UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2003

SAMPLE COSTS TO ESTABLISH AN APRICOT ORCHARD AND PRODUCE

APRICOTS

CENTRAL COAST- San Benito County

HOMESITE – Five-Acre Farm

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University of California and the United States Department of Agriculture, Risk Management Agency, cooperating.

INTRODUCTION

Sample costs to establish an apricot orchard and produce apricots on five-acres purchased as a home site in the Central Coast - San Benito County are presented in this study. This 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 farm. 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 to enter your farming 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 are available and can be requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-4424. Current studies can be obtained from selected county UC Cooperative Extension offices or downloaded from the department website at http://coststudies.ucdavis.edu.

ASSUMPTIONS

The following assumptions refer to tables 1 to 8 and pertain to sample costs to establish an apricot orchard (table 1) and produce apricots (tables 2 to 8) on five-acre home sites in the Central Coast - San Benito County. Practices described represent production practices considered typical for this crop and area. Practices listed may not be done during every production year, while practices not listed may be needed. Cultural practices vary by grower, region, and year. Differences can be significant. The practices and inputs used in the cost study serve as a guide only. **The use of trade names and cultural practices in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products or cultural practices.**

Farm. The hypothetical farm consists of five contiguous acres purchased for a home site. Apricots are established on four acres. The owner farms the orchard, but the main income is from off-farm sources. The owner/grower can choose to do the operations or hire custom/contract operators. Most costs in this study are assumed to be done by the grower, but show a labor or opportunity cost. Many contract or custom services have a minimum charge that is not taken into account in this study.

Establishment Operating Costs

Growers' data for establishing an apricot orchard was not available; therefore establishment costs were compiled from previous apricot cost studies and other tree crops recently planted in the area.

Site Preparation. A custom operator rips the ground in two directions, two to three-feet deep, to break up underlying hardpan and open the soil profile. The grower disks twice to break up clods, then floats twice to level and smooth the surface. Berms are made on which the trees are planted. All operations that prepare the orchard for planting are done in the year prior to planting, but costs are shown in the first year.

Trees. No specific variety is planted in this study, but 'Blenheim' on Mariana 2624 rootstock is the major variety in the area. In this study, the 1/2 inch grade budded trees are planted on 22 X 22 foot spacing, 90 trees per acre. The life of the orchard at planting is estimated to be 30 years.

Planting. Planting starts in late January/early February with surveying and marking tree sites using a small stake, digging holes, planting, and topping. Growers sometimes paint the trunk white to protect it from sunburn. The planting is done by contract labor. In the second year, the grower replants 2% of the orchard or two trees per acre.

Fertilization. In the first year, the trees are fertilized by hand with ammonium sulfate (21-0-0) at 12 pounds of nitrogen (N) per acre. In the second year, 20-pounds of N and in subsequent years 40-pounds of N are applied in liquid form as UN32 through the irrigation system. In the third year and every third year thereafter, leaf samples are taken to determine actual nutrient requirements. One third of the cost is charged to the orchard each year. Nitrogen is the major nutrient required for tree growth and optimum yields, but some locations may require additional nutrients.

Training/Pruning. Training and pruning begins in the August of the first year. In the first and second year the prunings are disked. Beginning the third year, prunings (brush) are placed in the middles and shredded, then incorporated in to the soil with the last disking.

Fruit Thinning. Hand thinning begins in the third year. The number of trips through the field and the time required for this operation increases as the yields increase.

Irrigation. In this study, water is calculated to cost $90 per acre-foot or $7.50 per acre-inch. No assumption is made about effective rainfall. The water applied to the orchard is shown in Table A**.** Price per acre-foot of water will vary by grower depending on power source, well characteristics, and irrigation district.

Table A. Applied Irrigation Water

Year	acin/year	$/acre
1	12	90
2	15	113
3+	18	135

Pest Management. The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Apricots.* See the Integrated Pest Management (IPM) website for other materials available.

