Citrus*. Pesticides mentioned in the study are commonly used, but are not recommendations.

Weeds. During the first year, the native vegetation in the row middles is mowed five times – one time per month from June through October. In the second year, the orchard is mowed eight times – one time per month from March through October. One strip spray (Roundup) is applied to the tree row between April and October. In the third year, the mowing continues, and two strip sprays are applied.

Insects. Red scale may be a problem and beginning in the third year is controlled with 8 to 10 applications of *Aphytis* spp. Wasps are first released in March and then every two weeks in April and May, once in June, September and October. The wasps are spread by hand, 10,000 per acre per application, taking 10 minutes per acre to apply. As the canopy fills in by the fourth or fifth year, Citricola scale can become a problem. It is assumed that treatment may be required every other year, therefore one-half the cost of applying oil is shown each year. Thrips and earwig treatments may be required when the trees start producing, but these pests have not been problems in the area.

Diseases. Bacterial or citrus blast may be an occasional problem, depending on orchard location. Generally blast is managed through pruning out infected shoots, and those pruning costs are included in overall pruning costs.

Vertebrates. Gophers can cause major losses to trees. Gophers are managed with the use of poison bait applied once per month from May to October. Deer fencing is necessary in many areas during the period of tree establishment in order to prevent excessive damage to the trees.

Harvest. Fruit produced in the second and third year is removed before maturing and discarded. Beginning in the fourth year, the fruit is picked into lugs or bins. Growers use family labor, local labor, or some may hire contract labor. Estimated picking time for three to five year old trees is 15 to 20 minutes per tree per season. The grower furnishes shears, picking bags, and ladders. If a labor contractor is used, the contractor furnishes the harvesting tools. The fruit is delivered to the onsite packing shed.

Table B. Estimated Annual Yields

Year	lbs/tree	lbs/acre	cartons*/acre	% No. 1
4	11	2,228	89	20
5	35	6,910	276	30
6	36	7,059	282	40
7	52	10,207	408	50
8	94	18,592	744	60
9	153	30,200	1,208	70
10	117	23,161	926	80
11	154	30,517	1,221	80
12+	135	26,730	1,069	80

*25 lbs

Yields and Returns. Satsuma Mandarins begin bearing an economic crop in the fourth year. The fruit, based upon texture, appearance and size, is graded into number ones and twos. Appearance is the primary difference between the two grades. Most fruit are number twos from the fourth to seventh year. The estimated yields and grading percents shown in Table B were calculated from local grower information and yield data from the Lindcove Field Research Station in Tulare County. From the data presented, the effects of alternate bearing are seen beginning in the ninth or tenth year, but may not be true in all situations.

Mature Production Cultural Practices and Material Inputs

Tables 2 – 8

Pruning. The grower does maintenance pruning throughout the year. Trees are maintained at a height where they can be picked from a six foot ladder. For this study, pruning is done in May at 30 minutes per tree. The prunings are pushed out of the orchard with a tractor and bucket, stacked in piles and burned. To push and burn takes 15 minutes per tree with one man on the tractor and one on the ground.

Irrigation. Water is gravity fed through a filtration system into microsprinklers. Water in the district is sold by the miner’s inch, which is a continuous flow of water throughout the season through an approved measuring device, equivalent to 11.25 gallons per minute. The farmer is billed for this flow regardless of the amount used on the orchard. The summer water is available from mid April to mid October. For this farm, the flow is five miner’s inches per month (1 miner’s inch per acre) and during the winter if available, the flow is 1 miner’s inch per month (0.2 miner’s inches per acre). The grower is charged \$38.24 per miner’s inch per month for summer water and \$48.65 for winter water. The grower also pays \$6.65 per month (\$1.33 per acre) for a Capital Facilities Charge. The orchard is irrigated weekly and the cost includes the water and irrigation labor at 1.35 hours per acre per irrigation. Irrigation labor includes walking the lines, cleaning the water box twice a week and flushing the filters. Seasonal maintenance to repair the lines and valves is done in March or April at the beginning of the season. No assumption is made about effective rainfall, evaporation, and runoff.

Fertilization. Mature trees require one half to three quarters pound of nitrogen (N) per tree. An NPK fertilizer, 15-15-15 at 125 pounds per acre (18.75 lbs N) is ground applied in March and again in May. Low biuret urea at 108 pounds per acre (50 lbs N) plus zinc sulfate and manganese sulfate each at 2.50 pounds are foliar applied before bloom in early April and again after petal fall in late April. In July or August, 6-24-24 is ground applied at 200 pounds per acre (12 lbs N).

Leaf Nutrient Analysis. Leaf samples for nutrient analysis are taken in September every other year. In this study, one sample per five acres is taken for complete analysis and one-half of the cost is charged each year. Also, if using well water, water analysis should be done periodically to determine nitrate availability. Fertilizer rates in this study do not take into account soil and water nitrogen.

Pest Management. The pesticides, rates, and application practices mentioned in this cost study are listed on the UC IPM website at www.ipm.ucdavis.edu. 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 or contact your county farm advisor. 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. The adjuvants are not included in this study.

