UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

PROJECTED COSTS TO ESTABLISH A BLUEBERRY ORCHARD AND PRODUCE BLUEBERRIES

COASTAL REGIONS OF CALIFORNIA 2002
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INTRODUCTION

Blueberry production in California is expanding. There are about 1,300 acres with most of the production being in the southern region and Central Valley. . Though total acreage has been expanding, much of the production is new therefore actual production data is not fully yet available. However, we recognize the need for projected cost studies that will provide basis for growers to evaluate the prospects of their investment and future consideration. This projected study is intended as a guide for making production decisions, estimating potential returns, preparing budgets and evaluating production loans. A blank "Your Costs" column in Tables 2 and 3 is provided for entering and evaluating your farm costs.

The hypothetical farm operations (production practices and cost calculations) are described in the assumptions section. For additional information or explanations of the assumptions and calculations used in this study, please contact Eta Takele, the Farm Management advisor, University of California Cooperative Extension. This projected cost study will be available at the Farm Management Website of the University of California Cooperative Extension Program for southern California at: http://groups.ucanr.org/farmgt,

ASSUMPTIONS: BASIS AND METHODS OF COST CALCULATIONS

Costs and returns projections in this study are based on data (cost studies) from other producing states such as Oregon and Florida as well as from similar production practices of other crops in the Coastal region of California. Costs for labor, materials, equipments and custom services are based on 2002 figures. Production practices information based on new research in California are available in the following websites.

http://www.sfc.ucdavis.edu/research/figure3.htm
http://www.sfc.ucdavis.edu/research/blueberryupdate.html
http://www.sfc.ucdavis.edu/pubs/brochures/blueberries.html
http://www.sfc.ucdavis.edu/research/fieldday.html

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 Preparation. Costs for this operation are estimated based on assumptions that the operations will be done using a custom operator to rip the ground in a similar style as a strawberry field. The cost of ripping the field is estimated to be $375 per acre. All land preparation operations such as orchard layout and bed preparations are assumed to be done using rototiller. Blueberry production prefers acidy soil. Therefore it may be necessary to adjust the soil using sulphur and Mulch (Sawdust) . Table A depicts the amount of Sulphur and Mulch (Sawdust) we assumed to be applied.

TABLE A. AMOUNT OF SULPHUR AND MULCH (SAWDUST) APPLIED

Year	Amount of Sulphur (Ib/acre)	Mulch(Sawdust) (Ib/acre)
1	1000	100
2	200	10
3	200	10
4	200	10
5	200	10
6	200	10
Production	200	10

Planting. In this study, we assumed a planting space of 3 feet x 10 feet with 1452 trees per acre. It is assumed that 2% of the trees may die and be replanted in the second year. Planting labor is estimated at about a minute per blueberry seedling. Trees costs are estimated at $2.25 each. Cover crop is included at a cost of $13 per acre.

Training and Pruning. We projected this operation to be done every year beginning the second year with light topping and hedging . Annual pruning cost is estimated at $290.40 per acre. It is assumed that about a minute is required to perform pruning operation for a tree.

Fertilization., Urea and sulpheric acid fertilizers are considered to be applied at a rate of 35 gallons per acre starting year one. Application includes three times each year, using the irrigation system.

Fertilizer application includes nutrient determination of Nitrogen (N), Phosphrous (P), Potassium (K), Zinc (Zn) and Boron (B) using soil analysis every year beginning the first year and leaf tissue analysis every year beginning year three.. The annual cost of tissue analysis and soil analysis is estimated to be $5 per acre. Also, for well water irrigation, an analysis should be done periodically to determine nitrate availability, salinity, chloride and sodium pH.