Weeds. In this study, the tree row is sprayed prior to planting with preemergence (Goal) and contact (Roundup) herbicides. In-season sprays using Roundup are applied to the tree row in July. Winter strip sprays (Roundup and Goal) are applied during the dormant period (January) beginning in year two. The row middles are disked six times the first year – once prior to planting and five times during the growing season - and four times in subsequent years. Weed pressure, materials and application timing can vary each season.

Insects. The grower applies Asana for peach twig borer (PTB) in May. Because of tree size, the total material applied in the second year is less than that used on mature trees.

Disease. Beginning in the third year, Rovral plus oil to control brown rot and jacket rot is applied at redbud in February. A second application is applied in March during bloom. The grower applies the materials.

Harvest. Beginning in the third year, contract labor picks the fruit by hand and a commercial operator hauls the fruit to the drying yard. The orchard is assumed to yield 0.5 ton in the third year and 1.0 ton in the fourth year.

Production Operating Costs

Pruning. The orchard is pruned in late summer (August). Prunings are placed in the row middles, shredded, and incorporated in the soil at the last disking for weed control. Growers may also do a secondary pruning where dead and undesired limbs are removed. Both prunings are included in pruning costs, but in a separate operation the larger prunings are pushed to the orchard edge and burned.

Fruit Thinning. Fruit thinning in April is done manually with sticks by ground crews. The crews may thin two to three times.

Fertilization. Nitrogen at 40 pounds per acre as UN32 is applied through the irrigation system in July. Tree nutrient status is determined from leaf samples taken in July. Samples are taken every third year, therefore one-third of the cost is charged to the orchard each year.

Irrigation. The crop uses 18-acre inches of water, which the grower applies in equal amounts during May, July, and August. No assumption is made about effective rainfall. In this study, water is supplied from the San Luis Reservoir by way of the San Felipe Project and cost $90 per acre-foot or $7.50 per acre-inch.

Pest Management. The pesticides and rates mentioned in this cost study as well as other available pesticides, pest identification, monitoring, and management are available on the UC Integrated Pest Management website at www.ipm.ucdavis.edu. For information and pesticide use permits, contact the local county agricultural commissioner's office. Adjuvants (stickers, spreaders, buffers) may be required and/or recommended for use with many pesticides, but are not mentioned or included as a cost in this study.

Pest Control Adviser (PCA). Written recommendations are required for many pesticides and are made by licensed pest control advisers. In addition the PCA will monitor the field for agronomic problems including pests and nutrition. Growers may hire private PCA's or receive the service as part of a service agreement with an agricultural chemical and fertilizer company.

Weeds. Weeds are controlled in the tree row with winter and in-season strip sprays using preemergent/postemergent and contact herbicides. Goal and Roundup are applied in November (winter strip spray). Roundup is applied during the growing season (in-season strip spray). Winter weeds in the row middles are disked in March. During the growing season, row middles are disked three times – May, July, August – once after each irrigation. The August disking also incorporates and/or chops some of the prunings.

Insects. Asana for peach twig borer (PTB) is applied in May by the grower.

Disease. Rovral plus oil to control brown rot and jacket rot is applied at redbud in February. A second application is applied in March during bloom. The grower applies the materials.

Harvest. Contract labor picks the fruit by hand during early to mid-July and a custom operator hauls the fruit to the dry yard. It is assumed that the 8 to 10 person picking crew can pick 3.13 tons per hour. The grower furnishes a tractor with forks to move the filled fruit bins to the orchard edge for loading on the truck for delivery to the dry yard. It is assumed the dry yard furnishes the bins at no cost to the grower. The orchard is usually picked twice; the second pick is fruit that was not ripe during the first pick.

Yields. Yields of 3.5 tons per acre are assumed to be the average yield over the remaining life of the orchard. The yield is a three year average (2,000 to 2,002) of yields reported in the Agriculture Commissioners Crop Reports, San Benito County.

Returns. The crop is delivered and sold to a dry yard for $375 per ton, based on the above Agricultural Commissioners Crop Reports.