Pest Control Adviser (PCA). Written recommendations may be required for pesticides and are available from licensed pest control advisers. In addition the PCA or an independent consultant will monitor the field for agronomic problems including irrigation and nutrition. Growers may hire private PCAs or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. No cost is shown for a PCA in this study as none serve area citrus growers.

Weeds. The orchard is mowed eight times – one time per month from March through October. Two strip sprays (Roundup) are applied to the tree row between April and October.

Diseases. Brown rot and citrus blast may occasionally be a problem at which time a copper/zinc sulfate spray may be needed. Rind breakdown is a physiological problem and can be controlled with antitransparents (Cloud Cover, Vapor Gard) or oil applied in November when fruit changes color and before rainfall.

Insects. California Red Scale can be a problem and is controlled with mass releases of *Aphytis* wasps. Wasps are applied at 10,000 per acre at two week intervals starting in March continuing through June or early July and then two or three times in September and October. The timing of releases is weather dependent, and the goal is to release a total of 100,000 wasps per acre per year. Given weather variation, 8 releases (totaling 80,000 wasps) are realistic, so that is the number used to calculate costs in this study. *Citricola* scale is a problem in some years and is primarily controlled by pruning. It is assumed that on average, spray treatment is required in alternate years. Therefore, one-half of the cost of the application and spray oil is charged to the budget each year. Ants may be an occasional problem and they can contribute to the scale problem. Bait may be used for ant control, but as it is only occasionally needed, its cost is not included in the study. Thrips may be a problem in some orchards, but treatments occur only rarely because most fruit is sold locally and minor thrips damage has little effect on the direct market price.

Vertebrates. Gophers can cause major losses to trees. Gophers are managed with the use of poison bait applied with a probe that inserts the bait into underground gopher runs. Bait is applied once per month from May to October. The grower uses the ATV to deliver the bait. The baiter or probe cost (\$230 - \$250) is included in the Tools inventory under Non-Cash Overhead.

Harvest. The fruit is picked three to five times from November through December. Estimated picking time for six to 10-year-old trees is one hour per season. Older large trees may take up to five hours per season. In this study, the picker picks from a six foot ladder and it is assumed that each picker picks 120 pounds per hour. Fruit is picked into lugs or bins. One of the pickers drives the tractor and lug box trailer that holds 20 boxes to the onsite packing shed. Each round-trip to the packing shed takes approximately 10 minutes. Growers use family labor and/or local labor to harvest the crop.

Yields and Returns. Mandarins are alternate bearing; producing large yields in an “on” year and a reduction of 50% or more during the alternate or “off” year. Growers in the region estimate yields for mature

trees at 150 to 200 pounds per tree (“on” year) and a reduction of 50% or more during the off year. In this study, an average yield of the on and off years at 135 pounds per tree over the two years is used to calculate returns. Returns over a range of prices and yields are shown in Table 5. Based on texture, appearance and size, the fruit is graded into number ones and twos. Mature trees yield approximately 80% number ones and 20% number twos. The grower delivers and sells 10% of the fruit (No. 1s) to the wholesale market at \$0.85 per pound. There is no market for number 2s on the wholesale market. Retail returns (on-farm & farmer market sales) for number ones are \$1.20 per pound and \$0.70 per pound for number twos. Based on 10% wholesale, 70% retail number 1s and 20% number 2s yields a weighted average of \$1.065 per pound. The weighted average is rounded to \$1.06 in the ranging analysis based on the above percentage.

Packing. The grower has a small packing shed on site. Packing costs include the sorting, packing, bag and carton costs. Number ones may be sold in 5 or 10 pound mesh bags or packed in various carton weights. Some fruit are sold as orchard run, a mixture of Number 1s and 2s together. Number 2s are generally not sold in cartons or mesh bags. They are sold by the pound or lug to customers who bring their own containers to transfer fruit. Lugs are 35 pound plastic lugs or 40 pound wooden lugs. It takes approximately 6 minutes per 10 pound bag for sorting and packing. This includes time for handling the number 2s.

Selling. Many growers in the area market and sell their own produce. Selling and marketing costs include advertising, delivery, and/or shipping costs, bookkeeping and other related costs such as a scale for weighing and are included in Cash Overhead. Over a ten-week period, approximately 10% of the crop will be delivered to stores for resale. The remaining 90% (70% No. 1s and 20% No. 2s) of the fruit is sold at Farmers Markets or on the farm.

Wholesale. The grower uses his pickup to deliver mandarins to markets, stores, or other sales outlets. It is assumed that one trip per week is made and takes two hours (0.40 hours per acre) which includes loading and unloading.

Farmers’ Market. The grower rents a stall at a farmers’ market three times per week at \$30 per market (\$6 per acre) over a 10 week period. It takes two hours travel time (0.40 hrs per acre) and then the grower spends 6 hours (1.2 hrs per acre) at each market which includes set up and breakdown.

On Farm Sales. One person is available 4 hours per day (0.8 hrs per acre), 5 days per week (1 day per acre) to sell the fruit.

