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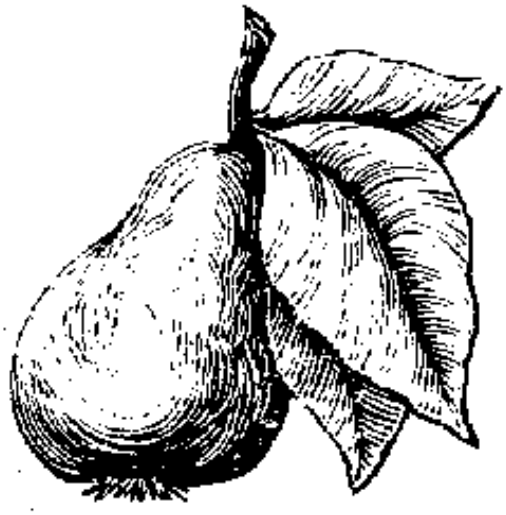
UNIVERSITY OF CALFORNIA COOPERATIVE EXTENSION

2010

SAMPLE COSTS TO PRODUCE

PEARS

Green Bartlett



SACRAMENTO VALLEY

Sacramento County

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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

SAMPLE COSTS TO PRODUCE PEARS
SACRAMENTO VALLEY - Sacramento County 2010

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Acknowledgements: Thank you to the Sacramento County Pear Growers and Pest Control Advisers for their input and reviews.

INTRODUCTION

Sample costs to produce pears in the Sacramento Valley – Sacramento County 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 these same practices will not apply to every situation. The sample costs for labor, materials, equipment and custom services are based on current figures. A blank column, "*Your Costs*", in Tables 1 and 2 is provided for entering your costs.

For an explanation of calculations used for the study refer to the Assumptions or call the Department of Agricultural and Resource Economics, University of California-Davis, (530) 752-3589 or the UC Cooperative Extension Farm Advisor in the county of interest**.**

Sample Cost of Production Studies for many commodities can be downloaded at http://coststudies.ucdavis.edu, requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-6887 or obtained from the local county UC Cooperative Extension offices. Some archived studies are also available on the website.

Assumptions

The following assumptions give background information relevant to the values shown in Tables 1 to 7 and pertain to sample costs for producing pears in the Sacramento Valley – Sacramento County. The cultural practices in this study represent typical production practices for this crop and area. The practices and inputs used in this cost study serve as a guide only. All costs and practices may not be applicable to your situation or used during every production year. Cultural practices vary by grower and region and variations can be significant. **Trade names and practices used in this report do not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products or practices.**

Farm. The hypothetical farm located on the valley floor in the Sacramento River Delta - Sacramento County is owned and operated by the owner. The 400 contiguous acre farm consists of 100 acres of pears, 290 acres of orchard and/or vine crops, and 10 acres for shop, equipment yard and roads. The orchard, established on land previously planted to a pear orchard, is on a loam soil, typical of the region.

Trees. The pear cultivar planted in this study is Green Bartlett on Winter Nellis rootstock, a favorable combination in Sacramento County. Bartlett is a dual-purpose pear, utilized for both fresh market and processing. The trees are planted on 9 X 18-foot spacing, 269 trees per acre. Pear trees have a long production life if they are well maintained. Pear orchards may have some trees over 100 years old still producing a commercial crop. The life of the orchard at the time of planting in this study is estimated to be 100 years.

Production Operating Costs

Replanting. An average of one tree per acre is replanted each year.

Pruning. A contract labor crew hand prunes during the winter months (December). Crews consist of 20 laborers and one foreman per crew. Prunings are chopped in February during the first mowing.

Irrigation. Growers in the area have riparian rights; however, the growers are members of the North Delta Water Agency, which costs $1.80 per acre. The main irrigation costs are pumping costs plus irrigation labor. The cost is based on using two 25 - 30 hp motors to pump 30 acre-inches from the river. Price per acre-foot of water will vary by grower in this region depending on power source, power cost, and other irrigation factors. In this study, the power cost is based on grower input costs of $160 per acre for a mature orchard and at 30 acre-inches calculates to $5.33 per acre-inch. No assumption is made about effective rainfall or runoff.

Fertilization. Tree nitrogen status is determined during the season by visual observation (shoot vigor and leaf color) and by leaf analysis taken in July. Nitrogen is applied in June and September. Nitrogen (N) as calcium nitrate at 90-100 pounds of actual N per acre is applied in June and as urea at 60 pounds of N per acre in September. Muriate of potash at 200 pounds of potassium (K) or 323 pounds of material per acre is applied in the fall (September/October). The grower using a tractor and rented fertilizer spreader makes all fertilizer applications.

Pest Management. The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Pears.* **Pesticides mentioned in the study are not recommendations, but those commonly used in the region.** For information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at http://coststudies.ucdavis.edu . For information and pesticide use permits, contact the local county agricultural commissioner's office.

Pest Control Adviser (PCA). Written recommendations are required for many pesticides and are made by licensed pest control advisers. In addition, the PCA may monitor the field for agronomic problems including pests and nutrition. Growers can hire private PCA's or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. In this study, the PCA is from an agricultural-chemical company, and a fee is charged for monitoring the pheromone traps.

Weeds. Residual and foliar herbicides (Goal, Karmex, and Roundup) are applied in November along a six-foot strip in the tree row. Two sprays with Roundup and Shark are applied to the tree rows during the growing season – April and July in this study. The row middles are mowed in February at which time the prunings are shredded, sprayed with Roundup in February approximately one-week after mowing, sprayed again in April and mowed in August after harvest.

Insects and Mites. Pests treated in this study are codling moth, pear psylla, and mites. All pest management operations are done by the growers with their own equipment.

Codling moth is considered the primary pear pest and its control can affect subsequent control of other pests. Pheromones for mating disruption and traps are hung in the orchard in April. The traps are monitored by a PCA. Delegate insecticide is applied in May or June. Codling moth sprays in the region range from one to three depending on population and year.