Irrigation. Growers in the Costal Region of California use both district water or have on site wells. Well water provides the majority of the growers' needs. Growers purchasing acreage for a new farm will likely have an established well on site or access to water mutual that shares wells. District water may be delivered, stored and pumped from a reservoir through a filtration system. Water costs are calculated based upon the use of both well and district sources. Water cost for this study is assumed to cost $204 per acre-foot

Water use is estimated at 24 acre inches/ acre every year. No assumption is made about effective rainfall, evaporation, or runoff. Information on evapotranspiration and rainfall are available from various sources. In the Costal Region of California evapotranspiration information can be obtained from the Fox Canyon Groundwater Management Agency (http://www.foxcanyongma.org and from California Irrigation Management Information System (CIMIS) at www.cimis.water.ca.gov/cimis. Annually the field is irrigated weekly for 40 weeks.

Pest Management. The following is included for pest management in our projection.

Weeds. Each year beginning the first year, cover crops are moved in alleys three times. Cover crops are used to control weeds.In addition, hand weeding is performed once each week starting the first year. One hour per acre is projected for hand weeding.

Diseases. Some diseases are common in the blueberry orchard. In this study, farmers treat and control fungus problem with the application of copper (Roveral). This treatment is undertaken once in a year throughout establishment and production period.

Bird control. Bird control is needed to control fruit loses. Nets are used for this purpose. In the first year, wires and posts are installed for supporting the nets when needed. Bird monitoring activities are assumed to begin the third year.

Pollination: Beehives for pollination are needed beginning year three. Costs of beehives as applied to other crops are quoted to be $70 per acre.

Harvesting, Hauling and Marketing: Fruit picking is assumed to begin at year three,, Fruits are harvested into a bucket container weighing 6-8 oz. Buckets cost around $65/650 units or $0.11/bucket.. Picking and packing costs estimates are based on Oregon's cost study at $0.45/Ib . Transportation to a local packing house, and unloading are estimated at $0.01/Ib. Selling costs are estimated at $0.05/lb.

Yield: Table B. provides yield estimates we used to project returns. The yield estimates are derived from UC experiments and from other states (Blueberry Economics, Oregon State University). We assumed fruit bearing age to be year three. However, we considered establishment or full development of the orchard to be sixth years. In this study, an average yield of 10Ib/ tree is considered the typical yield for mature orchards.

TABLE B. ESTIMATED ANNUAL YIELD FOR BLUEBERRY COSTAL REGION OF CALIFORNIA, 2002

Year	Ibs/tree	Ibs/acre
3	5	7260
4	7	10164
5	8	11616
6	9	13068
Production	10	14520

Crop Returns: Crop values vary depending on yield of the orchard and prices received by individual growers. Wholesale prices at the LA market range from $0.80/lb to $2.50/lb depending on season. We used a yield level of 14520Ib/acre and a price of $1.05/ lb as a basis to approximate the typical crop value. The entire crop is assumed to be sold fresh. We also provided other scenarios of crop value by varying the yield and prices levels so that growers would be able to choose the best fit for their specific situation. Crop values during the establishment years are used to offset costs.

Labor Costs. Labor for both machine and manual labor is estimated at $12.00/hr for both the owner and hired labor..

Fuel, Lubricant and repair costs. Based on other cost studies (lemons, avocados) in the Coastal region, machinery costs for fuel, lubricant and repair are estimated at $14/hour.

Cash Overhead Costs: Cash overhead costs consisting of interest on operating capital, property taxes and insurance, office expenses, investment repairs are based on other tree crop cost studies done for the Coastal region of California.

*Interest on Operating Capital***.** This is the cost of borrowing or the opportunity cost for the money used in the business of producing blueberry. A nominal interest is the rate charged by financial institutions for operating loans.

*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 properties including equipment, buildings, and improvements. For this study, annual property taxes are calculated at 1.0 % of the value of land. For depreciable assets, annual property taxes are calculated at the base county rate of 1.0% of the average value of the property. Average value equals value or cost of the investment plus salvage value divided by two. Property taxes are then divided by the number of acres of the farm or enterprise to obtain the per acre costs.

Insurance. Insurance for farm investments varies depending on the assets used for the farm and the amount of coverage. Property insurance provides coverage for property loss and is charged annually at 0.70% of the average value of the assets over their useful life.