Assessment. The Citrus Research Board charges \$0.0235 per 55-pound box delivered to a packer or processor. Most growers market their own citrus, so no assessment is paid.

Pickup/ATV. The study assumes business use mileage of 3,000 miles per year for the pickup in addition to market deliveries where the pickup cost is included. The ATV is used for spot spraying (weeds), baiting ants and gophers and is included in those costs. Additional ATV use for checking the orchard, pest monitoring, and irrigation system is shown as an operation (ATV use).

Labor, Equipment and Interest

Labor. Hourly wages for workers are \$11.50 for machine operators and \$10.00 per hour non-machine labor. Adding 37% for the employer’s share of federal and state payroll taxes, workers’ compensation insurance for citrus (code 0016) and a percentage for other possible benefits gives the labor rates shown of \$15.75 and \$14.39 per hour for machine labor and non-machine labor, respectively. Workers’ compensation costs will vary among growers, but for this study the cost is based upon the average industry final rate as of January 1, 2008 (personal

email from California Department of Insurance, March 2008, unreferenced). Labor for operations involving machinery are 20% 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 Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum power takeoff (PTO) horsepower, and fuel type. Prices for on-farm delivery of red-dye diesel and gasoline are \$3.54 (excludes excise taxes) and \$3.57 per gallon, respectively. The fuel prices are the average costs from November 2007 through April 2008 derived from American Automobile Association (AAA) and Energy Information Administration monthly data. The diesel fuel cost includes a 2.5% local sales tax and gasoline includes federal and state excise taxes and 8% sales tax. Gasoline also includes federal and state excise tax, which are refundable for on-farm use when filing your income tax. The fuel, lube, and repair cost per acre for each operation in Table 3 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% higher than implement time for a given operation to account for setup, travel and down time.

Interest on Operating Capital. Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 6.75% per year. A nominal interest rate is the typical market cost of borrowed funds. The interest cost of post harvest operations is discounted back to the last harvest month using a negative interest charge. The rate will vary depending upon various factors, but the rate in this study is considered a typical lending rate by a farm lending agency as of April 2008.

Risk. The risks associated with crop production should not be minimized. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic, market, and weather risks, which affect profitability and economic viability.

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.

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

Insurance. Insurance for farm investments varies depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.74% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$453 per farm. Customer liability is additional liability insurance to cover customer accidents that may occur while on the farm to purchase mandarins. Based on grower input, for both farm and customer liability, insurance costs \$1,200 for the entire farm. Costs will vary depending on the coverage and customer interaction on the farm – on the farm to purchase at a stand or pick your own fruit.

Watershed Fees. Growers are required to belong to a watershed coalition or get their own discharge permit from the Regional Water Quality Control Board, which is extremely costly. The watershed coalition, charges an annual fee of \$55 per farm plus \$0.50 per irrigated acre for watershed management and planning.

Office Expense. Office and business expenses are estimated at \$350 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, shop and office utilities, and miscellaneous administrative charges.

Advertising/Marketing. The grower belongs to several local organizations to promote the farm and product. PlacerGrown charges \$60 per grower, Foothill Farmers' Market Association, \$80 per grower, Farm Bureau, \$80 per grower and Mountain Mandarin Growers Association, \$150 per grower. Costs of \$250 are included for website maintenance and \$280 for miscellaneous advertising and marketing.

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

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

Non-Cash Overhead Costs

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

Capital Recovery Costs. Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase 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 Engineers (ASAE) based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASAE by the annual hours of use in this operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value for land is the purchase price because land does not depreciate. The purchase price and salvage value for equipment and investments are shown in 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 4.25% is used to calculate capital recovery. The rate will vary depending upon loan amount and other lending agency conditions, but is the basic suggested rate by a farm lending agency as of April 2008.

Establishment Cost. Costs to establish the orchard are used to determine capital recovery expenses, depreciation, and interest on investment for the production years. Establishment cost is the sum of the costs for land preparation, planting, trees, cash overhead, and production expenses for growing the trees through the first year that mandarins are harvested, minus any returns from production. The Total Accumulated Net Cash Cost on Table 1, in the fourth year represents the establishment cost. For this study the cost is \$22,027 per acre or

\$110,135 for the five-acre orchard. The establishment cost is spread over the remaining 36 years of the 40 years the orchard is in production. Establishment costs in this study are based on typical basic operations, but can vary considerably, depending upon terrain, soil type, local regulations, and other factors. For example, development on marginal soils will require additional land preparation and soil amendments. Management/development companies will have additional labor costs.

Irrigation System. The filtration/injector station is installed with the irrigation system at planting. The filtration station, fertilizer injector system, microsprinklers and the labor to install the components are included in the irrigation system cost. Microsprinkler lines are laid out after planting. The system is pressurized by gravity feed. The irrigation system is considered an improvement to the property and has a 40-year life.

Land. Land in this study is valued at \$100,000 per acre, based on grower input from recent sales.

Building. The building complex is assumed to be 2,400 square feet of metal buildings and sheds on cement slabs. The building complex includes a packing shed area.

Tools. This includes shop and packing shed equipment and tools, hand tools, and miscellaneous field tools - pruning, picking, gopher baiter. The value is an approximation and not based on a specific inventory.

