
2000

UNIVERSITY OF CALIFORNIA - COOPERATIVE EXTENSION

SAMPLE COSTS TO PRODUCE
PEARS



SIERRA NEVADA FOOTHILLS

Five acre orchard

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Sierra Nevada Foothills – 2000

INTRODUCTION

The sample costs to produce pears in the Sierra Nevada foothills are presented in this study. The hypothetical farm in this report consists of a total of 20 acres, five acres of pears and fifteen acres of forest, farmstead, roads, and/or other fruit crops.

This study is intended as a guide only, and can be used in making production decisions, determining potential returns, preparing budgets and evaluating production loans. The practices described in the cost study are considered typical for the crop and area. Sample costs given for labor, materials, equipment and contract services are based on current figures. Some costs and practices detailed in the study may not be applicable to your situation. The use of trade names is not an endorsement or a recommendation. A “Your Cost” column is provided to enter your actual costs on Tables 1 and 2.

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For an explanation of calculations used for the study refer to the Assumptions, call the Department of Agricultural and Resource Economics, University of California, Davis, California, (530) 752-3589 or call the Amador or El Dorado County farm advisors.

Sample Cost of Production studies are available for many commodities and can be ordered from the Department of Agricultural and Resource Economics, UC-Davis, (530) 752-1515. Current studies, those prepared during the last five years, can be downloaded from their website (www.agecon.ucdavis.edu) or obtained from selected county Cooperative Extension offices.

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ASSUMPTIONS

The following assumptions pertain to sample costs to produce pears in the Sierra Nevada foothills. Practices described should not be considered recommendations by the University of California, but rather represent production procedures considered typical for this crop and area. Some of the costs and practices may not be applicable to your situation nor used during every production year. Additional ones not indicated may be needed. Cultural practices for the production of pears vary by grower and region. Variations can be significant. The practices and inputs used in this cost study serve only as a sample or guide. These costs are presented on an annual, per acre basis. **The use of trade names 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.**

Land. The orchard is owned, managed, and operated by the grower. The orchard is located in the Sierra Nevada foothills and is situated on previously unfarmed land. The farm is comprised of 20 acres, five planted to pears. The other 15 acres are occupied by forest, roads, irrigation systems, and farmstead. Land is valued at \$10,000 per acre. This study assumes that the land was purchased primarily for a homesite and the orchard was planted on the unused acres.

Trees. The pear cultivar planted in this study is Green Bartlett. It is a dual purpose pear, utilized for either fresh market or processing. Choice of the proper rootstock is an important decision for successful tree establishment. Six rootstocks are generally used in commercial California orchards. Of these, Winter Nellis is the most favorable for Bartlett on sandy loam to loam soils, giving uniformity in size and growth as well as better vigor than most other rootstocks. Bartlett on Winter Nellis is one of the most common combinations of cultivar and rootstock and is used in this study. The trees are planted on 10' X 16' spacing, 272 trees per acre. Pear trees have a long production life if they are well maintained. Some pear orchards have 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.

Irrigation System. The water is purchased from the local irrigation district. The delivered cost of the water from the district is \$42.00 per acre foot or \$3.50 per acre inch. No assumption is made about effective rainfall. It is assumed in this study, that producing orchards will use 3 acre feet per year. A 5 horsepower booster pump, filtration station and sprinkler irrigation system was installed prior to planting. The irrigation system is considered an improvement to the property and has a 25 year lifespan. It is shown in the non-cash overhead sections as capital recovery cost in the tables and the investments portion of Table 4.

Production Cultural Practices

Pruning. In this study, pruning is done in the winter months by hired labor. The prunings are placed in the row middles and shredded during the regular discing. If there are a large amount of prunings, they are pushed to the edge of the field and burned.

Fertilization. Nitrogen is the major nutrient required for proper tree growth and optimum yields. In the first four years an NPK combination fertilizer is applied by hand at the base of the

young tree. In the remaining years nitrogen at 40 pounds per acre is applied in the fall as urea (46-0-0) along with 500 pounds per acre of muriate of potash (0-0-60) for potassium.