Office Expenses. Office expenses are estimated at $180 per acre. Office expenses include rent, supplies, telephone, bookkeeping, accounting, legal fees, shop and utilities and miscellaneous administrative expenses.

*Investment Repairs***.** Annual investment repairs and maintenance costs including buildings, irrigation system, fuel tanks and pumps and tools are estimated at $84 per acre.

*Management/Supervisor Salaries***.** Management charges are not included in this study. We suggest that growers divide the returns after all costs between management and profit as they see fit.

Non-Cash Overhead Costs: Non-cash overhead costs also referred as ownership or fixed costs including depreciation and interest on capital investments are based on other tree cost studies done for the Coastal region. These costs for farm equipment, farm buildings, irrigation system, farm tools and fuel pumps are calculated using the capital recovery system (a combined cost of interest on investment and depreciation).

Equipment and Investment. Ownership costs for the various machineries, equipments and investments are assumed at a value of 60% of the new cost in order to account for the mix of old and new equipment in the farm.

Irrigation System. The Irrigation system investment includes the costs of building a reservoir (built on the site to store water from the water district) as well as the costs of pumps, filtration

station, fertilizer injector system and the labor to install the components. The filtration/injector station is installed at planting. The irrigation system is set up for drip irrigation method and has a life of 30 years.

Building. The farm is assumed to have a metal building and sheds built on cement slab. It includes a packing shed area.

Farm tools. This category includes pruning and picking clips, lug boxes and other miscellaneous farm tools used in the production of blueberry.

Land rent. Land does not depreciate, therefore, only the rental value is calculated to reflect the opportunity cost of using the land for production of blueberry instead of other alternative uses. The opportunity cost of land is calculated at the 6.5% (the long-run rate of return of agricultural assets to current income) of its value. The land value ranges are given from $18,000 to $30,000 per acre, by the American Society of Farm Managers and Rural Appraisers (http://www.asfmra.org). Land in this particular study is valued at an average price of $ 27,500 per acre.

Tree Establishment Costs. The cumulative net costs (gross returns less costs) incurred to establish/develop the trees into the production period are referred as the establishment cost. This value is amortized over the number of years of expected useful life of the orchard to determine an annual charge for depreciation of trees and the opportunity cost of the investment.

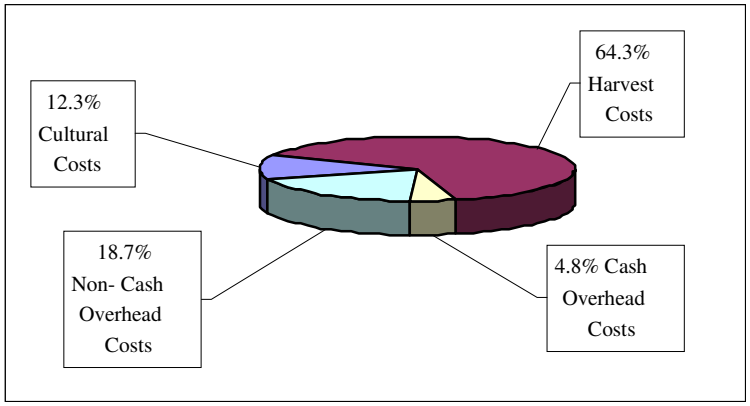
SUMMARY

This study provides a projection of costs of establishment and production for blueberries in the Coastal region of southern California. An actual study will be conducted when sufficient data will be available on establishment and production of this crop.

Our projected cost for the six years of establishment period of a blueberry orchard in the Costal region of California is $17,729 /acre (Table 1). The costs include $11,369/acre during the first year, $4,440/acre during the second year, $1,746/acre during the third year, $646/acre during the fourth year and $79/acre during the fifth year. During the six year, there is a net return of 551/acre, which means a negative net cost for that year of establishment.

The annual production cost is $13,917/acre or $0.96/Ib of blueberry (Table 1). The proportion of production costs by category is shown in the pie graph (Figure 1). The breakdown includes 12.3% accounted for by cultural costs such as pruning, weed control, fertilization, irrigation and bird control, 64% by harvesting (picking, hauling,, marketing and inspection, 5% by cash overhead costs including liability insurance, root analysis, lab tissue analysis, office expenses, property taxes, property insurance and investment repairs. Non-cash overhead or annual ownership costs of land rent, equipments, buildings, tools, and irrigation system accounts for 18.7 %.

