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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2004

SAMPLE COSTS TO PRODUCE  
FRESH MARKET

# BROCCOLI



**CENTRAL COAST REGION – Monterey County**

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**INTRODUCTION**

The sample costs to produce broccoli in the Central Coast Region are presented in this study. The 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 are based on production procedures considered typical for this crop and area but will not apply to every situation. Sample costs for labor, materials, equipment and custom services are based on current figures. A “*Your Costs*” column in Tables 1 and 2 is provided for you to enter your costs.

The hypothetical farm operation, production practices, overhead, and calculations are described under the assumptions. For additional information or explanation of calculations used in the study call the Department of Agricultural and Resource Economics, University of California, Davis, California, (530) 752-3589 or the Monterey County UC Cooperative Extension office, (831) 759-7350.

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) 752-4424 or from local county UC Cooperative Extension offices.

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## ASSUMPTIONS

The following assumptions pertain to sample costs to produce fresh market broccoli in the Central Coast Region – Monterey County. The cultural practices described and materials used are considered typical for this crop and area. The costs, practices, and materials in this study will not be applicable to every situation or used during every year. Cultural practices and costs for the production of fresh market broccoli vary by grower and region, and variations can be significant. The practices and inputs used in this 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 in this study is based on a 1,200 non-contiguous acre vegetable crop operation of which 400 acres are planted to fresh market broccoli. Other crops grown are cauliflower, lettuce and celery. The farm will normally produce two to two and one-half crops per year on each field. In this study, the costs are for one broccoli crop. Costs that affect both crops are allocated 50% to each crop.

### Cultural Practices and Material Inputs

**Land Preparation.** Primary tillage which includes discing, rolling, subsoiling, land leveling, and listing beds occurs in October and November of the year preceding planting. The crop year in this study is from November through October. Fields are subsoiled, disced and rolled two times, then chiseled twice, followed by two passes with a landplane, and a single discing. A custom operator lists the 40-inch beds and incorporates the preplant fertilizer.

**Stand Establishment.** A hybrid broccoli variety is direct seeded using a four-bed planter in double rows on 40-inch beds. Fields are planted to a stand of 69,700 plants per acre at a 4 1/2-inch plant spacing. The field is planted over a period of time to accommodate the markets.

**Fertilization.** Three ton of manure every two years is broadcast over the field prior to the primary tillage operations and is included in this study as an annual operation and the cost is split between the two crops. A dry fertilizer 15-15-15 at 400 pounds per acre (60 units N) is applied at listing. A total of 160 units of N is sidedressed in two applications as liquid AN-20 for a seasonal total of 220 units of N. The first sidedress application is approximately 45 days after planting.

**Irrigation.** The water is pumped from wells and cost \$55.00 per acre-foot or \$4.58 per acre-inch. Approximately three-acre inches of water are applied through sprinklers during stand establishment. An additional 27 acre inches is applied in the furrow at seven to ten day intervals during the growing season for a seasonal total of 2.5 acre-feet or 30 acre-inches. Water costs will vary throughout the valley, depending upon pumping setup as well as per acre assessments by various water agencies.

**Pest Management.** The pesticides and rates mentioned in this cost study are listed in *Integrated Pest Management for Cole Crops and Lettuce* and *UC Pest Management Guidelines: Cole Crops*. For more information on pesticides available, pest identification, monitoring, and management visit the UC IPM website at [www.ipm.ucdavis.edu](http://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.** A preplant herbicide, Dacthal, is banded on 25% of the bed (two five-inch bands) at planting. Weed control for the remainder of the season consists of hand hoeing and mechanical cultivations. Another common option is a directed spray of AN-20 on the bed in conjunction with sidedressing but is not addressed in this study. The field is cultivated about 45 days after planting followed by two additional cultivations at ten-day intervals. The field is hand hoed after the last cultivation.

**Insects and Diseases.** Integrated pest management is used to control the various diseases, insects and related pests. Diazinon 14G is banded over the seedline at planting. A ground application of MSR (metasystox) for aphid control and Success for diamondback worms is applied 45 to 50 days after planting. A second application may be needed in 10 to 15 days and is included in this study.