Pest Management. Pesticides, rates, and cultural practices mentioned in this cost study are a few of those listed in the *UC IPM Pest Management Guidelines, Apples*. For additional information on pest management, identification, and monitoring, visit the UC IPM website at www.ipm.ucdavis.edu. Written recommendations are required for many pesticides and are made by licensed pest control advisors. For information and pesticide use permits, contact the local county Agricultural Commissioner's office.

Weeds. In this study a pre-emergent herbicide, Surflan AS, and post-emergent contact herbicide, Roundup Ultra, are sprayed in the tree rows in early spring. Weeds are controlled in the tree row during the season with a contact herbicide, Roundup-. The row middles are disced four times during the season.

Insects And Arthropods. Codling moth is an economically significant insect pest of pears, but can be controlled with careful monitoring and treatment. Larvae enter the fruit causing the fruit to be unmarketable. The first generation usually begins hatching in May with subsequent generations in June and July. In this study, codling moth is controlled with mating disruption pheromones set out in April and a cover spray of Guthion- in May. Supreme oil is added to the application for mite control.

Diseases. Fire blight can cause the loss of complete branches or trees. Four treatments are made, three using Mycoshield- and one using a combination of BlightBan- plus Agri-mycin-. These sprays are applied from early April through late May. Additional control is made by pruning out the infected wood.

Harvest. Commercial harvest begins in the fourth or fifth year after planting. Though some trees will yield fruit in the second or third year, it is usually removed so that early tree growth is not stunted. In this study, a commercial crop is produced and harvested by the fifth year. Growers are paid for fruit based on gross field tons for different grades. The crop is harvested and hauled by the grower, although a contracted harvesting company may be hired to harvest pears. Cleaning, sorting, and packing costs are paid by the grower. The harvest season for Green Bartlett is usually July to early August.

While 4 to 5 year old orchards are harvested once, older pear orchards are 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 which is placed into half-ton field bins. The bins are owned by the association or packing shed. Tractors with forklift attachments on both the front loader and 3-point hitch pick up the filled bins, move them from the orchard, and place them on a flatbed truck or drop trailers for transport to a packing shed for cleaning, sorting, and packing. For growers who contract their harvest, the equipment and labor used for harvest operations should be subtracted from Harvest Costs in Tables 2-4, and custom harvest charges should be added to Harvest Costs in the same tables.

Yields. Typical annual yields for Green Bartlett pears are measured in tons per acre. Yields fall into three categories: 42% fresh market, 47% processed or unrestricted grade (canned), and 11% off-grade or restricted grade (juice). The latter two categories are pears that will not make fresh market grades due to appearance, size, or damage. Restricted grade pears are used in juice, concentrate, fermented products, drying, and frozen goods. Pears that go to restricted and unrestricted grade receive lower prices than fresh market fruit.

Returns. Estimated return prices per ton for the categories described above are: fresh market \$514, unrestricted \$217, and restricted \$85. In the previous ten years, fresh market prices have ranged from \$400 to \$700 per ton, unrestricted \$190 to \$230, and restricted \$25 to \$125. Use of return prices for pears is to calculate a ranging analysis for different yields and prices. Prices used in this cost study are an estimate based on the current market conditions.

Packing. The pear production in the Sierra Nevada Foothills is for fresh market and processing sales. The pears are delivered to the growers own packing shed or a local packer, depending on the operation size. A large portion of growers belong to the Apple Hill Growers Association which promotes the agricultural sales of the growers products in the area. A grower may have his own label and products - fresh pears, processed (baked pies and juice) and other agricultural products. The majority of the products are sold at a roadside stand, and on some farms a single employee will sort, pack and sell.

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 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, and processed unrestricted and restricted grades as shown in Table A.

Additionally, a voluntary assessment may also be paid by growers to the California Pear Growers (CPG). The CPG uses these funds to negotiate a price for growers who sell their pears to proprietary processors, and to foster markets for processing pears. CPG charges members \$2 per ton for processed fruit.

Table A. California Pear Advisory Board Assessments for Bartlett Pears

Category	Price per Unit	Unit
<u>Fresh market</u>		
Tight-fill carton	\$0.30	36 lb. tight-fill carton
Standard box	\$0.375	45 lb. box
LA lug	\$0.193	lug
<u>Processed</u>		
Unrestricted grades	\$4.00	ton
Restricted grade	\$1.50	ton
All other special products	\$1.50	ton

Labor. Hourly wages for workers are \$8.23 and \$6.00 per hour for machine and non-machine workers, respectively. Adding 34% for the employers share of federal and state payroll taxes,

insurance, and other possible benefits gives the labor rates shown of \$11.02 and \$8.04 per hour for machine labor and non-machine labor, respectively. Labor time 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. Wages for a manager are not included as a cost. Returns above total costs are considered a return to management and risk.