FIGURE 1. PROPORTION OF PRODUCTION COSTS FOR BLUEBERRY IN COSTAL REGION OF SOUTHERN CALIFORNIA, 2002



PROFIT ANALYSIS

We analyzed profitability using break-even costs per pounds as well as using gross and economic margins.

Break-even costs allow growers to compare expected market prices with a unit cost of production. Unit costs of production are calculated as the cost of production per acre divided by yield per acre. Gross margin (or returns above cash costs) is what growers often refer to as profit if there is no debt on the farming operation. It approximates the return to management and investment. If you deduct depreciation, it also approximates the taxable income of the investment. Gross margin is calculated as gross returns (price times yield) minus cash costs of production.

Economic profit (or returns above all total cost including management) is a measure of how attractive the enterprise is for potential investors. Economic profit can be zero or positive. A zero economic profit should not be alarming if all costs including the owners' labor and management fees are included in the production cost. In this study we didn't include management charges. The return after all costs are deducted can be allocated to management and profit determined by the grower.

Crop yield and prices received by growers vary from individual to individual. In order to give growers choices from which they can choose their possible scenario, we calculated break-even costs at several yields starting from 6 pounds per tree to 14 pounds per tree. We also calculated gross and economic margins at various prices and yield levels (Table 2).

TABLE C. BLUEBERRY SUMMARY OF COSTS

Year		1	2	3	4	5	6	Prod.
Yield/tree				5	7	8	9	10
Yield/acre				7,260	10,164	11,616	13,068	14,520
Price/lb	1.05							
Gross returns/acre				7,623	10,672	12,197	13,721	15,246
Cultural		9,282	1,660	1,706	1,706	1,706	1,706	1,706
Harvest				4,483	6,268	7,161	8,054	8,946
Cash overhead		849	1,543	1,943	2,107	2,171	2,174	669
Non-cash overhead		1,238	1,238	1,238	1,238	1,238	1,238	2,596
Total costs		11,369	4,440	9,369	11,318	12,275	13,171	13,917
Returns to management		-11,369	-4,440	-1,746	-646	-79	551	1,329
Accumulated establishment cost		11,369	15,809	17,555	18,201	18,280	17,729	

Cultural: material, labor, machinery (fuel, lube and repair) for planting, fertilization, pest, & disease control
Harvest: picking, packing, & containers
Cash overhead: interest on investment, property taxes, insurance, & office expenses
Non-cash overhead: land rent, investment, & machinery fixed costs