Pear psylla is an economically significant insect pear pest. Psylla is controlled with horticultural oil and/or Agri-Mek applied at various times during the year. Treatments made in this study include a dormant spray (oil) in December, one at cluster bud (Asana) in March, and a combination psylla and mite (Agri-Mek and oil) in April. The psylla injects a toxin into the tree, produces honeydew, and vectors the disease pear decline (caused by a mycoplasma) and if severe enough, can lead to yield reductions, smaller fruit size, and loss of tree vigor. Honeydew excreted by psylla can cause russetting on fruit and sooty mold on leaves. Pear decline is not considered a major problem if trees are grafted to a resistant rootstock.

Mites are controlled with the oil in the dormant spray. Control during the season is generally with the April pear psylla treatment where Agri-Mek and oil are applied for both psylla and mites. Mites can cause damage in pears even at low levels (two per leaf). In September or October a cleanup spray consisting of Sevin XLR, oil and Klean Aid are applied. Klean Aid is added as a cleaner for removing pear psylla excretions, etc.

Disease. Twelve treatments for fire blight are made at 3 to 4 day intervals or 2 applications weekly. Agrimycin plus Blight Ban applications are alternated with Mycoshield – one application of each will be applied each week from mid-March through April/early May. Blight Ban is not mixed with Agrimycin on the last two applications. Each application is made to alternate rows and is alternated so that each week both sides of the tree have been sprayed. Pesticides used to control fire blight and other pests are sometimes tank-mixed with other materials. During years of heavy disease pressure, fire blight may require 15 or more pesticide applications. In addition to pesticides, blight infections are cut out by hand in the spring (April, May, June). Fire blight symptoms usually appear first in blossom clusters and shoot tips and if left untreated, the infection can move into twigs, stems, and branches. Severe infection may not only cause loss of fruit, but may kill entire branches or trees.

Pear Scab is controlled with four fungicide treatments made in the spring prior to infection. Four scab sprays are applied in March and April. Three sprays with Dithane are tank mixed with the blight sprays and Sovran is applied alone. The Dithane is applied to alternate rows and the Sovran to every row. Pear scab is caused by a fungus that first attacks young fruit, appearing as dark velvety spots and often causing the young pears to drop.

If fruit does not drop, scabbing and deformities occur and cause reductions in quality. Pear scab can be a serious disease during cool, wet springs.

Vertebrate (Rodents) Pests. The major vertebrate pests in pear orchards for this region are voles and pocket gophers. They are managed using poison bait applied in the spring while populations are low. The bait is placed underground in an artificial burrow built by a mechanical bait applicator attached to a tractor and/or broadcast. Gophers intersecting the tunnels will explore them and eat the bait. Growers may also use trapping methods.

Growth Regulator. Liqui-Stik, a growth hormone, is applied 5 to 10 days prior to harvest to control pear drop for up to 4 weeks.

Miscellaneous Labor. Labor often called "busy labor" is charged to the crop. To keep a steady labor force, when there are lulls in the crop operation, growers often must keep the laborer working at odd jobs, such as hoeing around shop area, equipment yard and so forth.

Harvest. The crop is harvested with contract labor. Picking, sorting, and packing costs are paid by the grower. The harvest season for Green Bartlett is usually July to early August. The orchard is harvested twice. The first pick is selective and usually collects a third of the fruit, most of which will be sold on the fresh market. The second pick gathers the remaining pears about 10 days or two weeks later. Harvest crews use ladders and picking bags to hand pick fruit that is placed into half-ton field bins on bin trailers. The grower uses four contract crews at ten men each. Each man picks five 1,000-pound bins per 6.5 hour day. The contractor charges the grower $20 per bin plus 45% overhead. Each crew has one crew boss, two sorters and one tractor driver. The sorters and driver are hired by the grower and not the contractor. The tractor driver hauls the filled bins to the packing shed or staging area. The crew boss supervises the picking and moves the picking trailers around, when the tractor driver is hauling the fruit. The grower owns a forklift, rents a forklift and hires two forklift drivers. Two tractors and two bin trailers with four 1,000 pounds bins per trailer are assigned to each crew. The grower uses two of his tractors and rents six for one month. The grower owns the bin trailers and the bins are rented from the packinghouse at $1.50 per bin fill/use. The cost for ladders and picking bags is not included in the harvest costs but as a non-cash overhead investment with all costs charged to the pear orchard. The grower pays the custom hauling costs for fresh market fruit only; the processor pays for the fruit going to processing.

Yields. Typical annual yields for Green Bartlett pears are measured in tons per acre. Yields fall into three categories: fresh market, processed (canning/unrestricted grade), and off-grade (juice/restricted grade). The latter two categories are pears that will not make fresh market grades due to size, appearance or other damage, but can be used for canning or processing into juice, sauce or other processed pear products. Off-grade pears are used in juice, concentrate, fermented products, drying, and frozen goods.

An assumed yield of 22 tons per acre is used to calculate cost per ton. A typical yield range is 20 to 30 tons per acre. Yield maturity is reached in the tenth year. This report separates yields, based on Bartlett grower input, for the three different categories from gross tonnage as follows: fresh market - 50%, processed - 45%, and off-grade - 5%. Culls are not accounted for in this study.

Returns. Growers are paid for fruit based on gross field tons for different grades. Estimated net return prices per ton (price received from packer less packing shed costs) for the categories described above are fresh market, $200; canned, $240; and juice grade, $0 (no value). Use of return prices for pears is to calculate a ranging analysis for different yields and prices. Returns may vary during the season and from year to year. The yields and prices used are an estimate based on past markets.

Assessments. Under a state marketing order, mandatory assessment fees are collected and administered by the California Pear Advisory Board (CPAB). This assessment is charged to growers to pay for pest management and registrations, pear marketing and advertising. Rates are set for pears bound for both fresh and processed markets. This report uses CPAB assessments for the categories fresh market carton (36 lb) and processed unrestricted and restricted grades as shown in Table A.