Fuel Tanks. One 100-gallon fuel tank using gravity feed. The tank is set up 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 40% to indicate a mix of new and used equipment. Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. Both of the overhead factors have been discussed in previous sections. The operating costs consist of repairs, fuel, and lubrication and are discussed under operating costs.

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

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

UC COOPERATIVE EXTENSION
Table 1. COSTS TO ESTABLISH A MANDARIN ORCHARD
 INTERMOUNTAIN - SIERRA NEVADA FOOTHILLS 2008

	Yield (lbs/acre)					
	Year:	1st	2nd	3rd	4th	5th
No 1s:					446	2073
No 2s:					1,782	4,837
Planting Costs:						
Fertilize: Soil Sample & Analysis		16				
Soil Amendments: (lime, gypsum)		299				
Land Prep: Rip 3 ways (custom)		600				
Land Prep: Disc 2X		20				
Land Prep: Float 2X		18				
Plant: Layout, Plant, Stake, Wrap Trees, Compost		1,960	20			
Trees: 198 Per Acre (1% Replant In 2nd Year)		2,008	20			
TOTAL PLANTING COSTS		4,922	40			
Cultural Costs:						
Irrigate: (water & labor)		417	509	509	509	509
Weed: Mow Middles (Yr 1, 5X. Yr 2+, 8X)		34	54	54	54	54
Irrigation: Seasonal Maintenance on System			36	36	36	36
Fertilize: (15-15-15)			174	174	174	174
Fertilize: (6-24-24)			127	127	127	127
Prune: Sucker (hand)			475	475	950	950
Weed: Spray Tree Rows (Roundup)			25	51	51	51
Vertebrate: Gopher (Bait)			39	39	39	39
Insects: Red Scale (predatory wasps)				119	119	119
Fertilize: Leaf Analysis (alternate years, 1/2 cost shown)					5	5
Fertilize: Foliar (Urea, Mn, Zn) 1X						82
Insects: Citricola (Oil) alternate yrs, 1/2 cost shown						142
Pickup Use (business use on & off road)		305	305	305	305	305
ATV Use		43	197	197	236	314
TOTAL CULTURAL COSTS		800	1,942	2,086	2,605	2,908
Harvest Costs:						
Discard Fruit				14		
Pick (pickers & trailers)					504	559
Sort & Pack					99	379
Sell at Farmers Markets (pickup, rent, labor)					142	142
TOTAL HARVEST COSTS				14	745	1,080
Interest On Operating Capital @ 6.75%		322	79	83	112	127
TOTAL OPERATING COSTS/ACRE		6,043	2,061	2,184	3,462	4,114
Cash Overhead Costs:						
Office Expense		350	350	350	350	350
Liability Insurance		240	240	240	240	240
Watershed Fees		12	12	12	12	12
Advertisement/Marketing					180	180
Property Taxes		1,177	1,174	1,174	1,182	1,184
Property Insurance		131	129	129	134	136
Investment Repairs		555	555	555	579	579
TOTAL CASH OVERHEAD COSTS		2,464	2,459	2,459	2,677	2,680
TOTAL CASH COSTS/ACRE		8,507	4,520	4,643	6,139	6,794
INCOME/ACRE FROM PRODUCTION					1,783	5,874
NET CASH COSTS/ACRE FOR THE YEAR		8,507	4,520	4,643	4,356	921
PROFIT/ACRE ABOVE CASH COSTS						
ACCUMULATED NET CASH COSTS/ACRE		8,507	13,027	17,670	22,027	22,948

UC COOPERATIVE EXTENSION

Table 1. continued

	Yield (lbs/acre)					
	Year:	1st	2nd	3rd	4th	5th
No 1s:					446	2,073
No 2s:					1,782	4,837
Non-Cash Overhead: (Capital Recovery) Costs:						
Buildings		1,144	1,144	1,144	1,144	1,144
Fuel Tank		22	22	22	22	22
Shop/Field Tools		388	388	388	388	388
Land		4,250	4,250	4,250	4,250	4,250
Micro Irrigation System		66	66	66	66	66
Plastic Lug Boxes					274	274
Equipment		541	502	502	523	553
TOTAL NON-CASH OVERHEAD COST/ACRE		6,410	6,371	6,371	6,666	6,696
TOTAL COST/ACRE FOR THE YEAR		14,917	10,892	11,014	12,805	13,490
INCOME/ACRE FROM PRODUCTION					1,783	5,874
TOTAL NET COST/ACRE FOR THE YEAR		14,917	10,892	11,014	11,022	7,616
NET PROFIT/ACRE ABOVE TOTAL COST						
TOTAL ACCUMULATED NET COST/ACRE		14,917	25,809	36,824	47,846	55,462