**Harvest.** The broccoli crop is hand harvested 90 to 120 days after planting. Cool season plantings may require 120 days to mature but as the season warms, time to maturity decreases. Harvesting is done under contract and the broccoli is packed in the field. Field labor cost \$2.60 per box (carton) plus \$0.18 per box for field overhead (supervision). The containers cost \$1.12 each and include the ties and rubber bands. This brings the field harvest cost to \$3.90 per packed box. A packed box of broccoli weighs 22 pounds. Transportation costs vary depending on the distance to market, but in this study are included in the above costs. Most growers are within a 25-mile radius of the cooler. Cooling and palletizing cost an additional \$1.90 per box, which brings the total harvest cost to \$5.80 per box. Selling costs are 8% of the market price and \$0.80 per box is used in this study.

**Yields.** Average fresh market broccoli yields in the Central Coast over the past five years as shown in Table A ranged from 630 to 675 boxes per acre. The crop yield used in this study is 665 twenty-two pound boxes or 7.32 ton per acre.

**Returns.** Average prices to growers in the Central Coast for fresh market broccoli in the last five years are shown in Table A. The return price in this study is \$7.90 (5-year average rounded) per box. The ranging analysis in Table 6 shows the net returns above operating costs, cash costs and total costs for a range of prices and yields.

**Table A. Average Yield and Price for Fresh Market Broccoli, Central Coast 1999 - 2003 <sup>1/</sup>**

Year	Yield		Revenues	
	Tons/Acre	Boxes/Acre	\$/Ton	\$/Box
1999	7.32	665	612.46	6.73
2000	7.17	652	814.32	8.95
2001	6.93	630	680.35	7.48
2002	6.98	635	691.12	7.60
2003	7.43	675	786.25	8.65

<sup>1/</sup>Source: Agricultural Commissioner: Monterey. Boxes = 22 lbs.

**Pickup.** The grower uses the pickup for business and personal use. The assumed business use is 8-miles per acre per year for the crop.

**Labor.** Labor rates of \$13.84 per hour for machine operators and \$11.81 for general labor includes payroll overhead of 35%. The basic hourly wages are \$10.25 for machine operators and \$8.75 for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for truck crops (code 0172), and a percentage for other possible benefits. Workers' compensation

insurance costs will vary among growers, but for this study the cost is based upon the average industry final rate as of January 1, 2004 (California Department of Insurance). 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 the American Society of Agriculture Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum Power Take-Off (PTO) horsepower, and fuel type. Average prices in January 2004 on-farm delivery of diesel and gasoline are \$1.45 and \$1.88 per gallon, respectively. The fuel prices are averaged based on four California delivery locations plus \$0.24 per gallon, which is one-half the difference between the high and low price for regular gasoline in 2003 from the California State Automobile Association Monthly Survey. 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 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 6.89% 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.** Risks associated with broccoli production are not assigned a production cost. 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 that affect the profitability and economic viability of fresh market vegetable production. The market for fresh vegetables is volatile for both price and quantity. A market channel should be determined before any broccoli production begins.

### **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 two on a per acre basis.

**Insurance.** Insurance for farm investments varies depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.676% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$1,246 for the entire farm or \$1.04 per acre.

**Field Sanitation.** Sanitation services provide portable toilets and washbasins to the farm. The cost includes a double toilet with washbasins, delivery and pickup, and three months of weekly servicing. Costs also

include soap or other suitable cleansing agent, and single use towels. Separate potable water and single-use drinking cups are also supplied. Growers using contract labor may not have a separate sanitation cost. The contractor supplies the sanitation facilities.

**Office Expense.** Annual office and business expenses are estimated at \$50 per acre per crop. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, etc.

**Rent.** Land rent for Monterey and Santa Cruz Counties ranges from \$800 to \$2,400 per acre. In this study, land rented for broccoli production in the Monterey region is \$900 per acre. Rents vary by area and ground quality. The land rented includes developed wells and irrigation system. The landowner incurs all costs for the land and the irrigation system.

**Supervisor Salaries.** Wages for managers are not included as a cash cost. Any returns above total costs are considered a return to management.

**Investment Repairs.** Repair costs are the annual maintenance costs for investments in non-cash overhead. The repairs are calculated as a percentage of the new cost distributed over the investment life. Annual repairs in this study are calculated as 2% of the new cost.

### **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). 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  $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$ .

*Salvage Value.* Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements) the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the American Society of Agricultural Engineers (ASAE) based on equipment type and years of life. The life in years is estimated by dividing the 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 equipment and investments are shown in Table 4.

*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 6.23% 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. In other words, the next best alternative use for these resources is in another agricultural enterprise.

**Building.** The metal building or buildings are on a cement slab and comprise 4,800 square feet.

**Tools.** This includes shop and field tools used on the farm. The value is estimated and does not represent any specific data.