Risk. Risk is caused by various sources of uncertainty including production, price, and financial. Examples are yield, price, and interest rate fluctuations. The risks associated with producing pears in the Sierra Nevada foothills should not be underestimated.

While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent agronomic, market, and financial risks which affect the profitability and economic viability of pear production. Additionally, establishment of orchards and the equipment required to properly handle the fruit is capital intensive. Growers should consider all of the agronomic and economic risks before committing resources to establishing a orchard in this region.

Overhead Costs

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

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.

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 10.41% per year. A nominal interest rate is the typical market cost of borrowed funds.

Insurance. Insurance for farm investments vary depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.723% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$367 for the entire farm.

Office Expense. Office and business expenses for the five acres are estimated at \$1,500 annually or \$300 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, etc.

Sanitation. Sanitation fees are the charges paid for field toilet rentals and include regular servicing. A trailer mounted double toilet/washing trailer is rented for four weeks during the season.

Non-cash Overhead. Non-cash overhead is calculated as the capital recovery cost for

equipment and other farm investments. Although farm equipment used on farms in the Sierra Nevada foothills may be purchased new or used, this 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. Annual ownership costs (Equipment and Investments) are shown in Tables 1-3. and 5. They represent the capital recovery cost for investments on an annual per acre basis.

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). Put another way, 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. The calculation for the annual capital recovery costs is as follows.

$$\frac{\text{Purchase Price} - \text{Salvage Value}}{\text{Price Value}} \times \frac{\text{Capital Recovery}}{\text{Factor}} + \frac{\text{Salvage Value}}{\text{Value}} \times \frac{\text{Interest Rate}}{\text{Rate}}$$

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

Capital Recovery Factor. Capital recovery factor is the amortization factor or annual payment whose present value at compound interest is 1. It is the function of the interest rate and years of life of the equipment.

Interest Rate. The interest rate of 7.08% used to calculate capital recovery cost is the USDA-ERS's ten year average of California's agricultural sector long-run rate of return to production assets from current income. It is used to reflect the long-term realized rate of return to these specialized resources that can only be used effectively in the agricultural sector. In other words, the next best alternative use for these resources is in another agricultural enterprise.

Establishment Cost. The cost to establish the orchard is used to determine the non-cash overhead expenses: capital recovery 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. For this study, the estimated cost is \$8,618 per acre or \$43,090 for the five acre orchard. The estimated cost was determined from pear orchard establishments in other counties, along with farm advisor estimates

of apple and cherry orchards in the foothill region. Establishment costs are amortized beginning in the sixth year over the remaining 95 production years.

Equipment Cash Costs. 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 fuel, lubrication, and repairs.

In allocating the equipment costs on a per acre basis, the hourly charges are calculated first and shown in Table 5. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by the American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum PTO hp, and type of fuel used. The fuel and repair cost per acre for each operation in Table 1 is determined by multiplying the total hourly operating cost in Table 5 for each piece of equipment used for the cultural practice by the number of hours per acre for that operation. Tractor time is 10% higher than implement time for a given operation to account for setup time. Prices for on-farm delivery of diesel and gasoline are \$1.09 and \$1.49 per gallon, respectively.

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

Acknowledgment. Appreciation is expressed to growers and cooperators in the Sierra Nevada foothills who provided support.