Labor. Hourly wages for workers are $10.00 and $7.50 per hour for machine and non-machine workers, respectively. Adding 45% for the employers share of federal and state payroll taxes, insurance, and other benefits gives the labor rates shown of $14.50 and $10.88 per hour for machine labor and non- 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 possible benefits. 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, 2003 (California Department of Insurance). 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 the American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum PTO horsepower and fuel type. Prices for on-farm delivery of diesel and gasoline are $1.11 and $1.58 per gallon, respectively. The fuel prices are a January 2003 average based on four California delivery locations. The cost includes a 2.25% sales tax (effective September 2001) on diesel fuel and 7.25% sales tax on gasoline. Gasoline also includes federal and state excise tax, which can be refunded for on-farm use when filing your income tax. The fuel, lube, and repair cost per acre for each operation in the "Cost Per Acre to Produce" table is determined by multiplying the total hourly operating cost in the "Hourly Equipment Costs" table for each piece of equipment used from the Operation Time (Hrs/A) column 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 7.14% 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.

Risk. The risks associated with producing and marketing apricots are high. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks, which affect the profitability and economic viability of apricot production.

Cash Overhead

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

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 0.676% of the average value of the assets over their useful life. Liability insurance covers accidents on the five-acre farm and costs $419 for the entire farm. Small hobby farms may have additional insurance costs.

Office Expense. Office and business expenses are estimated at $125 per producing acre or $500 per farm. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, shop utilities and miscellaneous administrative costs.

Establishment Cost. Costs to establish the orchard are used to determine the non-cash overhead expenses, capital recovery, and interest on investment for the production years. The establishment cost is the sum of cash costs for land preparation, planting, trees, production expenses, and cash overhead for growing apricot trees through the first year fruit are harvested less returns from production. The *Accumulated Net Cash Cost* in the third year shown in Table 1 represents the establishment cost per acre. For this study, the cost is $2,898 per acre or $11,592 for the four-acre orchard. Establishment cost is amortized beginning in the fourth year over the remaining 27 years of production.

Supervisor/Management Salaries. Wages for management are not included as a cash cost. Any return above total costs is considered a return to management and risk.

Investment Repairs. Costs are calculated as 2% of the purchase price on investments listed in Table 6.

Non-cash Overhead (Investments).

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 (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. The interest rate of 6.25% used to calculate capital recovery cost is the United States Department of Agriculture-Economic Reporting Service's (USDA-ERS) 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.

Irrigation System. The cost includes the filtration system, installation and materials for the micro-sprinklers. Water from the San Luis Reservoir by way of the San Felipe Project is delivered by pressurized pipe to each farm. The system is connected directly to the pressurized pipe.

Land. Current market prices for five-acre ranchettes are $450,000. Being the land is purchased mainly for a home site, the value of the land is not included as overhead costs.

Shop/Field Tools. Data is based on possible inventory of items a grower of this size may use. The tools include hand tools and small bench equipment for the shop (vise, grinder, etc.). Field tools for pruning and thinning, such as field ladders, picking baskets, thinning poles, and related tools are included.

Equipment 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 repairs, fuel, and lubrication and are discussed under operating costs. Although farm equipment used for apricots 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 the tables and represent the capital recovery cost for investments on an annual per acre basis.

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.

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Table 1. SAMPLE COSTS PER ACRE TO ESTABLISH AN APRICOT ORCHARD