TABLE D.BLUEBERRY PROFITABILITY ANALYSIS

Yield: lbs/tree	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
Yield: lbs/acre	8,712	10,164	11,616	13,068	14,520	15,972	17,424	18,876	20,328
Part A. Cost per acre and per pound at varying yield									
Operating costs/acre:									
Cultural Costs	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706
Harvest labor & material	5,356	6,249	7,142	8,035	8,927	9,820	10,713	11,605	12,498
Harvest machine & mach.lab.	19	19	19	19	19	19	19	19	19
TOTAL OPERATING COSTS/ACRE	7,081	7,974	8,867	9,760	10,652	11,545	12,438	13,330	14,223
TOTAL OPERATING COSTS/POUN	0.81	0.78	0.76	0.75	0.73	0.72	0.71	0.71	0.70
CASH OVERHEAD COSTS/ACRE	669	669	669	669	669	669	669	669	669
TOTAL CASH COSTS/ACRE	7,750	8,643	9,536	10,428	11,321	12,214	13,107	13,999	14,892
TOTAL CASH COSTS/POUND (GROSS MARGIN BREAKEVEN)	0.89	0.85	0.82	0.80	0.78	0.76	0.75	0.74	0.73
NON-CASH OVERHEAD COSTS/A	2,596	2,596	2,596	2,596	2,596	2,596	2,596	2,596	2,596
TOTAL COSTS/ACRE	10,346	11,238	12,131	13,024	13,917	14,809	15,702	16,595	17,488
TOTAL COSTS/POUND (RETURNS TO MANAGEMENT BREAKEVEN)	1.19	1.11	1.04	1.00	0.96	0.93	0.90	0.88	0.86
Part B. Returns per acre above operating costs									
Price ($/pound):									
0.90	759	1,174	1,588	2,002	2,416	2,830	3,244	3,658	4,072
0.95	1,195	1,682	2,168	2,655	3,142	3,628	4,115	4,602	5,088
1.00	1,631	2,190	2,749	3,308	3,868	4,427	4,986	5,546	6,105
1.05	2,066	2,698	3,330	3,962	4,594	5,226	5,858	6,489	7,121
1.10	2,502	3,206	3,911	4,615	5,320	6,024	6,729	7,433	8,138
1.15	2,937	3,715	4,492	5,269	6,046	6,823	7,600	8,377	9,154
1.20	3,373	4,223	5,072	5,922	6,772	7,621	8,471	9,321	10,170
Part C. Returns per acre above all cash costs (gross margin analysis)									
Price ($/pound):									
0.90	91	505	919	1,333	1,747	2,161	2,575	2,989	3,403
0.95	526	1,013	1,500	1,986	2,473	2,960	3,446	3,933	4,420
1.00	962	1,521	2,080	2,640	3,199	3,758	4,317	4,877	5,436
1.05	1,397	2,029	2,661	3,293	3,925	4,557	5,189	5,821	6,452
1.10	1,833	2,538	3,242	3,946	4,651	5,355	6,060	6,764	7,469
1.15	2,269	3,046	3,823	4,600	5,377	6,154	6,931	7,708	8,485
1.20	2,704	3,554	4,404	5,253	6,103	6,953	7,802	8,652	9,502
Part D. Returns above all costs (returns to management analysis)									
Price ($/pound):									
0.90	-2,505	-2,091	-1,677	-1,263	-849	-435	-20	394	808
0.95	-2,069	-1,583	-1,096	-609	-123	364	851	1,337	1,824
1.00	-1,634	-1,074	-515	44	603	1,163	1,722	2,281	2,840
1.05	-1,198	-566	66	698	1,329	1,961	2,593	3,225	3,857
1.10	-762	-58	646	1,351	2,055	2,760	3,464	4,169	4,873
1.15	-327	450	1,227	2,004	2,781	3,558	4,336	5,113	5,890
1.20	109	958	1,808	2,658	3,507	4,357	5,207	6,056	6,906

Projected Establishment and Production Costs and Returns for Blueberries
Coastal Regions of California 2002
Plant Spacing of 3'x10' or 1,452 plants/acre; Labor Wages at $12/hr
6 establishment and 30 full production years