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Table 1

UC COOPERATIVE EXTENSION
COSTS PER ACRE TO PRODUCE PEARS
SIERRA NEVADA FOOTHILLS - 2000

Operation	Operation	Cash and Labor Costs per acre					Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel,Lube & Repairs	Material Cost	Custom/ Rent			
Cultural:								
Prune & Train	34.00	273	0	0	0	273		
Pest Control - Delay Dormant	0.13	2	1	22	0	25		
Weed Control - Disc Middles 4X	0.69	9	5	0	0	14		
Weed Control - In-season Spray	0.75	10	4	34	0	48		
Irrigate 9X	1.60	13	0	105	0	118		
Pest Control - Blight Spray 4X	1.13	15	8	100	0	123		
Rodent Control	0.20	3	1	11	0	15		
Pest Control - Prune Blight	6.20	50	0	0	0	50		
Pest Control - CM Pheromones	1.25	10	0	110	0	120		
Pest Control - Cover Spray	0.33	4	2	52	0	59		
Hormone Spray - Growth Regulator	0.33	4	2	30	0	36		
Fertilize - Postharvest	0.34	4	2	60	0	66		
Pickup Truck Use	0.57	8	3	0	0	11		
ATV Use	0.57	8	1	0	0	9		
TOTAL CULTURAL COSTS	48.09	413	30	523	0	966		
Harvest:								
Pick Fruit	82.00	659	0	0	0	659		
Load/Haul Fruit to Shed	9.00	238	95	0	0	333		
Packing and Selling	0.00	0	0	0	664	664		
TOTAL HARVEST COSTS	91.00	897	95	0	664	1,656		
Assessments:								
California Pear Advisory Board	0.00	0	0	31	0	31		
California Pear Growers Assoc.	0.00	0	0	5	0	5		
TOTAL ASSESSMENT COSTS	0.00	0	0	36	0	36		
Interest on operating capital @ 10.71%						48		
TOTAL OPERATING COSTS/ACRE		1,310	126	559	664	2,706		
TOTAL OPERATING COSTS/TON						594		
CASH OVERHEAD:								
Office Expense						300		
Liability Insurance						18		
Sanitation Fees						32		
Property Taxes						145		
Property Insurance						105		
Investment Repairs						209		
TOTAL CASH OVERHEAD COSTS						810		
TOTAL CASH COSTS/ACRE						3,517		
TOTAL CASH COSTS/TON						782		

UC COOPERATIVE EXTENSION

Table 1 continued

NON-CASH OVERHEAD:			
	Per producing Acre	Annual Cost Capital Recovery	
Investment			
Buildings	2,235	212	212
Fuel Tanks & Pumps	354	33	33
Shop Tools	632	67	67
Sprinkler System	2,588	224	224
Land	10,000	708	708
Hand Tools	230	24	24
Ladders - 10 each	280	38	38
Pear Establishment	8,618	611	611
Pruning Equipment	263	36	36
Picking Bags	59	14	14
Equipment	1,847	216	216
TOTAL NON-CASH OVERHEAD COSTS	27,106	2,184	2,184
TOTAL COSTS/ACRE			5,701
TOTAL COSTS/TON			1,267

Table 2

UC COOPERATIVE EXTENSION
COSTS AND RETURNS PER ACRE TO PRODUCE PEARS
SIERRA NEVADA FOOTHILLS - 2000

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Fresh	1.90	ton	564.00	1,072	
Unrestricted (Canned)	2.10	ton	217.00	456	
Restricted (Juice, etc.)	0.50	ton	85.00	43	
TOTAL GROSS RETURNS	4.50	ton		1,570	
OPERATING COSTS					
Insecticide:					
Supreme Oil	16.00	gal	2.80	45	
Guthion 50W	2.50	lb	12.00	30	
Herbicide:					
Roundup Ultra	3.00	pint	6.64	20	
Surflan AS	1.25	pint	11.25	14	
Irrigation:					
Water	30.00	acin	3.50	105	
Antibiotic:					
Mycoshield	3.00	lb	24.95	75	
Agri-mycin 17	9.60	oz	1.44	14	
Fungicide:					
BlightBan	2.50	oz	4.56	11	
Rodenticide:					
Rodent Bait	2.00	lb	5.62	11	
Lures/Disrupters:					
Codling Moth Ties	1.00	acre	110.00	110	
Growth Regulator:					
NAA	24.00	oz	1.23	30	
Custom:					
Packing 45 lb box	84.00	box	7.40	622	
Sell Commission 4%	84.00	each	0.50	42	
Assessment:					
Fresh Market	84.00	box	0.26	22	
Processed - Unrestricted	2.10	ton	4.00	8	
Processed - Restricted	0.50	ton	1.50	1	
CA Pear Growers	2.60	ton	2.00	5	
Fertilizer:					
46-0-0 (Urea)	40.00	lb N	0.24	10	
Muriate Of Potash	500.00	lb	0.10	50	
Labor (machine)	27.64	hrs	11.02	305	
Labor (non-machine)	125.05	hrs	8.04	1,005	
Fuel - Gas	20.05	gal	1.49	30	
Fuel - Diesel	43.21	gal	1.09	47	
Lube				12	
Machinery repair				37	
Interest on operating capital @ 10.71%				48	
TOTAL OPERATING COSTS/ACRE				2,706	
TOTAL OPERATING COSTS/TON				601	
NET RETURNS ABOVE OPERATING COSTS				-1,137	