CENTRAL COAST - San Benito County 2003

	Cost Per Acre			
Crop Year = January to December Year:	1st	2nd	3rd	4th
Yield: tons per acre			0.50	1.00
Planting Costs:				
Land Preparation - Subsoil 2X	300			
Land Preparation - Disk 2X	12			
Land Preparation - Float 2X	15			
Land Prep-Weed: Disk Middles	5			
Land Prep-Berms	15			
Land Prep-Weed: Preplant Strip Spray	33			
Trees: 90 Per Acre @ $4.25 ea., (2 in 2nd year)	383	9		
Survey, Mark, Dig Holes & Plant	184	11		
TOTAL PLANTING COSTS	947	20		
Cultural Costs:				
Pruning, Training	33	76	147	174
Brush Disposal			6	6
Fertilizer - Nitrogen	5	6	13	13
Weed Control - Winter Strip Spray		33	33	33
Weed Control - Disk Middles 5X Yr 1, 4X Yr 2	30	20	20	20
Weed Control - In-Season Strip Spray	7	7	7	7
Irrigate	105	128	157	157
Insect Control - PTB (Asana)		13	18	18
Insect Control - Brown Rot, Jacket Rot (Rovral)			54	54
TOTAL CULTURAL COSTS	180	283	455	482
Harvest Costs:				
Pick and Haul			55	110
TOTAL HARVEST COSTS			55	110
Interest On Operating Capital @ 7.14%	46	3	4	4
TOTAL OPERATING COSTS/ACRE	1,170	306	514	596
Cash Overhead Costs:				
Office Expense	125	125	125	125
Liability Insurance	105	105	105	105
Property Taxes	37	49	54	54
Property Insurance	25	33	36	36
Investment Repairs	56	56	56	56
TOTAL CASH OVERHEAD COSTS	348	368	376	376
TOTAL CASH COSTS/ACRE	1,521	674	890	972
INCOME/ACRE FROM PRODUCTION			188	375
NET CASH COSTS/ACRE FOR THE YEAR	1,521	674	703	597
PROFIT/ACRE ABOVE CASH COSTS				
ACCUMULATED NET CASH COSTS/ACRE	1,521	2,195	**2,898**	3,495
Capital Recovery				
Land (See Assumptions)				
Shop Building	151	151	151	151
Sprinkler Irrigation System	64	64	64	64
Equipment	269	408	499	499
TOTAL INTEREST ON INVESTMENT	484	623	714	714
TOTAL COST/ACRE FOR THE YEAR	2,005	1,297	1,604	1,686
INCOME/ACRE FROM PRODUCTION			188	375
TOTAL NET COST/ACRE FOR THE YEAR	2,005	1,297	1,417	1,311
NET PROFIT/ACRE ABOVE TOTAL COST			0	0
TOTAL ACCUMULATED NET COST/ACRE	2,005	3,302	4,719	6,030

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Table 2. COSTS PER ACRE TO PRODUCE APRICOTS

CENTRAL COAST - San Benito County 2003

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per acre: Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:							
Weed-Spray Tree Row Grower	0.23	4	1	28	0	33	
Pest-Brown & Jacket Rot (Rovral)	0.33	6	2	46	0	54	
Weed Control - Disk Middles 4X	0.88	15	4	0	0	20	
Thin Fruit - Hand	17.00	185	0	0	0	185	
Pest-PTB (Asana)	0.33	6	2	10	0	18	
Irrigate	1.35	15	0	142	0	157	
Weed Control - In season Strip	0.23	4	1	2	0	7	
Leaf Analysis	0.04	0	0	5	0	5	
Fertilize UN32 through micro-sprinklers	0.00	0	0	13	0	13	
Prune	25.00	272	0	0	0	272	
Shred Prunings	0.33	6	2	0	0	8	
Large limbs pushed out/burned	0.50	11	2	0	0	14	
TOTAL CULTURAL COSTS	46.23	524	15	246	0	784	
Harvest:							
Harvest	1.12	19	5	350	0	375	
Haul	0.00	0	0	35	0	35	
TOTAL HARVEST COSTS	1.12	19	5	385	0	410	
Interest on operating capital @ 7.14%						11	
TOTAL OPERATING COSTS/ACRE		544	20	631	0	1,205	
CASH OVERHEAD:							
Office Expense						125	
Liability Insurance						105	
Property Taxes						77	
Property Insurance						52	
Investment Repairs						88	
TOTAL CASH OVERHEAD COSTS						447	
TOTAL CASH COSTS/ACRE						1,652	