Table A. California Pear Advisory Board Assessments - Bartlett Pears

Category	$/Unit	Unit
Fresh market		
Tight-fill carton	$0.320	36 lb
Standard box	$0.400	45 lb
Metric box	$0.356	40 lb
LA lug	$0.249	28 lb
Processed		
Unrestricted grades	$4.00	ton
Restricted grade	$1.50	ton
All other special products	$1.50	ton

Additionally, growers may also pay a voluntary assessment to the California Pear Growers (CPG). The CPG uses these funds to negotiate cannery pricing, lobby for school lunch purchases of canned pears and any other political lobbying which CPAB can't get involved. CPG charges members $2.00 per ton of processed fruit.

Pickup/ATV. The pickup is owned by the grower and used for personal and business use. It is assumed that 10,000 miles are for business miles applicable to this orchard. The ATV is used to inspect the orchard, to irrigate and monitor the irrigation system, and other assorted uses.

Labor, Equipment and Interest

Labor. Labor rates of $14.28 per hour for machine operators and $11.56 for general labor includes payroll overhead of 45% based on grower input. The basic hourly wages are $10.50 for machine operators and $8.50 for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for fruit orchards (code 0016), and a percentage for other benefits including housing and utilities. Workers' compensation costs will vary among growers, but for this study the cost is based upon the rate of local growers. Labor for operations involving machinery are 20% higher than the operation time given in Table 1 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

Equipment Operating Costs. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum Power Take Off (PTO) horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are $2.04 (excludes excise tax) and $2.67 per gallon, respectively. The cost includes a 2.5% local sales tax on diesel fuel and 7.5% sales tax on gasoline. The fuel prices are the 2009 average costs derived from the Energy Information Administration monthly data. Gasoline also includes federal and state excise tax, which are refundable for on-farm use when filing your income tax. The fuel, lube, and repair cost per acre for each operation in Table 1 is determined by multiplying the total hourly operating cost in Table 6 for each piece of equipment used for the selected operation by the hours per acre. Tractor time is 10% higher than implement time for a given operation to account for setup, travel and down time.

Interest On Operating Capital. Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 5.75% 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 January 2010.

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

Cash Overhead

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm and not to a particular operation.

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

Insurance. Insurance for farm investments varies depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.767% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs $1,006 for the entire farm.

Crop Insurance. Crop insurance is available and purchased by most growers. Grower reported costs range from $35 to $50 for 65% to 75% multiperil coverage that pays 65% to 75% of the grower's average production for that field, depending on percent coverage purchased.

Management/Supervisor Wage. Wages of $70,000 including 45% payroll overhead for the operator grower or farm manager are included as a cost in this study. The cost is allocated by acres to all crops. Returns above costs are also considered a return to management.

Office Expense. Office and business expenses are estimated at $200 per acre for the entire farm. These expenses include office supplies, telephones, bookkeeping, accounting, tax preparation, legal fees, shop and office utilities, safety training/records and training supplies, and miscellaneous administrative charges.

Reclamation Fee. The reclamation district manages the water drainage and charges $30 per acre.

Sanitation Services. Sanitation services provide portable toilets and washbasin for the pear orchard costs an average of $203 per month or $16.25 per acre. Two toilets are rented during pruning, three during harvest and one the rest of the season. The monthly service charge is an average of four to six California sanitation companies and locations. The cost includes delivery and 8 months of weekly service. Contract labor crews may furnish their own sanitation and included in their costs.

Safety. This includes safety training, record keeping, and safety equipment such as facemasks, goggles, and coveralls. An assumed cost is included in Office Expenses.

Investment Repairs. Annual maintenance on investments (buildings, irrigation system, etc.) listed under Non-Cash Overhead is calculated as 2% of the purchase price. A maintenance cost is not included for orchard establishment and land.

Non-Cash Overhead

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

Capital Recovery Costs. Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase 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 ((Purchase Price – Salvage Value) x Capital Recovery Factor) + (Salvage Value x 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 (Boelje 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.

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

Interest Rate. The interest rate of 4.75% is used to calculate capital recovery. The rate will vary depending upon loan size and other lending agency conditions. The rate is the suggested rate by a farm lending agency in January 2010.

Irrigation System. The cost is based on using two 25 - 30 hp motors to pump 30 acre-inches from the river with a lateral flow of 25 to 30 feet. Water is pumped to the orchard after running through a filtration station into an underground, permanent sprinkler system in the tree rows. Because an older orchard was removed at this location, pumps and wells already existed. The cost of the irrigation system is for refurbishing the pumps and motors, installing underground, permanent sprinklers and a new filtration system. The new irrigation system was installed after the orchard had been laid out, but prior to planting. The life of the irrigation system is estimated to be 25 years. The irrigation system is considered an improvement to the property.

Drainage System. Tile drains are installed underground in the field prior to planting.

Fuel Tanks. Two 500-gallon fuel tanks are placed on stands in cement containment meeting Federal, State, and local regulations. Fuel is delivered to the equipment by gravity feed.

Tools. Includes shop tools/equipment, hand tools and field tools such as pruning equipment.

Ladders/Picking Bags. Costs are for 50 picking bags and 50, ten-foot orchard ladders.

Building. The metal shop buildings comprise 2,400 square feet on a cement slab.

Land. Pear orchards range from $7,000 to $11,000 per acre whereas open land ranged from $3,000 to $10,700 per acre according to California Real Estate Appraisers "2009 Trends in Agricultural Land and Lease Values". Open land available for pear production in this study is valued at $6,000 per acre.

Establishment Cost. The cost to establish the orchard is used to determine the non-cash overhead expenses: depreciation and interest on investment for the production years. The establishment cost is the sum of cash costs for land preparation, planting, trees, production expenses, and cash overhead for growing pear trees through the first year fruit is harvested minus any returns from production. The Total Accumulated Net Cash Cost in the fifth year represents the establishment cost per acre. Establishment costs in this study are estimated, based on previous pear studies. The estimated cost is $9,500 per acre or $950,000 for the 100-acre orchard. Establishment cost is depreciated beginning in the sixth year over the remaining 95 years of production.