**Fuel Tanks.** Two 300-gallon fuel tanks using gravity feed are on metal stands. The tanks are setup in a cement containment pad that meets federal, state, and county regulations.

**Irrigation/Pipe/Trailers.** The irrigation system is maintained by the owner and included in the land rental cost. The grower owns 1,456 feet of sprinkler pipe. The grower also owns two pipe trailers for hauling the pipe to the field. Irrigation water is pumped from a well and delivered to the fields through an underground pipe system. Main lines above ground are connected to the underground system to deliver water for the sprinkler and furrow irrigations. In this study, water is pumped from a depth of 120 feet in a 500-foot well and the grower pays the pumping cost.

**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. Annual ownership costs for equipment and other investments are shown in Table 5. 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. COST PER ACRE TO PRODUCE BROCCOLI**  
 CENTRAL COAST – Monterey County 2004

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre					Total Cost	Your Cost
		Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent			
<b>Cultural:</b>								
Manure/Compost 1/4 cost/crop	0.00	0	0	23	15	38		
Sub Soil 1/2 cost	0.24	4	9	0	0	13		
Disc & Roll 2X	0.29	5	11	0	0	16		
Chisel 2X	0.35	6	13	0	0	19		
Land plane field 2X	0.24	4	9	0	0	13		
Disc & Roll 1X	0.14	2	6	0	0	8		
List Beds & Preplant Fertilizer	0.00	0	0	69	14	83		
Shape beds & roll	0.20	3	4	0	0	7		
Plant-Herbicide-Insecticide	0.28	7	6	293	0	306		
Irrigate - Sprinkle 3X	2.25	27	0	14	0	40		
Irrigate 8X	4.00	47	0	124	0	171		
Fertilize - 2X Sidedress	0.00	0	0	106	33	139		
Cultivate & furrow 3X	0.44	7	8	0	0	16		
Hand Hoe	8.00	94	0	0	0	94		
Pest Control 2X	0.00	0	0	109	33	142		
Pickup use	0.23	4	2	0	0	5		
<b>TOTAL CULTURAL COSTS</b>	<b>16.66</b>	<b>211</b>	<b>67</b>	<b>737</b>	<b>95</b>	<b>1,109</b>		
<b>Harvest:</b>								
Cut, Bunch, Pack, Haul	0.00	0	0	0	2,594	2,594		
Cool, Palletize, Sell	0.00	0	0	0	1,796	1,796		
<b>TOTAL HARVEST COSTS</b>	<b>0.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,389</b>	<b>4,389</b>		
<b>Postharvest:</b>								
Chop stubble	0.33	6	6	0	0	12		
<b>TOTAL POSTHARVEST COSTS</b>	<b>0.33</b>	<b>6</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>12</b>		
Interest on operating capital @ 6.89%						51		
<b>TOTAL OPERATING COSTS/ACRE</b>		<b>216</b>	<b>74</b>	<b>737</b>	<b>4,484</b>	<b>5,561</b>		
<b>Cash Overhead:</b>								
Land Rent						900		
Office Expense						50		
Field Sanitation						2		
Liability Insurance						1		
Property Taxes						3		
Property Insurance						2		
Investment Repairs						5		
<b>TOTAL CASH OVERHEAD COSTS</b>						<b>962</b>		
<b>TOTAL CASH COSTS/ACRE</b>						<b>6,524</b>		

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Table 1. continued

Operation	Operation	Cash and Labor Costs per Acre					Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/Rent			
<b>Non-cash Overhead:</b>	Per producing Acre			Annual Costs				
				Capital Recovery				
Shop Building	100			7		7		
Shop Tools	11			1		1		
Fuel Wagon	2			0		0		
Implement Carrier	8			1		1		
Fuel Tanks & Pumps	17			1		1		
Pipe-Gated 8"	4			1		1		
Pipe-Sprinkler	8			1		1		
Trailer - Lowbed	6			1		1		
Trailer - Pipe #1	2			0		0		
Trailer - Pipe #2	2			0		0		
Truck Tractor	41			4		4		
Forklift - 5000 lb	16			2		2		
Equipment	243			29		29		
<b>TOTAL NON-CASH OVERHEAD COSTS</b>	<b>459</b>			<b>48</b>		<b>48</b>		
<b>TOTAL COSTS/ACRE</b>						<b>6,572</b>		

UC COOPERATIVE EXTENSION  
**Table 2. COSTS AND RETURNS PER ACRE TO PRODUCE BROCCOLI**  
 CENTRAL COAST – Monterey County 2004