NON-CASH OVERHEAD:	Per producing Acre	Annual Cost Capital Recovery	
Building	2,125	151	151
Orchard Establishment Costs	2,898	225	225
Shop/Field Tools	1,625	223	223
Irrigation System – Micro - sprinklers	900	64	64
Equipment	6,412	475	475
Land (See assumptions)	0	0	0
TOTAL NON-CASH OVERHEAD COSTS	13,960	1,138	1,138
TOTAL COSTS/ACRE			2,790

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Table 3. COSTS AND RETURNS PER ACRE TO PRODUCE APRICOTS

CENTRAL COAST - San Benito County 2003

	Quantity /Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Apricots for Drying	3.50	ton	375.00	1,313	
OPERATING COSTS					
Insecticide:					
Asana XL	10.00	floz	1.04	10	
Superior Spray Oil	2.00	gal	3.19	6	
Fungicide:					
Rovral 4F	1.50	pt	26.50	40	
Herbicide:					
Roundup Ultramax	0.44	pt	7.25	3	
Goal 2XL	1.75	pt	15.00	26	
Irrigation:					
Water	18.00	acin	7.90	142	
Contract/Custom:					
Harvest – Hand Pick	3.50	ton	100.00	350	
Hauling	3.50	ton	10.00	35	
Leaf Analysis	0.33	each	15.00	5	
Fertilizer:					
UN-32	40.00	lb N	0.31	13	
Labor (machine)	4.75	hrs	14.50	69	
Labor (non-machine)	43.64	hrs	10.88	475	
Fuel - Diesel	11.77	gal	1.11	13	
Lube				2	
Machinery repair				5	
Interest on operating capital @ 7.14%				11	
TOTAL OPERATING COSTS/ACRE				1,205	
NET RETURNS ABOVE OPERATING COSTS				107	
CASH OVERHEAD COSTS:					
Office Expense				125	
Liability Insurance				105	
Property Taxes				77	
Property Insurance				52	
Investment Repairs				88	
TOTAL CASH OVERHEAD COSTS/ACRE				447	
TOTAL CASH COSTS/ACRE				1,652	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Building				151	
Shop/Field Tools				223	
Orchard Establishment Costs				225	
Irrigation System				64	
Equipment				475	
Land (not included-See Assumptions)				0	
TOTAL NON-CASH OVERHEAD COSTS\ACRE				1,138	
TOTAL COSTS/ACRE				2,790	
NET RETURNS ABOVE TOTAL COSTS				-1,478	

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Table 4. MONTHLY CASH COSTS PER ACRE TO PRODUCE APRICOTS

CENTRAL COAST - San Benito County 2003

Beginning JAN 03 Ending DEC 03	JAN 03	FEB 03	MAR 03	APR 03	MAY 03	JUN 03	JUL 03	AUG 03	SEP 03	OCT 03	NOV 03	DEC 03	TOTAL
Weed-Spray Tree Row	33												33
Pest-Brown & Jacket Rot (Rovral)		54											54
Weed Control - Disk Middles			5		5		5	5					20
Thin Fruit - Hand			185										185
Pest-PTB (Asana)					18								18
Irrigate					52		52	52					157
Weed Control - In season Strip Spray							7						7
Leaf Analysis							5						5
Fertilize through drip (UN32)							13						13
Prune - Hand								272					272
Shred Prunings								8					8
Large limbs pushed out/burned									14				14
TOTAL CULTURAL COSTS	33	54	190	0	75	0	82	337	14	0	0	0	784
Harvest:													
Harvest & Haul Custom							410						410
TOTAL HARVEST COSTS							410						410
Interest on operating capital	0	1	2	2	2	2	5	-2	0	0	0	0	11
TOTAL OPERATING COSTS/ACRE	33	54	192	2	77	2	496	335	14	0	0	0	1,205
OVERHEAD:													
Office Expense	14	14	14	14	14	14	14	14	14				125
Liability Insurance							105						105
Property Taxes				38								38	77
Property Insurance	52												52
Investment Repairs	7	7	7	7	7	7	7	7	7	7	7	7	88
TOTAL CASH OVERHEAD COSTS	73	21	21	60	21	21	126	21	21	7	7	46	447
TOTAL CASH COSTS/ACRE	106	75	213	61	99	23	622	356	35	7	7	46	1,652