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

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

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Table 1. COSTS PER ACRE TO PRODUCE PEARS

SACRAMENTO VALLEY - Sacramento County 2010

	Operation	Cash and Labor Costs per Acre					
	Time	Labor	Fuel, Lube	Material	Custom/	Total	Your
Operation	(Hrs/A)	Cost	& Repairs	Cost	Rent	Cost	Cost
Cultural:							
Weed: Fall Strip Spray (Goal, Karmex, Roundup)	0.40	7	2	18	0	27	
Insect: Dormant-Mites, Psylla (Oil)	0.50	9	8	50	0	67	
Prune: (labor, crewboss)	0.00	0	0	0	986	986	
Weed: Mow Middles. Prune: Shred Prunings (Feb)	0.75	14	12	0	0	26	
Weed: Spray Middles (Roundup)	0.80	15	4	14	0	32	
Insect: Psylla @ Cluster Bud (Asana)	0.33	6	5	9	0	20	
Plant: Replant (1 tree per acre)	0.26	3	0	7	0	10	
Disease: Blight (Agrimycin, Blight Ban). Scab (Dithane)	0.50	9	8	78	0	94	
Disease: Blight (Mycoshield)	1.00	18	15	108	0	142	
Irrigate: (water, labor)	5.50	68	0	160	0	228	
Weed: Spray Tree Row (Roundup, Shark)	0.80	15	4	16	0	34	
Disease: Blight (Agrimycin, Blight Ban)	0.17	3	3	18	0	24	
Disease: Scab (Sovran)	0.33	6	5	45	0	56	
Disease: Blight (Agrimycin)	0.33	6	5	16	0	27	
Rodent: Voles, Gophers (Bait)	0.20	4	1	16	0	20	
Disease: Blight (cut out by hand)	0.00	0	0	0	500	500	
Insect: Codling Moth (Isomate, Traps, PCA monitoring)	4.25	15	0	122	0	137	
Insect: Psylla, Mites (AgriMek, Oil)	0.33	6	5	99	0	110	
Insect: Codling Moth (Delegate)	0.33	6	5	65	0	76	
Fertilize: Calcium Nitrate	0.10	2	1	143	4	149	
Growth Regulator: (Liqui-Stik)	0.33	6	5	53	0	64	
Fertilize: Leaf Sampling & Analysis	0.01	0	0	3	0	3	
Fertilize: Potash	0.10	2	1	100	4	107	
Fertilize: Urea	0.10	2	1	38	4	44	
Insect: Psylla, Mites (Sevin, Oil, Klean Aide) "Cleanup Spray"	0.33	6	5	62	0	73	
Pickup Truck Use	0.33	61	33	0	0	94	
ATV Use	0.57	10	1	0	0	12	
Miscellaneous Labor	1.00	12	0	0	0	12	
TOTAL CULTURAL COSTS	19.65	312	129	1,238	1,496	3,175	
Harvest:							
Pick Fruit 2X	10.00	173	15	0	1,420	1,608	
Haul Fruit To Shed (Fresh Only)	0.00	0	0	0	132	132	
Assessments	0.00	0	0	259	0	259	
TOTAL HARVEST COSTS	10.00	173	15	259	1,552	1,999	
Interest on operating capital @ 5.75%						77	
TOTAL OPERATING COSTS/ACRE		485	144	1,496	3,048	5,250	
TOTAL OPERATING COSTS/TON						239	
CASH OVERHEAD:							
Office Expense						200	
Liability Insurance						3	
Sanitation Fees						16	
Reclamation Fee						30	
Crop Insurance						40	
Manager/Supervisor						179	
Property Taxes						100	
Property Insurance						53	
Investment Repairs						57	
TOTAL CASH OVERHEAD COSTS						679	
TOTAL CASH COSTS/ACRE						5,929	
TOTAL CASH COSTS/TON						269	

UC COOPERATIVE EXTENSION

Table 1 continued

SACRAMENTO VALLEY - Sacramento County 2010

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre					
		Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
NON-CASH OVERHEAD:							
		Per producing		Annual Cost			
Investment		Acre		Capital Recovery			
Building 40X60		205		13		13	
Fuel Tanks		9		1		1	
Shop Tools/Hand Tools		31		3		3	
Sprinkler System		2,000		138		138	
Land		3,077		146		146	
Picking Bags		12		3		3	
Ladders		100		13		13	
Establishment Costs		9,500		457		457	
Spray Mixing Station		19		2		2	
Tile Drainage System		1,026		71		71	
Equipment		714		85		85	
TOTAL NON-CASH OVERHEAD COSTS		16,692		931		931	
TOTAL COSTS/ACRE						6,859	
TOTAL COSTS/TON						312	

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Table 2. COSTS AND RETURNS PER ACRE TO PRODUCE PEARS