UC COOPERATIVE EXTENSION
Table 2. COSTS PER ACRE TO PRODUCE MANDARINS
 INTERMOUNTAIN - SIERRA NEVADA FOOTHILLS 2008

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre				Total Cost	Your Cost
		Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent		
Cultural:							
Irrigate: Weekly (water & labor)	14.90	214	0	295	0	509	
Fertilize: (15-15-15)	1.00	19	11	145	0	174	
Disease: Red Scale (wasps)	1.60	23	0	96	0	119	
Weed: Mow Middles 8X	1.77	33	21	0	0	54	
Irrigate: Seasonal Maintenance	2.50	36	0	0	0	36	
Fertilize: Foliar (Urea, Mn, Zn) 2X	0.92	17	10	136	0	164	
Prune: Hand	99.00	1,425	0	0	0	1,425	
Prune: Discard Prunings (haul out & burn)	25.00	832	268	0	0	1,101	
Weed: Spray Tree Row (Roundup) 2X	1.02	19	1	31	0	51	
Vertebrate: Gopher (bait) 6X	1.50	28	1	10	0	39	
Fertilize: (06-24-24)	0.50	9	5	112	0	127	
Insect: Citricola Scale (Oil) (alternate yrs, 1/2 cost)	0.23	4	2	135	0	142	
Fertilize: Leaf Analysis. (alternate yrs, 1/2 cost)	0.10	1	0	0	4	5	
Pickup Use	10.00	189	116	0	0	305	
ATV Use	24.00	454	18	0	0	472	
TOTAL CULTURAL COSTS	184.04	3,305	454	960	4	4,722	
Harvest:							
Pick Fruit 4X (pick & haul to shed)	5.56	3,674	58	0	0	3,731	
Pack & Sort	214.00	3,079	0	855	0	3,935	
Sell (Farmers Market, Farm, Wholesale)	56.00	1,396	186	180	0	1,762	
TOTAL HARVEST COSTS	275.56	8,149	244	1,035	0	9,428	
Interest on operating capital @ 6.75%						278	
TOTAL OPERATING COSTS/ACRE		11,455	697	1,995	4	14,428	
CASH OVERHEAD:							
Office Expense						350	
Liability Insurance						240	
Watershed Fees						12	
Advertising/Membership Fees						180	
Property Taxes						1,296	
Property Insurance						219	
Investment Repairs						689	
TOTAL CASH OVERHEAD COSTS						2,985	
TOTAL CASH COSTS/ACRE						17,414	
NON-CASH OVERHEAD:							
Investment		Per producing Acre		Annual Cost Capital Recovery			
Buildings		19,200		1,144		1,144	
Fuel Tank		300		22		22	
Tools/Equipment		7,000		388		388	
Land		100,000		4,250		4,250	
Irrigation System (micro sprinklers)		1,250		66		66	
Plastic Lugs (550)		1,210		274		274	
Establishment Cost		22,027		1,206		1,206	
Equipment		6,891		580		580	
TOTAL NON-CASH OVERHEAD COSTS		157,878		7,928		7,928	
TOTAL COSTS/ACRE						25,342	

X=number of times (passes)

UC COOPERATIVE EXTENSION
Table 3. COSTS AND RETURNS PER ACRE TO PRODUCE MANDARINS
 INTERMOUNTAIN - SIERRA NEVADA FOOTHILLS 2008

Quantity/Acre		Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
#1s Retail (Farm, Farmers Market)	18,711.00	lb	1.20	22,453	
#1s Wholesale	2,673.00	lb	0.85	2,272	
#2s Retail (Farm, Farmers Market)	5,346.00	lb	0.70	3,742	
TOTAL GROSS RETURNS	26,730.00	lb		28,467	
OPERATING COSTS					
Irrigation:					
Water - Winter (miners inch)	1.00	mnin	49.60	50	
Water - Summer (miners' inch)	6.00	mnin	38.24	229	
Water - Capital Facilities Charge	2.40	acin	6.65	16	
Herbicide:					
Roundup Ultra	4.00	pint	7.65	31	
Fertilizer:					
15-15-15	250.00	lb	0.58	145	
Urea Low Biuret	216.00	lb	0.58	125	
Zinc Sulfate 36%	5.00	lb	1.15	6	
Manganese Sulfate 31%	5.00	lb	1.07	5	
6-24-24 XB	200.00	lb	0.56	112	
Leaf Analysis (alternate yrs, 1/2 cost)	0.10	each	35.00	4	
Rodenticide:					
Wilco Gopher Getter Type II	1.50	lb	6.40	10	
Insecticide/Predatory Insects:					
Aphytis Wasps	80.00	thou	1.20	96	
Spray Oil 415 (alternate yrs, 1/2 cost)	5.00	gal	27.00	135	
Packing/Selling:					
Bag 10 lb	2,138.00	each	0.40	855	
Stall Rental (Farmers Market)	6.00	day	30.00	180	
Labor (machine)	104.99	hrs	15.75	1,654	
Labor (non-machine)	681.10	hrs	14.39	9,801	
Fuel - Gas	66.82	gal	3.57	239	
Fuel - Diesel	85.00	gal	3.54	301	
Lube				81	
Machinery repair				77	
Interest on operating capital @ 6.75%				278	
TOTAL OPERATING COSTS/ACRE				14,428	
NET RETURNS ABOVE OPERATING COSTS				14,039	
CASH OVERHEAD COSTS:					
Office Expense				350	
Liability Insurance				240	
Watershed Fees				12	
Advertising/Membership Fees				180	
Property Taxes				1,296	
Property Insurance				219	
Investment Repairs				689	
TOTAL CASH OVERHEAD COSTS/ACRE				2,985	
TOTAL CASH COSTS/ACRE				17,414	