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>GROSS RETURNS</b>					
Broccoli	665.00	box	8.00	5,320	
<b>OPERATING COSTS</b>					
<b>Contract:</b>					
Harvest: Cut, Bunch, Pack, Haul	665.00	box	3.90	2,594	
Cool, Palletize	665.00	box	1.90	1,264	
Sell	665.00	box	0.80	532	
<b>Custom:</b>					
Haul & Spread Manure	0.75	ton	20.00	15	
List/Fertilize	1.00	acre	13.50	14	
Ground Application-AN20	2.00	acre	16.50	33	
Ground Application-Pesticide	2.00	acre	16.50	33	
<b>Seed:</b>					
Seed	69.70	thou	3.60	251	
<b>Fertilizer:</b>					
Manure/Compost (1/4 cost/crop)	0.75	ton	30.00	23	
15-15-15	400.00	lb	0.173	69	
AN20 (10.6 lb/gal)	160.00	lb N	0.665	106	
<b>Insecticide:</b>					
Diazinon 14G	1.75	lb	2.49	4	
MSR Spray Concentrate	4.00	pint	13.26	53	
Lannate 90 SP	1.00	lb	29.19	29	
Success	4.00	floz	6.60	26	
<b>Herbicide:</b>					
Dacthal	2.00	lb	18.86	38	
<b>Water:</b>					
Water-pumped	29.98	acin	4.58	137	
Labor (machine)	3.29	hrs	13.84	46	
Labor (non-machine)	14.45	hrs	11.81	171	
Fuel - Gas	0.66	gal	1.88	1	
Fuel - Diesel	32.93	gal	1.45	48	
Lube				7	
Machinery repair				17	
Interest on operating capital @ 6.89%				51	
<b>TOTAL OPERATING COSTS/ACRE</b>				<b>5,561</b>	
<b>NET RETURNS ABOVE OPERATING COSTS</b>				<b>-241</b>	

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Table 2. Continued

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
CASH OVERHEAD COSTS:					
Land Rent				900	
Office Expense				50	
Field Sanitation				2	
Liability Insurance				1	
Property Taxes				3	
Property Insurance				2	
Investment Repairs				5	
TOTAL CASH OVERHEAD COSTS/ACRE				962	
TOTAL CASH COSTS/ACRE				6,524	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Shop Building				7	
Shop Tools				1	
Fuel Wagon				0	
Implement Carrier				1	
Fuel Tanks & Pumps				1	
Pipe-Gated 8"				1	
Pipe Sprinkler				1	
Trailer - Lowbed				1	
Trailer - Pipe #1				0	
Trailer - Pipe #2				0	
Truck Tractor				4	
Forklift - 5000 lb				2	
Equipment				29	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				48	
TOTAL COSTS/ACRE				6,572	
NET RETURNS ABOVE TOTAL COSTS				-1,252	

UC COOPERATIVE EXTENSION  
**Table 3. MONTHLY CASH COSTS PER ACRE TO PRODUCE BROCCOLI**  
 CENTRAL COAST – Monterey County 2004

Beginning OCT 03	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Ending SEP 04	03	03	03	04	04	04	04	04	04	04	04	04	
<b>Cultural:</b>													
Manure/Compost 1/4 cost/crop	38												38
Sub Soil 1/2 cost	13												13
Disc & Roll 2X	16												16
Chisel 2X	19												19
Land plane field 2X		13											13
Disc & Roll 1X		8											8
List Beds & Preplant Fertilizer		83											83
Shape beds & roll				7									7
Plant-Herbicide-Insecticide				306									306
Irrigate - Sprinkle 3X				13	27								40
Irrigate 8X					21	64	64	21					171
Fertilize - Sidedress 2X						70	70						139
Cultivate & furrow 3X						16							16
Hand Hoe							94						94
Pest Control 2X						72	69						142
Pickup use	1	1	1	1	1	1	1	1	1				5
<b>TOTAL CULTURAL COSTS</b>	<b>85</b>	<b>104</b>	<b>1</b>	<b>327</b>	<b>49</b>	<b>222</b>	<b>298</b>	<b>22</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,109</b>
<b>Harvest:</b>													
Cut, Bunch, Pack, Haul								2,594					2,594
Cool, Palletize, Sell								1,796					1,796
<b>TOTAL HARVEST COSTS</b>								<b>4,389</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,389</b>
<b>Postharvest:</b>													
Chop stubble									12				12
<b>TOTAL POSTHARVEST COSTS</b>									<b>12</b>				<b>12</b>
Interest on operating capital @ 6.89%	0	1	1	3	3	5	6	32	0				51
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>86</b>	<b>105</b>	<b>2</b>	<b>330</b>	<b>52</b>	<b>227</b>	<b>305</b>	<b>4,442</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5,561</b>
<b>Overhead:</b>													
Land Rent									900				900
Office Expense	6	6	6	6	6	6	6	6	6				50
Field Sanitation	0	0	0	0	0	0	0	0	0	0	0	0	2
Liability Insurance	0	0	0	0	0	0	0	0	0	0	0	0	1
Property Taxes				3									3
Property Insurance				2									2
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0	5
<b>TOTAL CASH OVERHEAD COSTS</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>11</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>906</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>962</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>92</b>	<b>112</b>	<b>8</b>	<b>341</b>	<b>58</b>	<b>233</b>	<b>311</b>	<b>4,449</b>	<b>919</b>	<b>1.00.</b>	<b>1.00</b>	<b>1.00</b>	<b>6,524</b>