UC COOPERATIVE EXTENSION

Table 2 continued

CASH OVERHEAD COSTS:	
Office Expense	300
Liability Insurance	18
Sanitation Fees	32
Property Taxes	145
Property Insurance	105
Investment Repairs	209
TOTAL CASH OVERHEAD COSTS/ACRE	810
TOTAL CASH COSTS/ACRE	3,517
TOTAL CASH COSTS/TON	782
NON-CASH OVERHEAD COSTS (CAPITAL RECOVERY)	
Buildings	212
Fuel Tanks & Pumps	33
Shop Tools	67
Sprinkler System	224
Land	708
Hand Tools	24
Ladders - 10 each	38
Pear Establishment	611
Pruning Equipment	36
Picking Bags	14
Equipment	216
TOTAL NON-CASH OVERHEAD COSTS/ACRE	2,184
TOTAL COSTS/ACRE	5,701
TOTAL COSTS/TON	1,267
NET RETURNS ABOVE TOTAL COSTS	-4,131

Table 3

UC COOPERATIVE EXTENSION
MONTHLY CASH COSTS
SIERRA NEVADA FOOTHILLS - 2000

Beginning JAN 00	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending DEC 00	00	00	00	00	00	00	00	00	00	00	00	00	
Cultural:													
Train & Prune	273												273
Pest Control-Delay Dormant		25											25
Weed Control-Disc Middles				3	3		3	3					14
Weed Control-Spray				25	11	11							48
Irrigate 9X					16	20	36		16	16	15		118
Pest Control-Blight Spray					60	64							123
Rodent Control					15								15
Pest Control-Prune Blight					16	16	18						50
Pest Control-Codling Moth					120								120
Pest Control-Cover Spray						59							59
Hormone Spray							36						36
Fertilize-Postharvest									66				66
Pickup Truck Use	1	1	1	1	1	1	1	1	1	1	1	1	11
ATV Use	1	1	1	1	1	1	1	1	1	1	1	1	9
TOTAL CULTURAL COSTS	275	27	31	243	171	96	5	18	84	16	2	2	966
Harvest:													
Pick Fruit							659						659
Load/Haul Fruit to Shed							333						333
Packing and Selling							664						664
California Pear Advisory							31						31
California Pear Growers							5						5
TOTAL HARVEST COSTS							1,693						1,693
Interest on oper. capital	2	3	3	5	7	7	22	-1	-1	0	0	0	48
TOTAL OPERATING COSTS/ACRE	277	29	34	248	178	102	1,720	17	83	16	2	2	2,706
TOTAL OPERATING COSTS/TON	62	6	8	54	40	23	382	4	18	4	0	0	601
OVERHEAD:													
Office Expense	25	25	25	25	25	25	25	25	25	25	25	25	300
Liability Insurance		18											18
Sanitation Fees	3	3	3	3	3	3	3	3	3	3			32
Property Taxes		73						73					145
Property Insurance		53						53					105
Investment Repairs	17	17	17	17	17	17	17	17	17	17	17	17	209
TOTAL CASH OVERHEAD COSTS	46	189	46	46	46	46	171	46	46	46	42	42	810
TOTAL CASH COSTS/ACRE	323	219	79	294	223	148	1,891	62	128	62	44	44	3,517
TOTAL CASH COSTS/TON	72	49	18	65	50	33	420	14	28	14	10	10	782