Operation	Unit	$/ Unit	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Production Year	
			Quant. /Acre	$/Acre	Quant. /Acre	$/Acre	Quant. /Acre	$/Acre	Quant. /Acre	$/Acre	Quant. /Acre	$/Acre	Quant. /Acre	$/Acre	Quant. /Acre	$/Acre
Fresh blueberries (lb/tree)							**5**		**7**		**8**		**9**		**10**	
GROSS RETURNS																
Yield (lb/ac) & Returns ($/ac)	lb	1.05					7,260	7,623	10,164	10,672	11,616	12,197	13,068	13,721	14,520	15,246
Prices: Blueberries, (FL $1.079/lb; NC $1.11/lb)																
(CA $0.80/lb~$2.50/lb at wholesale)																
Processed blueberries	lb	0					0	0	0	0	0	0	0	0		
Total Gross Returns							**7,260**	**7,623**	**10,164**	**10,672**	**11,616**	**12,197**	**13,068**	**13,721**	**14,520**	**15,246**
VARIABLE COSTS																
Field Preparation																
Rip field (custom) - based on strawb	ac	375	1	375												
Orchard layout (bed form)																
Machine labor	hr	12	0.55	6.6												
Machine (fuel, lube, & repair)	hr	14	0.5	7												
Irrigation system set up (drip)																
Manual labor	hr	12	9	108												
Machine labor	hr	12	0.55	6.6												
Machine (fuel, lube, & repair)	hr	14	0.5	7												
Soil Preparation																
Sulphur	lb	0.1	1,000	100	200	20	200	20	200	20	200	20	200	20	200	20
Sawdust (mulch) application																
Material	tons	3	100	300	10	30	10	30	10	30	10	30	10	30	10	30
Manual labor	hr	12	4.5	54	4.5	54	4.5	54	4.5	54	4.5	54	4.5	54	4.5	54
Rototill																
Machine labor	hr	12	0.55	6.60	0.55	6.60	0.55	6.60	0.55	6.60	0.55	6.60	0.55	6.60	0.55	6.60
Machine (fuel, lube, & repair)	hr	14	0.5	7	0.5	7	0.5	7	0.5	7	0.5	7	0.5	7	0.5	7
Soil test	ac	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5
Planting																
Spacing	3'x10'															
Plants	plant	2.25	1,452	3,267	27	60.75										
Manual labor (1 min/plant)	hr	12	24.2	290.40	0.45	5.40										
Machine labor	hr	12	0.55	6.60												
Machine (fuel, lube, & repair)	hr	14	0.5	7												

Establishment and production Costs for Blueberry, UCCE, Costal Region of California, 2002

Blueberries establishment and production costs and returns cont. (page 2)																
Operation (cont.)	Unit	$/ Unit	Year 1 Quant. /Acre	Year 1 $/Acre	Year 2 Quant. /Acre	Year 2 $/Acre	Year 3 Quant. /Acre	Year 3 $/Acre	Year 4 Quant. /Acre	Year 4 $/Acre	Year 5 Quant. /Acre	Year 5 $/Acre	Year 6 Quant. /Acre	Year 6 $/Acre	Production Year Quant. /Acre	Production Year $/Acre
Cover Crop																
Grass seed	ac	13	1	13												
Machine labor	hr	12	0.55	6.60												
Machine (fuel, lube, & repair)	ac	14	0.5	7												
Prune, Top, & Hedge (1 min/plant	hr	12			24.2	290.40	24.2	290.40	24.2	290.40	24.2	290.4	24.2	290.4	24.2	290.4
Disease Management																
Copper (at least 1x) or Roveral	app	16.92	1	16.92	1	16.92	1	16.92	1	16.92	1	16.92	1	16.92	1	16.92
Machine labor	hr	12	0.55	6.60	0.55	6.60	0.55	6.60	0.55	6.60	0.55	6.60	0.55	6.60	0.55	6.60
Machine (fuel, lube, & repair)	ac	14	0.50	7	0.50	7	0.50	7	0.50	7	0.50	7	0.50	7	0.50	7
Mow Strips (3x)																
Machine labor	hr	12	1.09	13.07	1.09	13.07	1.09	13.07	1.09	13.07	1.09	13.07	1.09	13.07	1.09	13.07
Machine (fuel, lube, & repair)	hr	14	0.99	13.86	0.99	13.86	0.99	13.86	0.99	13.86	0.99	13.86	0.99	13.86	0.99	13.86
Fertilizer																
Urea sulphuric acid (3x)	gal	1.25	35	43.75	35	43.75	35	43.75	35	43.75	35	43.75	35	43.75	35	43.75
Bee Hives Rental (based on avoc	hive	70					1	70	1	70	1	70	1	70	1	70
Weed Control																
Hand weeding (1hr/wk/ac)	hr	12	*52*	624	*52*	624	*52*	624	*52*	624	*52*	624	*52*	624	*52*	624
Irrigation Water																
Water	acin	17	24	408	24	408	24	408	24	408	24	408	24	408	24	408
Manual labor @1 time/wk (for 40	hr	12	4	48	4	48	4	48	4	48	4	48	4	48	4	48
Bird Control																
Net	feet	0.1	23,000	2,300												
Post	post	10	115	1,150												
Wire	feet	0.01	2,300	23												
Labor post	hr	12	1.92	23.00												
Labor spread & remove net for ha	hr	12					1.00	12.01	1.00	12.01	1.00	12.01	1.00	12.01	1.00	12.01
Machine labor	hr	12	1.00	12.01			1.00	12.01	1.00	12.01	1.00	12.01	1.00	12.01	1.00	12.01
Machine (fuel, lube, & repair)	hr	14	0.91	12.74			0.91	12.74	0.91	12.74	0.91	12.74	0.91	12.74	0.91	12.74
Lab Tissue Analysis	ac	5					1	5	1	5	1	5	1	5	1	5
Total Cultural Costs				**9,282**		**1,660**		**1,706**		**1,706**		**1,706**		**1,706**		**1,706**