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Table 5. RANGING ANALYSIS
CENTRAL COAST - San Benito County 2003

COSTS PER ACRE AT **VARYING YIELDS** TO PRODUCE APRICOTS

	YIELD (ton/acre)						
	2.00	2.50	3.00	3.50	4.00	4.50	5.00
OPERATING COSTS							
Cultural Cost	784	784	784	784	784	784	784
Harvest Cost	217	281	345	410	474	538	602
Interest on operating capital	10	10	11	11	11	12	12
TOTAL OPERATING COSTS	1,011	1,075	1,140	1,205	1,269	1,334	1,398
Total Operating Costs/ton	506	430	380	344	317	296	280
CASH OVERHEAD COSTS	446	446	446	446	446	446	446
TOTAL CASH COSTS	1,457	1,521	1,586	1,651	1,715	1,780	1,844
Total Cash Costs/ton	729	608	529	472	429	396	369
NON-CASH OVERHEAD COSTS	1,138	1,138	1,138	1,138	1,138	1,138	1,138
TOTAL COSTS	2,595	2,659	2,724	2,789	2,853	2,918	2,982
Total Costs/ton	1,298	1,064	908	797	713	648	596

NET RETURNS PER ACRE **ABOVE OPERATING** COSTS

	YIELD (ton/acre)						
$/ton	2.00	2.50	3.00	3.50	4.00	4.50	5.00
300.00	-411	-325	-240	-155	-69	16	102
325.00	-361	-263	-165	-68	31	129	227
350.00	-311	-200	-90	20	131	241	352
375.00	-261	-138	-15	108	231	354	477
400.00	-211	-75	60	195	331	466	602
425.00	-161	-13	135	283	431	579	727
450.00	-111	50	210	370	531	691	852

NET RETURNS PER ACRE **ABOVE CASH** COSTS

	YIELD (ton/acre)						
$/ton	2.00	2.50	3.00	3.50	4.00	4.50	5.00
300.00	-857	-771	-686	-601	-515	-430	-344
325.00	-807	-709	-611	-514	-415	-318	-219
350.00	-757	-646	-536	-426	-315	-205	-94
375.00	-707	-584	-461	-339	-215	-93	31
400.00	-657	-521	-386	-251	-115	20	156
425.00	-607	-459	-311	-164	-15	133	281
450.00	-557	-396	-236	-76	85	245	406

NET RETURNS PER ACRE **ABOVE TOTAL** COSTS

	YIELD (ton/acre)						
$/ton	2.45	2.80	3.15	3.50	3.85	4.20	4.55
300.00	-1,995	-1,909	-1,824	-1,739	-1,653	-1,568	-1,482
325.00	-1,945	-1,847	-1,749	-1,652	-1,553	-1,456	-1,357
350.00	-1,895	-1,784	-1,674	-1,564	-1,453	-1,343	-1,232
375.00	-1,845	-1,722	-1,599	-1,477	-1,353	-1,231	-1,107
400.00	-1,795	-1,659	-1,524	-1,389	-1,253	-1,118	-982
425.00	-1,745	-1,597	-1,449	-1,302	-1,153	-1,006	-857
450.00	-1,695	-1,534	-1,374	-1,214	-1,053	-893	-732

UC COOPERATIVE EXTENSION

Table 6. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT AND BUSINESS OVERHEAD