UC COOPERATIVE EXTENSION

Table 3. continued

Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
NON-CASH OVERHEAD COSTS				
Buildings			1,144	
Fuel Tank			22	
Tools/Equipment			388	
Land			4,250	
Irrigation System (micro sprinklers)			66	
Plastic Lugs (550)			274	
Establishment Cost			1,206	
Equipment			580	
TOTAL NON-CASH OVERHEAD COSTS/ACRE			7,928	
TOTAL COSTS/ACRE			25,342	
NET RETURNS ABOVE TOTAL COSTS			3,126	

UC COOPERATIVE EXTENSION

Table 4. MONTHLY CASH COSTS PER ACRE TO PRODUCE MANDARINS
INTERMOUNTAIN - SIERRA NEVADA FOOTHILLS 2008

Beginning JAN 08	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending DEC 08	08	08	08	08	08	08	08	08	08	08	08	08	
Cultural:													
Irrigate: Weekly (water & labor)	31	31	31	31	59	59	59	59	59	31	31	31	509
Fertilize: (15-15-15)			87		87								174
Disease: Red Scale (wasps)			15	30	30	15			15	15			119
Weed: Mow Middles 8X			7	7	7	7	7	7	7	7			54
Irrigate: Seasonal Maintenance				36									36
Fertilize: Foliar (Urea, Mn, Zn) 2X				164									164
Prune: Hand					1,425								1,425
Prune: Discard Prunings (haul out & burn)					1,101								1,101
Weed: Spray Tree Row (Roundup) 2X					25		25						51
Vertebrate: Gopher (bait) 6X					7	7	7	7	7	7			39
Fertilize: (06-24-24)							127						127
Insect: Citricola Scale (Oil) (alternate yrs, 1/2 cost)							142						142
Fertilize: Leaf Analysis. (alternate yrs, 1/2 cost)									5				5
Pickup Use	25	25	25	25	25	25	25	25	25	25	25	25	305
ATV Use	39	39	39	39	39	39	39	39	39	39	39	39	472
TOTAL CULTURAL COSTS	95	95	204	331	2,805	152	431	137	157	123	95	95	4,722
Harvest:													
Pick Fruit 4X (pick & haul to shed)											1,866	1,866	3,731
Pack & Sort											1,967	1,967	3,935
Sell (Farmers Market, Farm, Wholesale)											881	881	1,762
TOTAL HARVEST COSTS											4,714	4,714	9,428
Interest on operating capital @ 6.75%	1	1	2	4	20	21	23	24	25	25	53	80	278
TOTAL OPERATING COSTS/ACRE	96	97	207	336	2,824	173	454	161	182	149	4,862	4,889	14,428
OVERHEAD:													
Office Expense	29	29	29	29	29	29	29	29	29	29	29	29	350
Liability Insurance	240												240
Watershed Fees			12										12
Advertising/Membership Fees	15	15	15	15	15	15	15	15	15	15	15	15	180
Property Taxes	648						648						1,296
Property Insurance	109						109						219
Investment Repairs	57	57	57	57	57	57	57	57	57	57	57	57	689
TOTAL CASH OVERHEAD COSTS	1,099	102	113	102	102	102	859	102	102	102	102	102	2,985
TOTAL CASH COSTS/ACRE	1,195	198	320	437	2,926	274	1,313	263	283	251	4,964	4,991	17,414

UC COOPERATIVE EXTENSION
Table 5. RANGING ANALYSIS
 INTERMOUNTAIN - SIERRA NEVADA FOOTHILLS 2008

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE MANDARINS

	YIELD (lbs/acre)						
	20,730	22,730	24,730	26,730	28,730	30,730	32,730
OPERATING COSTS/ACRE:							
Cultural Cost	4,722	4,722	4,722	4,722	4,722	4,722	4,722
Harvest Cost (pick & haul)	2,894	3,173	3,452	3,731	4,011	4,290	4,569
Harvest Cost (pack & sort)	3,051	3,346	3,640	3,935	4,229	4,523	4,818
Harvest Cost: (Sell Farmer Market, Farm, Wholesale)	1,652	1,689	1,726	1,762	1,799	1,835	1,872
Interest on operating capital @ 6.75%	263	268	273	278	283	288	293
TOTAL OPERATING COSTS/ACRE	12,582	13,198	13,813	14,428	15,044	15,658	16,274
TOTAL OPERATING COSTS/lb	0.61	0.58	0.56	0.54	0.52	0.51	0.50
CASH OVERHEAD COSTS/ACRE	2,985	2,985	2,985	2,985	2,985	2,985	2,985
TOTAL CASH COSTS/ACRE	15,567	16,183	16,798	17,413	18,029	18,643	19,259
TOTAL CASH COSTS/lb	0.75	0.71	0.68	0.65	0.63	0.61	0.59
NON-CASH OVERHEAD COSTS/ACRE	7,929	7,928	7,928	7,928	7,928	7,928	7,928
TOTAL COSTS/ACRE	23,496	24,111	24,726	25,341	25,957	26,571	27,187
TOTAL COSTS/lb	1.13	1.06	1.00	0.95	0.90	0.86	0.83