Blueberries establishment and production costs and returns cont. (page 3)																
Operation	Unit	$/ Unit	Year 1 Quant. /Acre	Year 1 $/Acre	Year 2 Quant. /Acre	Year 2 $/Acre	Year 3 Quant. /Acre	Year 3 $/Acre	Year 4 Quant. /Acre	Year 4 $/Acre	Year 5 Quant. /Acre	Year 5 $/Acre	Year 6 Quant. /Acre	Year 6 $/Acre	Production Year Quant. /Acre	Production Year $/Acre
Harvest																
Fresh: Pick & Pack (hand)--Oregon	lb	0.45					7,260	3,267	10,164	4,573.80	11,616	5,227.20	13,068	5,880.60	14,520	6,534.00
(Florida $0.52/lb)																
Buckets/clamshell cups	lb	0.11					7,260	776.82	10,164	1,087.55	11,616	1,242.91	13,068	1,398.28	14,520	1,553.64
(1/2 pt 6-8oz @ $65/650 unit;																
or 1 pt or 10-14 oz @ $48/600 unit)																
Load & haul	lb	0.01					7,260	56.82	10,164	79.54	11,616	90.91	13,068	102.27	14,520	113.63
Sell fresh (?)	lb	0.05					7,260	363	10,164	508.20	11,616	580.80	13,068	653.40	14,520	726
Machine labor	hr	12					1	12	1	12	1	12	1	12	1	12
Machine (fuel, lube, & repair)	hr	14					0.5	7	0.5	7	0.5	7	0.5	7	0.5	7
Total Harvest Costs								**4,483**		**6,268**		**7,161**		**8,054**		**8,946**
CASH OVERHEAD COSTS																
Interest on investment @ 8.5%	ac					966		1344		1492		1547		1554		
Property taxes & insurance	ac			181		227		241		256		265		261		308
Investment repairs	ac			75		78		84		84		84		84		84
Office expense	ac			180		180		180		180		180		180		180
Interest on operating capital				413.03		91.18		93.97		94.60		94.99		94.82		96.81
Total Cash Overhead Costs				**849**		**1,543**		**1,943**		**2,107**		**2,171**		**2,174**		**669**
NON-CASH COSTS																
Land rent	ac			1,072.5		1,072.5		1,072.5		1,072.5		1,072.5		1,072.5		1,072.5
Depr. & int. on mach., equip., build	ac			78		78		78		78		78		78		78
Depr. & int. irrig. system	ac			67		67		67		67		67		67		67
Miscellaneous (tools etc.)	ac			20		20		20		20		20		20		20
Amortized establishment (30 years	ac															1,358
Total Non-Cash Overhead Costs				**1,238**		**1,238**		**1,238**		**1,238**		**1,238**		**1,238**		**2,596**
TOTAL ALL COSTS				**11,369**		**4,440**		**9,369**		**11,318**		**12,275**		**13,171**		**13,917**
Returns to Management				**-11,369**		**-4,440**		**-1,746**		**-646**		**-79**		**551**		**1,329**
Accumulated Establishment Cost				**11,369**		**15,809**		**17,555**		**18,201**		**18,280**		**17,729**		

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