CENTRAL COAST - San Benito County 2003

ANNUAL EQUIPMENT COSTS

						Cash Overhead		
Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
03	55HP 5320 2WD Tractor	24,605	30	6,151	1,761	104	154	2,019
03	Brush Rake	1,584	25	317	121	6	10	137
03	Disk-Harrow 8'	7,000	30	1,400	505	28	42	576
03	Loader Forks	810	30	162	58	3	5	67
03	Mower/Chopper 8’	6,713	30	1,343	485	27	40	552
03	Orchard Sprayer 500 Gallon	19,741	25	4,712	1,498	83	122	1,703
03	Weed Sprayer 100 Gallon	3,550	20	0	316	12	18	346
TOTAL		64,003		14,085	4,744	263	391	5,400
		25,601		5,634	1,898	105	156	2,160

*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
INVESTMENT								
Building	8,500	35		604	29	43	150	825
Establishment Costs	11,592	27		900	39	58	0	997
Irrigation System	3,600	35		256	12	18	72	358
Shop/Field Tools	6,500	10		894	22	33	130	1,078
Land (See assumptions)	0							0
TOTAL INVESTMENT	30,192			2,654	102	152	352	3,258

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	5	acre	83.80	419
Office Expense	4	acre	125.00	500

UC COOPERATIVE EXTENSION

Table 7. HOURLY EQUIPMENT COSTS

CENTRAL COAST - San Benito County 2003

			COSTS PER HOUR						
		Actual		Cash Overhead		Operating			
Yr	Description	Hours Used	Capital Recovery	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
03	55HP 5320 2WD Tractor	17.40	40.48	2.39	3.53	0.59	3.45	4.04	50.44
03	Brush Rake	2.00	24.26	1.29	1.90	0.18	0	0.18	27.63
03	Disk-Harrow 8'	3.50	57.42	3.23	4.77	0.63	0	0.63	66.05
03	Loader Forks	4.50	5.23	0.29	0.43	0.08	0	0.08	6.05
03	Mower/Chopper 8'	1.30	145.73	8.19	12.11	1.67	0	1.67	167.70
03	Orchard Sprayer 500 G	2.70	225.30	12.43	18.38	0.89	0	0.89	257.00
03	Weed Sprayer 100 G	1.80	68.66	2.61	3.86	0.39	0	0.39	75.51

UC COOPERATIVE EXTENSION

Table 8. OPERATIONS WITH EQUIPMENT and MATERIALS LISTED

CENTRAL COAST - San Benito County 2003

Operation	Operation Month	Equipment Tractor	Equipment Implement	Material	Rate/acre	Unit
Cultural:						
Pest-Brown & Jacket Rot (Rovral)	February	55HP 2WD	Orchard Sprayer	Rovral 4F	1.50	pint
				Superior Oil	2.00	gal
Pest-PTB (Asana)	May	55HP 2WD	Orchard Sprayer	Asana XL	10.00	floz
Weed-Spray Tree Row	January	55HP 2WD	Weed Sprayer	Roundup UltraMax	0.22	pint
				Goal 2XL	1.75	pint
Weed - In season Strip Tree Row	July	55HP 2WD	Weed Sprayer	Roundup UltraMax	0.22	pint
Weed Control - Disk Middles 4X	March	55HP 2WD	Disk-Harrow 8'			
	May	55HP 2WD	Disk-Harrow 8'			
	July	55HP 2WD	Disk-Harrow 8'			
	August	55HP 2WD	Disk-Harrow 8'			
Thin Fruit – Hand w/Poles	March			Labor	17.00	hours
Irrigate	May			Water + Labor	6.00	acin
	July			Water + Labor	6.00	acin
	August			Water + Labor	6.00	acin
Leaf Analysis 1X/3 Yr	July			Analysis + Labor		acre
Fertilize UN32 through drip	July			UN32	40.00	lb N
Prune - Hand	August			Labor	25.00	hours
Shred Prunings	August	55HP 2WD	Mower/Chopper 8’			
Large limbs pushed out/burned	September	55HP 2WD	Brush Rake			
Harvest	July	55HP 2WD	Loader Forks	Contract Picking Labor	100.00	ton
Haul				Contract	10.00	ton