Table 4

UC COOPERATIVE EXTENSION
WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
SIERRA NEVADA FOOTHILLS - 2000

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
						Insur- ance	Taxes		
00	3 Point Forks	670	15	64	71	3	4		78
00	62 HP 2WD Tractor	28,850	15	5,617	2,961	125	172		3,258
00	ATV 4WD	7,430	10	1,314	967	32	44		1,042
00	Bait Applicator	1,046	10	185	136	4	6		147
00	Disc - Offset 8'	8,066	10	1,426	1,050	34	47		1,132
00	Front End Loader	4,852	15	466	517	19	27		563
00	Loader Forks	730	15	70	78	3	4		85
00	Orch.Sprayer 500 G	19,741	10	3,491	2,569	84	116		2,769
00	Pickup Truck 1/2 T	20,565	7	7,801	2,927	103	142		3,172
00	Spin/Spreader -3PT	1,565	20	82	147	6	8		161
00	Truck - 2 Ton	23,306	7	8,841	3,317	116	161		3,594
00	Weed Sprayer 100 G	3,947	10	698	514	17	23		554
TOTAL		120,768		30,055	15,255	545	754		16,554
40% of New Cost*		48,307		12,022	6,102	218	302		6,622

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insur- ance	Taxes	Repairs	
INVESTMENT								
Buildings	44,693	20		4,245	162	223	894	5,524
Fuel Tanks & Pumps	7,088	20	709	656	28	39	142	865
Hand Tools	4,595	15	460	489	18	25	92	624
Ladders - 10 each	1,400	10	140	190	6	8	28	231
Land - Pears	50,000	95	50,000	3,540	362	500	0	4,401
Pear Establishment	43,090	95		3,055	0	0	0	3,055
Picking Bags	296	5		72	1	1	0	75
Pruning Equipment	1,313	10	131	178	5	7	26	217
Shop Tools	12,637	15	1,264	1,344	50	70	253	1,717
Sprinkler System	12,940	25		1,118	47	65	647	1,877
TOTAL INVESTMENT	178,052		52,704	14,889	678	938	2,082	18,587

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/		Price/ Unit	Total Cost
	Farm	Uni		
Liability Insurance	20	Acre	18.35	367
Office Expense	5	Acre	300.00	1,500
Sanitation Fees	5	Acre	32.20	161

Table 5

UC COOPERATIVE EXTENSION
HOURLY EQUIPMENT COSTS
SIERRA NEVADA - 2000

Yr	Description	Actual	Cash Overhead			Operating			Total Costs/Hr.
		Hours Used	Capital Recovery	Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
00	3 Point Forks	109.00	0.26	0.01	0.01	0.06	0.00	0.06	0.35
00	62 HP 2WD Tractor	221.00	5.36	0.23	0.31	0.81	3.82	4.63	10.53
00	ATV 4WD	231.10	1.67	0.05	0.08	0.60	1.71	2.31	4.11
00	Bait Applicator	101.00	0.54	0.02	0.02	0.26	0.00	0.26	0.85
00	Disc - Offset 8'	166.50	2.52	0.08	0.11	1.76	0.00	1.76	4.48
00	Front End Loader	65.00	3.18	0.12	0.16	0.45	0.00	0.45	3.92
00	Loader Forks	65.00	0.48	0.02	0.02	0.07	0.00	0.07	0.59
00	Orch.Sprayer 500 G	246.60	4.17	0.14	0.19	2.21	0.00	2.21	6.70
00	Pickup Truck 1/2 T	230.80	5.07	0.18	0.25	1.00	4.28	5.28	10.78
00	Spin/Spreader -3PT	1.70	34.92	1.42	1.96	0.38	0.00	0.38	38.68
00	Truck - 2 Ton	145.00	9.15	0.32	0.44	1.50	3.43	4.93	14.85
00	Weed Sprayer 100 G	78.80	2.61	0.09	0.12	0.70	0.00	0.70	3.51