SACRAMENTO VALLEY - Sacramento County 2010

	Quantity /Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Fresh	11.00	ton	200.00	2,200	
Canned	9.90	ton	240.00	2,376	
Juice	1.10	ton	0.00	0	
TOTAL GROSS RETURNS	22.00	ton		4,576	
OPERATING COSTS					
Herbicide:					
Goal 2 XL	0.50	pint	17.25	9	
Karmex DF	1.00	lb	7.23	7	
Roundup PowerMax (or generic glyphosate)	2.99	pint	7.00	21	
Shark EW	1.20	floz	9.08	11	
Insecticide:					
Supreme Oil	16.00	gal	5.00	80	
Asana XL	8.00	floz	1.08	9	
Agri-Mek 0.15EC	12.00	floz	7.82	94	
Delegate WG	6.50	oz	10.03	65	
Sevin XLR	2.00	qt	15.85	32	
Klean Aide (cleaner, not insecticide)	1.00	qt	5.00	5	
Fungicide:					
Dithane DF Rainshield	6.00	lb	3.89	23	
BlightBan A506	5.00	oz	8.23	41	
Sovran	6.00	oz	7.48	45	
Antibiotic:					
Agri-Mycin 17	28.80	oz	1.62	47	
Mycoshield	3.00	lb	36.15	108	
Rodenticide:					
Gopher Getter	2.00	lb	7.87	16	
Lures/Confusion:					
Isomate CTT	1.00	acre	110.00	110	
Monitoring Fee	1.00	acre	12.00	12	
Growth Regulator:					
Liqui-Stik	24.00	floz	2.20	53	
Fertilizer:					
Calcium Nitrate	100.00	lb N	1.43	143	
Leaf Analysis (1/20ac)	0.05	each	50.00	3	
Urea (46-0-0)	60.00	lb N	0.63	38	
Muriate of Potash	323.00	lb	0.31	100	
Tree/Tree Aids:					
Tree - Pear	1.00	each	6.40	6	
Tree Guards	1.00	each	0.75	1	
Irrigation:					
Water - Pumped	30.00	acin	5.33	160	
Rent:					
Fertilizer Spreader	3.00	acre	3.50	11	
Bins	44.00	bin	1.50	66	
Forklift	1.00	acmo	20.80	21	
Tractors (6)	1.00	acmo	57.00	57	
Assessment:					
Fresh Market	611.00	box	0.32	196	
Processed - Unrestricted	9.90	ton	4.00	40	
Processed - Restricted	1.10	ton	1.50	2	
CA Pear Growers Association	11.00	ton	2.00	22	

UC COOPERATIVE EXTENSION

Table 2. continued

SACRAMENTO VALLEY - Sacramento County 2010

	Quantity /Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
Contract/Custom:					
Prune - Hand	269.00	tree	3.25	874	
Prune - Crew Foreman	0.70	day	110.00	77	
Prune - Crew Foreman Overhead	0.70	day	49.50	35	
Harvest - Hand	44.00	bin	20.00	880	
Harvest - Contractor Overhead	44.00	bin	9.00	396	
Haul Fresh Fruit	11.00	ton	12.00	132	
Blight Cutting	1.00	acre	500.00	500	
Labor (machine)	17.73	hrs	15.23	270	
Labor (non-machine)	17.40	hrs	12.33	215	
Fuel - Gas	8.71	gal	2.67	23	
Fuel - Diesel	32.30	gal	2.04	66	
Lube				13	
Machinery repair				42	
Interest on operating capital @ 5.75%				78	
TOTAL OPERATING COSTS/ACRE				5,250	
TOTAL OPERATING COSTS/TON				239	
NET RETURNS ABOVE OPERATING COSTS				-674	
CASH OVERHEAD COSTS:					
Office Expense				200	
Liability Insurance				3	
Sanitation Fees				16	
Reclamation Fee				30	
Crop Insurance				40	
Manager/Supervisor				179	
Property Taxes				100	
Property Insurance				53	
Investment Repairs				57	
TOTAL CASH OVERHEAD COSTS/ACRE				679	
TOTAL CASH COSTS/ACRE				5,929	
TOTAL CASH COSTS/TON				269	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Building 40X60				13	
Fuel Tanks				1	
Shop Tools/Hand Tools				3	
Sprinkler System				138	
Land				146	
Picking Bags				3	
Ladders				13	
Establishment Costs				457	
Spray Mixing Station				2	
Tile Drainage System				71	
Equipment				85	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				931	
TOTAL COSTS/ACRE				6,859	
TOTAL COSTS/TON				312	
NET RETURNS ABOVE TOTAL COST				-2,283	

UC COOPERATIVE EXTENSION

Table 3. .MONTHLY CASH COSTS PER ACRE TO PRODUCE PEARS

SACRAMENTO VALLEY- Sacramento County 2010

Beginning NOV 09 Ending OCT 10	NOV 09	DEC 09	JAN 10	FEB 10	MAR 10	APR 10	MAY 10	JUN 10	JUL 10	AUG 10	SEP 10	OCT 10	TOTAL
Cultural:													
Weed: Fall Strip Spray (Goal, Karmex, Roundup)	27												27
Insect: Dormant-Mites, Psylla (Oil)		67											67
Prune: (labor, crewboss)		986											986
Weed: Mow Middles. Prune: Shred Prunings (Feb)				14						12			26
Weed: Spray Middles (Roundup)				16		16							32
Insect: Psylla @ Cluster Bud (Asana)					20								20
Plant: Replant (1 tree per acre)					10								10
Disease: Blight (Agrimycin, Blight Ban). Scab (Dithane)					63	31							94
Disease: Blight (Mycoshield)					47	95							142
Irrigate: (water, labor)						30	30	61	61	30	15		228
Weed: Spray Tree Row (Roundup, Shark)						17			17				34
Disease: Blight (Agrimycin, Blight Ban)						24							24
Disease: Scab (Sovran)						56							56
Disease: Blight (Agrimycin)						27							27
Rodent: Voles, Gophers (Bait)						20							20
Disease: Blight (cut out by hand)						165	170	165					500
Insect: Codling Moth (Isomate, Traps, PCA monitoring)						137							137
Insect: Psylla, Mites (AgriMek, Oil)						110							110
Insect: Codling Moth (Delegate)							76						76
Fertilize: Calcium Nitrate								149					149
Growth Regulator: (Liqui-Stik)								64					64
Fertilize: Leaf Sampling & Analysis									3				3
Fertilize: Potash											107		107
Fertilize: Urea											44		44
Insect: Psylla, Mites (Sevin, Oil, Klean Aide) "Cleanup Spray"												73	73
Pickup Truck Use	8	8	8	8	8	8	8	8	8	8	8	8	93
ATV Use	1	1	1	1	1	1	1	1	1	1	1	1	12
Miscellaneous Labor	1	1	1	1	1	1	1	1	1	1	1	1	12
TOTAL CULTURAL COSTS	37	1,063	10	40	150	739	287	449	90	52	176	83	3,175
Harvest:													
Pick Fruit 2X									1,608				1,608
Haul Fruit To Shed (Fresh Only)									132				132
Assessments									259				259
TOTAL HARVEST COSTS									1,999				1,999