NET RETURNS PER ACRE ABOVE OPERATING COSTS

*Weighted Average \$/lb	YIELD (lbs/acre)						
	20,730	22,730	24,730	26,730	28,730	30,730	32,730
0.88	5,660	6,804	7,949	9,094	10,238	11,384	12,528
0.94	6,904	8,168	9,433	10,698	11,962	13,228	14,492
1.00	8,148	9,532	10,917	12,302	13,686	15,072	16,456
1.06	9,392	10,896	12,401	13,906	15,410	16,916	18,420
1.12	10,636	12,260	13,885	15,510	17,134	18,760	20,384
1.18	11,879	13,623	15,368	17,113	18,857	20,603	22,347
1.24	13,123	14,987	16,852	18,717	20,581	22,447	24,311

NET RETURNS PER ACRE ABOVE CASH COSTS

*Weighted Average \$/lb	YIELD (lbs/acre)						
	20,730	22,730	24,730	26,730	28,730	30,730	32,730
0.88	2,675	3,819	4,964	6,109	7,253	8,399	9,543
0.94	3,919	5,183	6,448	7,713	8,977	10,243	11,507
1.00	5,163	6,547	7,932	9,317	10,701	12,087	13,471
1.06	6,407	7,911	9,416	10,921	12,425	13,931	15,435
1.12	7,651	9,275	10,900	12,525	14,149	15,775	17,399
1.18	8,894	10,638	12,383	14,128	15,872	17,618	19,362
1.24	10,138	12,002	13,867	15,732	17,596	19,462	21,326

NET RETURNS PER ACRE ABOVE TOTAL COSTS

*Weighted Average \$/lb	YIELD (lbs/acre)						
	20,730	22,730	24,730	26,730	28,730	30,730	32,730
0.88	-5,254	-4,109	-2,964	-1,819	-675	471	1,615
0.94	-4,010	-2,745	-1,480	-215	1,049	2,315	3,579
1.00	-2,766	-1,381	4	1,389	2,773	4,159	5,543
1.06	-1,522	-17	1,488	2,993	4,497	6,003	7,507
1.12	-278	1,347	2,972	4,597	6,221	7,847	9,471
1.18	965	2,710	4,455	6,200	7,944	9,690	11,434
1.24	2,209	4,074	5,939	7,804	9,668	11,534	13,398

*Weighted average based on 80% No. 1s (70% retail + 10% wholesale) & 20% No. 2s.

UC COOPERTIVE EXTENSION

Table 6. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
INTERMOUNTAIN - SIERRA NEVADA FOOTHILLS 2008

ANNUAL EQUIPMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
					Insur- ance	Taxes	
08 45 HP 4WD Tractor	32,000	20	4,106	2,273	134	181	2,587
08 ATV 4WD	7,500	10	2,215	754	36	49	838
08 ATV Sprayer 20 gal	250	15	24	22	1	1	24
08 Loader Bucket	4,539	20	237	334	18	24	375
08 Mower -Rotary 5 ft	4,500	20	235	331	18	24	372
08 Pickup 1/2 Ton	28,000	10	8,271	2,814	134	181	3,130
08 Spreader-Fertilizer 3 point	800	10	141	88	3	5	96
08 Sprayer-Orchard PTO 3 point, 100 gal	5,075	20	265	373	20	27	420
08 Trailer for Field Use	3,500	20	182	257	14	18	289
TOTAL	86,164	0	15,676	7,246	377	509	8,132
40% of New Cost *	34,466	0	6,270	2,898	151	204	3,253

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

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insur- ance	Taxes	Repairs	
Buildings (2400 sqft)	96,000	30		5,721	355	480	1,920	8,477
Establishment Cost	110,135	36		6,028	408	551	550	7,536
Fuel Tank	1,500	20	150	108	6	8	30	152
Land (10 acres)	1,000,000	40	1,000,000	42,500	0	10,000	0	52,500
Irrigation System (micro sprinkler)	6,250	40		328	23	31	125	507
Plastic Lug Boxes (35 lb) (550 boxes)	6,050	5		1,369	22	30	121	1,542
Tools/Field & Shop	35,000	35		1,939	130	175	700	2,944
TOTAL INVESTMENT	1,254,935		1,000,150	57,993	944	11,275	3,446	73,658

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm		Price/ Unit	Total Cost
	Units	Unit		
Advertisement (Marketing Organizations)	5	acre	180.00	900
Liability Insurance	5	acre	240.00	1,200
Office Expense	5	acre	350.00	1,750
Watershed Fees	5	acre	11.50	58