Table 6

UC COOPERATIVE EXTENSION
RANGING ANALYSIS
SIERRA NEVADA FOOTHILLS - 2000

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE PEARS

	TOTAL YIELD Fresh Market (ton/acre)						
	3.15	3.60	4.05	4.50	4.95	5.40	5.85
OPERATING COSTS/ACRE:							
Cultural Cost	966	966	966	966	966	966	966
Harvest Cost	1,185	1,354	1,523	1,693	1,862	2,031	2,200
Interest on operating capital	43	45	46	48	49	51	52
TOTAL OPERATING COSTS/ACRE	2,194	2,365	2,535	2,707	2,877	3,048	3,218
TOTAL OPERATING COSTS/TON	697	657	626	602	581	564	550
CASH OVERHEAD COSTS/ACRE	807	808	809	810	811	812	813
TOTAL CASH COSTS/ACRE	3,001	2,088	1,956	1,851	1,765	1,693	1,632
TOTAL CASH COSTS/TON	953	580	483	411	357	314	279
NON-CASH OVERHEAD COSTS/ACRE	2,150	2,162	2,173	2,184	2,194	2,203	2,212
TOTAL COSTS/ACRE	5,151	5,335	5,518	5,701	5,885	6,063	6,244
TOTAL COSTS/TON	1,635	1,482	1,362	1,267	1,189	1,123	1,067

UC COOPERATIVE EXTENSION

Table 6 continued

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR PEARS

PRICE (\$/ton)			YIELD (ton/acre)						
Fresh			1.33	1.52	1.71	1.90	2.09	2.28	2.47
	Canned		1.47	1.68	1.89	2.10	2.31	2.52	2.73
		Juice	0.35	0.40	0.45	0.50	0.55	0.60	0.65
394.80	151.90	59.50	-1,425	-1,486	-1,547	-1,608	-1,669	-1,729	-1,790
451.20	173.60	68.00	-1,315	-1,360	-1,405	-1,451	-1,496	-1,541	-1,586
507.60	195.30	76.50	-1,205	-1,235	-1,264	-1,294	-1,323	-1,353	-1,382
564.00	217.00	85.00	-1,095	-1,109	-1,123	-1,137	-1,150	-1,164	-1,178
620.40	238.70	93.50	-985	-984	-982	-980	-978	-976	-974
676.80	260.40	102.00	-876	-858	-840	-823	-805	-788	-770
733.20	282.10	110.50	-766	-732	-699	-666	-632	-599	-566

NET RETURN PER ACRE ABOVE CASH COST FOR PEARS

PRICE (\$/ton)			YIELD (ton/acre)						
Fresh			1.33	1.52	1.71	1.90	2.09	2.28	2.47
	Canned		1.47	1.68	1.89	2.10	2.31	2.52	2.73
		Juice	0.35	0.40	0.45	0.50	0.55	0.60	0.65
394.80	151.90	59.50	-2,232	-2,294	-2,356	-2,418	-2,480	-2,541	-2,603
451.20	173.60	68.00	-2,122	-2,169	-2,215	-2,261	-2,307	-2,353	-2,399
507.60	195.30	76.50	-2,012	-2,043	-2,074	-2,104	-2,134	-2,165	-2,195
564.00	217.00	85.00	-1,903	-1,917	-1,932	-1,947	-1,962	-1,976	-1,991
620.40	238.70	93.50	-1,793	-1,792	-1,791	-1,790	-1,789	-1,788	-1,787
676.80	260.40	102.00	-1,683	-1,666	-1,650	-1,633	-1,616	-1,600	-1,583
733.20	282.10	110.50	-1,573	-1,541	-1,508	-1,476	-1,444	-1,411	-1,379

NET RETURNS PER ACRE ABOVE TOTAL COST FOR PEARS

PRICE (\$/ton)			YIELD (ton/acre)						
Fresh			1.33	1.52	1.71	1.90	2.09	2.28	2.47
	Canned		1.47	1.68	1.89	2.10	2.31	2.52	2.73
		Juice	0.35	0.40	0.45	0.50	0.55	0.60	0.65
394.80	151.90	59.50	-4,382	-4,456	-4,529	-4,602	-4,674	-4,745	-4,815
451.20	173.60	68.00	-4,272	-4,330	-4,388	-4,445	-4,501	-4,556	-4,611
507.60	195.30	76.50	-4,162	-4,205	-4,247	-4,288	-4,328	-4,368	-4,407
564.00	217.00	85.00	-4,052	-4,079	-4,105	-4,131	-4,156	-4,180	-4,203
620.40	238.70	93.50	-3,942	-3,954	-3,964	-3,974	-3,983	-3,991	-3,999
676.80	260.40	102.00	-3,832	-3,828	-3,823	-3,817	-3,810	-3,803	-3,795
733.20	282.10	110.50	-3,723	-3,703	-3,682	-3,660	-3,638	-3,614	-3,591