UC COOPERATIVE EXTENSION

Table 3. continued

SACRAMENTO VALLEY- Sacramento County 2010

Beginning NOV 09 Ending OCT 10	NOV 09	DEC 09	JAN 10	FEB 10	MAR 10	APR 10	MAY 10	JUN 10	JUL 10	AUG 10	SEP 10	OCT 10	TOTAL
Interest on operating capital @ 5.75%	0	5	5	6	6	10	11	13	23	-1	-1	0	77
TOTAL OPERATING COSTS/ACRE	37	1,068	15	45	157	748	298	462	2,112	51	175	82	5,250
TOTAL OPERATING COSTS/TON	1.70	48.54	0.69	2.06	7.12	34.02	13.54	21.02	95.99	2.31	7.94	3.74	239
OVERHEAD:													
Office Expense	17	17	17	17	17	17	17	17	17	17	17	17	200
Liability Insurance			3										3
Sanitation Fees	1	1	1	1	1	1	1	1	1	1	1	1	16
Reclamation Fee	3	3	3	3	3	3	3	3	3	3	3	3	30
Crop Insurance				40									40
Manager/Supervisor	15	15	15	15	15	15	15	15	15	15	15	15	180
Property Taxes				50					50				100
Property Insurance				26					26				53
Investment Repairs	5	5	5	5	5	5	5	5	5	5	5	5	57
TOTAL CASH OVERHEAD COSTS	40	40	43	157	40	40	40	40	117	40	40	40	679
TOTAL CASH COSTS/ACRE	78	1,108	58	202	197	789	338	503	2,228	91	215	123	5,929
TOTAL CASH COSTS/TON	3.53	50.37	2.64	9.18	8.95	35.85	15.37	22.85	101.29	4.14	9.77	5.57	269

UC COOPERATIVE EXTENSION

Table 4. RANGING ANALYSIS

SACRAMENTO VALLEY -Sacramento County 2010

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE PEARS

	YIELD (tons/acre)						
	16.00	18.00	20.00	22.00	24.00	26.00	28.00
OPERATING COSTS/ACRE:							
Cultural Cost	3,175	3,175	3,175	3,175	3,175	3,175	3,175
Harvest Cost	1,318	1,459	1,599	1,740	1,880	2,021	2,161
Assessment Cost	188	212	235	259	282	306	329
Interest on operating capital @ 5.75%	75	75	76	77	78	78	79
TOTAL OPERATING COSTS/ACRE	4,756	4,921	5,085	5,251	5,415	5,580	5,744
TOTAL OPERATING COSTS/ton	297	273	254	239	226	215	205
CASH OVERHEAD COSTS/ACRE	678	678	679	679	679	679	679
TOTAL CASH COSTS/ACRE	5,434	5,599	5,764	5,930	6,094	6,259	6,423
TOTAL CASH COSTS/ton	340	311	288	270	254	241	229
NON-CASH OVERHEAD COSTS/ACRE	929	930	930	931	931	932	932
TOTAL COSTS/ACRE	6,363	6,529	6,694	6,861	7,025	7,191	7,355
TOTAL COSTS/ton	398	363	335	312	293	277	263

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE ($/ton)			YIELD (tons/acre)						
Fresh			8.00	9.00	10.00	11.00	12.00	13.00	14.00
	Processing		7.20	8.10	9.00	9.90	10.80	11.70	12.60
		Off-Grades	0.80	0.90	1.00	1.10	1.20	1.30	1.40
170.00	210.00	0.00	-1,884	-1,690	-1,495	-1,302	-1,107	-913	-718
180.00	220.00	0.00	-1,732	-1,519	-1,305	-1,093	-879	-666	-452
190.00	230.00	0.00	-1,580	-1,348	-1,115	-884	-651	-419	-186
200.00	240.00	0.00	-1,428	-1,177	-925	-675	-423	-172	80
210.00	250.00	0.00	-1,276	-1,006	-735	-466	-195	75	346
220.00	260.00	0.00	-1,124	-835	-545	-257	33	322	612
230.00	270.00	0.00	-972	-664	-355	-48	261	569	878

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE ($/ton)			YIELD (tons/acre)						
Fresh			8.00	9.00	10.00	11.00	12.00	13.00	14.00
	Processing		7.20	8.10	9.00	9.90	10.80	11.70	12.60
		Off-Grades	0.80	0.90	1.00	1.10	1.20	1.30	1.40
170.00	210.00	0.00	-2,562	-2,368	-2,174	-1,981	-1,786	-1,592	-1,397
180.00	220.00	0.00	-2,410	-2,197	-1,984	-1,772	-1,558	-1,345	-1,131
190.00	230.00	0.00	-2,258	-2,026	-1,794	-1,563	-1,330	-1,098	-865
200.00	240.00	0.00	-2,106	-1,855	-1,604	-1,354	-1,102	-851	-599
210.00	250.00	0.00	-1,954	-1,684	-1,414	-1,145	-874	-604	-333
220.00	260.00	0.00	-1,802	-1,513	-1,224	-936	-646	-357	-67
230.00	270.00	0.00	-1,650	-1,342	-1,034	-727	-418	-110	199