UC COOPERATIVE EXTENSION
Table 7. HOURLY EQUIPMENT COSTS
 INTERMOUNTAIN - SIERRA NEVADA FOOTHILLS 2008

		COSTS PER HOUR							
Yr	Description	Actual	Cash Overhead			Operating		Total	Total Costs/Hr.
		Hours Used	Capital Recovery	Insur- ance	Taxes	Repairs	Fuel & Lube	Oper.	
08	45 HP 4WD Tractor	192	4.72	0.28	0.38	0.40	9.00	9.40	14.78
08	ATV 4WD	133	2.27	0.11	0.15	0.48	0.27	0.75	3.28
08	ATV Sprayer 20 gal	5	1.71	0.08	0.11	0.04	0.00	0.04	1.94
08	Loader Bucket	125	1.07	0.06	0.08	0.40	0.00	0.40	1.61
08	Mower -Rotary 5 ft	9	14.90	0.79	1.07	1.37	0.00	1.37	18.13
08	Pickup 1/2 Ton	130	8.66	0.41	0.56	1.37	10.26	11.63	21.26
08	Spreader-Fertilizer 3 point	8	4.71	0.19	0.25	0.10	0.00	0.10	5.25
08	Sprayer-Orchard PTO 3 point, 100 gal	6	26.04	1.38	1.86	0.56	0.00	0.56	29.84
08	Trailer for Field Use	28	3.70	0.20	0.26	0.00	0.00	0.00	4.16

UC COOPERATIVE EXTENSION
Table 8. OPERATIONS WITH EQUIPMENT and MATERIALS
 INTERMOUNTAIN - SIERRA NEVADA FOOTHILLS 2008

Operation	Operation		Field Labor		Material	Broadcast	Unit	
	Month	Tractor	Implement	Hr/Acre		Rate/acre		
Irrigate (weekly)	January			1.35	Water	0.20	mnin	
	February			1.35	Water	0.20	mnin	
	March			1.35	Water	0.20	mnin	
	April			2.50	Maintenance			
	April			0.70	Water	0.50	mnin	
	May			1.35	Water	1.00	mnin	
	June			1.35	Water	1.00	mnin	
	July			1.35	Water	1.00	mnin	
	August			1.35	Water	1.00	mnin	
	September			1.35	Water	1.00	mnin	
	October			0.70	Water	0.50	mnin	
	November			1.35	Water	0.20	mnin	
December			1.35	Water	0.20	mnin		
Fertilize:	March	45HP	Spreader		15-15-15	125.00	lb	
	April	45HP	Sprayer Orchard		Urea Low Biuret	108.00	lb	
					Zinc Sulfate	2.50	lb	
					Manganese Sulfate	2.50	lb	
	April	45HP	Sprayer Orchard		Urea Low Biuret	108.00	lb	
					Zinc Sulfate	2.50	lb	
					Manganese Sulfate	2.50	lb	
	May	45HP	Spreader		15-15-15	125.00	lb	
	July	45HP	Spreader		6-24-24	200.00	lb	
	September			0.10	Leaf Analysis	Alt yrs		
Insect: Red Scale	March			0.20	Wasps	10.00	thou	
	April			0.20	Wasps	10.00	thou	
	April			0.20	Wasps	10.00	thou	
	May			0.20	Wasps	10.00	thou	
	May			0.20	Wasps	10.00	thou	
	June			0.20	Wasps	10.00	thou	
	September			0.20	Wasps	10.00	thou	
	October			0.20	Wasps	10.00	thou	
Insect: Citricola Scale (alternate years)	July	45HP	Sprayer Orchard		Spray Oil	5.00	gal	
Weed: Mow Middles	March	45HP	Mower					
	April	45HP	Mower					
	May	45HP	Mower					
	June	45HP	Mower					
	July	45HP	Mower					
	August	45HP	Mower					
	September	45HP	Mower					
	October	45HP	Mower					
	Weed: Spray Tree Row	May	ATV	ATV Sprayer		Roundup	2.00	pint
		July	ATV	ATV Sprayer		Roundup	2.00	pint
Prune: Hand	May			99.00				
Prune: Haul prunings out of field & burn	May	45HP	Loader Bucket	25.00				
Rodents: Gopher	May	ATV			Bait	0.25	lb	
	June	ATV			Bait	0.25	lb	
	July	ATV			Bait	0.25	lb	
	August	ATV			Bait	0.25	lb	
	September	ATV			Bait	0.25	lb	
	October	ATV			Bait	0.25	lb	

UC COOPERATIVE EXTENSION

Table 8. continued

Operation	Operation Month	Tractor	Implement	Field Labor Hr/Acre	Material	Broadcast Rate/acre	Unit
Harvest: Pick Fruit & Haul	November	45HP	Trailer	124.00			
	December	45HP	Trailer	124.00			
Harvest: Pack & Sort	November			107.00	Bags 10 lb	1,069.00	bag
	December			107.00	Bags 10 lb	1,069.00	bag
Sell: Farmers Market	November	Pickup		18.00	Stall Rental		
	December	Pickup		18.00	Stall Rental		
Sell: On Farm	November			20.00			
	December			20.00			
Sell: Wholesale	November	Pickup					
	December	Pickup					