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE ($/ton)			YIELD (tons/acre)						
Fresh			8.00	9.00	10.00	11.00	12.00	13.00	14.00
	Processing		7.20	8.10	9.00	9.90	10.80	11.70	12.60
		Off-Grades	0.80	0.90	1.00	1.10	1.20	1.30	1.40
170.00	210.00	0.00	-3,491	-3,298	-3,104	-2,912	-2,717	-2,524	-2,329
180.00	220.00	0.00	-3,339	-3,127	-2,914	-2,703	-2,489	-2,277	-2,063
190.00	230.00	0.00	-3,187	-2,956	-2,724	-2,494	-2,261	-2,030	-1,797
200.00	240.00	0.00	-3,035	-2,785	-2,534	-2,285	-2,033	-1,783	-1,531
210.00	250.00	0.00	-2,883	-2,614	-2,344	-2,076	-1,805	-1,536	-1,265
220.00	260.00	0.00	-2,731	-2,443	-2,154	-1,867	-1,577	-1,289	-999
230.00	270.00	0.00	-2,579	-2,272	-1,964	-1,658	-1,349	-1,042	-733

UC COOPERTIVE EXTENSION

Table 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS

SACRAMENTO VALLEY - Sacramento County 2010

ANNUAL EQUIPMENT COSTS

						Cash Overhead		
	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
10	25 HP MFWD Tractor	13,990	15	2,724	1,197	64	84	1,344
10	80 HP 4WD Tractor #1	55,307	12	13,827	5,271	265	346	5,882
10	80 HP 4WD Tractor #2	55,307	12	13,827	5,271	265	346	5,882
10	ATV 4WD	7,430	7	2,818	924	39	51	1,014
10	Bait Applicator	1,046	10	185	119	5	6	130
10	Bin Trailer #1	1,970	15	189	178	8	11	197
10	Bin Trailer #2	1,970	15	189	178	8	11	197
10	Bin Trailer #3	1,970	15	189	178	8	11	197
10	Bin Trailer #4	1,970	15	189	178	8	11	197
10	Bin Trailer #5	1,970	15	189	178	8	11	197
10	Bin Trailer #6	1,970	15	189	178	8	11	197
10	Bin Trailer #7	1,970	15	189	178	8	11	197
10	Bin Trailer #8	1,970	15	189	178	8	11	197
10	Forklift-Field lift	19,500	20	2,502	1,454	84	110	1,648
10	Mower - Rotary 9'	10,000	10	1,768	1,137	45	59	1,241
10	Orch.Sprayer 500 gal #1	22,800	8	5,148	2,948	107	140	3,195
10	Orch.Sprayer 500 gal #2	22,800	8	5,148	2,948	107	140	3,195
10	Pickup 1/2 Ton	28,000	4	13,640	4,674	160	208	5,042
10	Weed Sprayer 100 gal	3,947	5	1,286	671	20	26	718
	TOTAL	255,887		64,385	28,036	1,228	1,601	30,865
	60% of New Cost *	153,532		38,631	16,821	737	961	18,519

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

ANNUAL INVESTMENT COSTS

					Cash Overhead			
Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Repairs	Total
Buildings 2,400 sqft	80,000	30		5,057	307	400	1,600	7,364
Orchard Establishment	950,000	95		45,681	3,643	4,750	0	54,074
Fuel Tanks 2-500 gal	3,500	25	709	227	16	21	70	334
Ladders (50)	10,000	10		1,280	38	50	200	1,568
Land (trees not included)	1,200,000	95	1,200,000	57,000	0	12,000	0	69,000
Picking Bags (50)	1,200	5		275	5	6	24	310
Shop Tools	12,000	15	1,133	1,083	50	66	240	1,439
Spray Mixing Station	7,223	15	722	650	30	40	144	864
Sprinkler	200,000	25		13,837	767	1,000	3,973	19,577
Tile Drainage Syst 400 acres	400,000	25		27,674	1,534	2,000	4,000	35,208
TOTAL INVESTMENT	2,863,923		1,202,564	152,764	6,391	20,332	10,251	189,738

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Crop Insurance	100	acre	40.00	4,000
Liability Insurance	390	acre	2.58	1,006
Manager Wages	390	acre	179.48	69,997
Office Expense	390	acre	200.00	78,000
Reclamation Fee	400	acre	30.00	12,000
Sanitation Fees	100	acre	16.25	1,625

UC COOPERATIVE EXTENSION

Table 6. HOURLY EQUIPMENT COSTS

SACRAMENTO VALLEY - Sacramento County 2010

			COSTS PER HOUR						
		Actual		Cash Overhead		Operating			
Yr	Description	Hours Used	Capital Recovery	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
10	25 HP MFWD Tractor	1,066	0.67	0.04	0.05	0.35	2.88	3.23	3.99
10	80 HP 4WD Tractor #1	1,066	2.97	0.15	0.19	1.16	9.22	10.38	13.69
10	80 HP 4WD Tractor #2	1,066	2.97	0.15	0.19	1.16	9.22	10.38	13.69
10	ATV 4WD	285	1.94	0.08	0.11	0.55	2.05	2.60	4.73
10	Bait Applicator	120	0.59	0.02	0.04	0.40	0.00	0.40	1.05
10	Bin Trailer #1	166	0.64	0.03	0.04	0.28	0.00	0.28	0.99
10	Bin Trailer #2	166	0.64	0.03	0.04	0.28	0.00	0.28	0.99
10	Bin Trailer #3	166	0.64	0.03	0.04	0.28	0.00	0.28	0.99
10	Bin Trailer #4	166	0.64	0.03	0.04	0.28	0.00	0.28	0.99
10	Bin Trailer #5	166	0.64	0.03	0.04	0.28	0.00	0.28	0.99
10	Bin Trailer #6	166	0.64	0.03	0.04	0.28	0.00	0.28	0.99
10	Bin Trailer #7	166	0.64	0.03	0.04	0.28	0.00	0.28	0.99
10	Bin Trailer #8	166	0.64	0.03	0.04	0.28	0.00	0.28	0.99
10	Forklift-Field lift	150	5.83	0.34	0.44	0.21	6.22	6.43	13.04
10	Mower - Rotary 9'	200	3.41	0.14	0.18	4.88	0.00	4.88	8.61
10	Orch.Sprayer 500 gal #1	250	7.07	0.26	0.33	3.97	0.00	3.97	11.63
10	Orch.Sprayer 500 gal #2	250	7.09	0.26	0.34	3.97	0.00	3.97	11.66
10	Pickup 1/2 Ton	500	5.61	0.19	0.25	2.10	7.68	9.78	15.83
10	Weed Sprayer 100 gal	300	1.34	0.04	0.05	1.08	0.00	1.08	2.51

UC COOPERATIVE EXTENSION

Table 7. OPERATIONS WITH MATERIALS & EQUIPMENT

SACRAMENTO VALLEY - Sacramento County 2010

		EQUIPMENT		LABOR		BROADCAST	
OPERATION	MONTH	TRACTOR	IMPLEMENT	HRS/AC	MATERIAL	RATE/AC	UNIT
Weed: Fall Strip	November	25 HP	Weed Sprayer		Goal	0.50	pt
					Karmex	1.00	lb
					Roundup	0.33	pt
Insect: Dormant Spray	December	80 HP	Air Blast Sprayer		Oil	10.00	gal
Prune: Hand	December	Custom					
Weed: Mow Middles/Shred Prunings	February	80 HP	Mower Rotary				
Weed: Spray Middles	February	25 HP	Weed Sprayer		Roundup	1.00	pt
Insect: Psylla	March	80 HP	Air Blast Sprayer		Asana	8.00	floz
Plant: Replant Tree	March			0.25	Tree	1.00	acre
					Tree Wrap	1.00	acre
Disease: Blight & Scab (alternate rows)	March	80 HP	Air Blast Sprayer		AgriMycin	4.80	oz
					Blight Ban	1.25	oz
					Dithane	2.00	lb
Disease: Blight (alternate rows)	March	80 HP	Air Blast Sprayer		Mycoshield	0.50	lb
Disease: Blight & Scab (alternate rows)	March	80 HP	Air Blast Sprayer		AgriMycin	4.80	oz
					Blight Ban	1.25	oz
					Dithane	2.00	lb
Disease: Blight (alternate rows)	March	80 HP	Air Blast Sprayer		Mycoshield	0.50	lb
Disease: Blight & Scab (alternate rows)	April	80 HP	Air Blast Sprayer		AgriMycin	4.80	oz
					Blight Ban	1.25	oz
					Dithane	2.00	lb
Disease: Blight (alternate rows)	April	80 HP	Air Blast Sprayer		Mycoshield	0.50	lb
Weed: Spray Tree Row	April	25 HP	Weed Sprayer		Roundup	0.33	pt
					Shark	0.60	floz
Weed: Spray Middles	April	25 HP	Weed Sprayer		Roundup	1.00	pt
Disease: Blight (alternate rows)	April	80 HP	Air Blast Sprayer		AgriMycin	4.80	oz
					Blight Ban	1.25	oz
Disease: Blight (alternate rows)	April	80 HP	Air Blast Sprayer		Mycoshield	0.50	lb
Disease: Scab	April	80 HP	Air Blast Sprayer		Sovran	6.00	oz
Disease: Blight (alternate rows)	April	80 HP	Air Blast Sprayer		AgriMycin	4.80	oz
Disease: Blight (alternate rows)	April	80 HP	Air Blast Sprayer		Mycoshield	0.50	lb
Disease: Blight (alternate rows)	April	80 HP	Air Blast Sprayer		AgriMycin	4.80	oz
Disease: Blight (alternate rows)	April	80 HP	Air Blast Sprayer		Mycoshield	0.50	lb
Rodent: Bait Rodents	April	25 HP	Baiter		Gopher Getter	2.00	lb
Irrigate	April			0.73	Water	4.00	acin
	May			0.74	Water	4.00	acin
	June			1.46	Water	8.00	acin
	July			1.46	Water	8.00	acin
Disease: Cut Out Blight	April	Contract					
	May	Contract					
	June	Contract					
Insect: Codling Moth				1.25	Isomate	200.00	acre
					PCA	12.00	acre
Insect: Psylla & Mite	April	80 HP	Air Blast Sprayer		Agri-Mek	12.00	floz
					Oil	1.00	gal
Insect: Codling Moth	May	80 HP	Air Blast Sprayer		Delegate	6.50	oz
Fertilize:	June	80 HP	Rented Spreader		Calcium Nitrate	100.00	lb N

UC COOPERATIVE EXTENSION

Table 7. continued

SACRAMENTO VALLEY - Sacramento County 2010

		EQUIPMENT		LABOR		BROADCAST	
OPERATION	MONTH	TRACTOR	IMPLEMENT	HRS/AC	MATERIAL	RATE/AC	UNIT
Growth Regulator	June	80 HP	Air Blast Sprayer		Liqui-Stik	24.00	floz
Weed: Spray Tree Row	July	25 HP	Weed Sprayer		Roundup	0.33	pt
					Shark	0.60	floz
Fertilize: Take Leaf Samples	July			PCA			
Harvest: Pick Fruit	July	80 HP	Bin Trailer 1		Bin Rental		
		25 HP	Bin Trailer 2		Contractor		
		Forklift			Forklift Rental		
		Rent	Bin Trailer 3				
		Rent	Bin Trailer 4				
		Rent	Bin Trailer 5				
		Rent	Bin Trailer 6				
		Rent	Bin Trailer 7				
		Rent	Bin Trailer 8				
Weed: Mow Middles	August	80 HP	Mower				
Irrigate	August			0.73	Water	4.00	acin
	September			0.37	Water	2.00	acin
Fertilize	September	80 HP	Rented Spreader		Potash	323.00	lb
Fertilize	September	80 HP	Rented Spreader		Urea	60.00	lb N
Insect: Cleanup Spray	October	80 HP	Air Blast Sprayer		Sevin	2.00	qt
					Oil	5.00	gal
					Klean Aid	1.00	qt
Miscellaneous Labor				1.00			