UC COOPERATIVE EXTENSION  
**Table 4. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS**  
 CENTRAL COAST – Monterey County 2004

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
04	130 HP 2WD Tractor	62,500	10	18,462	7,199	274	405	7,877
04	280 HP Crawler	180,000	10	53,169	20,733	788	1,166	22,687
04	Bed shaper, 3 row	4,004	15	400	402	15	22	439
04	Chisel - Heavy 16'	9,333	12	1,293	1,052	36	53	1,141
04	Cultivator - 6 Row	8,580	10	1,517	1,065	34	50	1,149
04	Disc - Finish 21'	19,595	12	2,714	2,208	75	112	2,395
04	Mower, flail 10'	5,628	10	563	731	21	31	783
04	Pickup	17,655	7	1,766	2,980	66	97	3,142
04	Planter/Sled/Precision/4Row	17,521	10	3,098	2,174	70	103	2,347
04	Ringroller - 21'	4,200	10	743	521	17	25	563
04	Roller - Flat 16'	2,300	12	319	259	9	13	281
04	Subsoiler - 8'	8,022	10	1,419	995	32	47	1,074
04	Triplane - 16'	20,109	12	2,785	2,266	77	114	2,458
<b>TOTAL</b>		<b>359,447</b>		<b>88,248</b>	<b>42,584</b>	<b>1,513</b>	<b>2,238</b>	<b>46,335</b>
60% of New Cost *		215,668		52,949	25,550	908	1,343	27,801

\*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	
<b>INVESTMENT</b>								
Forklift - 5000 lb	19,500	10	1,231	2,586	70	104	2,925	5,685
Fuel Tanks – 2, 300 gal	19,835	20	1,984	1,709	74	109	397	2,289
Fuel Wagon	1,975	10	198	256	7	11	40	315
Implement Carrier	9,742	15	974	977	36	54	487	1,554
Pipe Gated 8" 1612'	4,940	10		679	17	25	494	1,214
Pipe Sprinkler 1456'	9,279	10	928	1,205	35	51	510	1,800
Shop Building 4800'	120,000	32		8,740	406	600	652	10,397
Shop Tools	13,072	20	1,307	1,126	49	72	131	1,378
Trailer - Lowbed	7,695	15	769	772	29	42	103	946
Trailer - Pipe #1	2,100	7	210	354	8	12	42	416
Trailer - Pipe #2	2,100	7	210	354	8	12	42	416
Truck Tractor	48,849	15	4,885	4,899	182	269	377	5,727
<b>TOTAL INVESTMENT</b>	<b>259,087</b>		<b>12,696</b>	<b>23,658</b>	<b>919</b>	<b>1,359</b>	<b>6,200</b>	<b>32,135</b>

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/		Price/ Unit	Total Cost
	Farm	Unit		
Field Sanitation	400	acre	1.64	656
Land Rent	400	acre	900.00	360,000
Liability Insurance	1,200	acre	1.04	1,246
Office Expense	400	acre	50.00	20,000

UC COOPERATIVE EXTENSION  
**Table 5. HOURLY EQUIPMENT COSTS**  
 CENTRAL COAST – Monterey County 2004

Yr	Description	Actual	Capital Recovery	Cash Overhead		Operating		Total Oper.	Total Costs/Hr.
		Hours Used		Insur- ance	Taxes	Repairs	Fuel & Lube		
04	130 HP 2WD Tractor	1,200	3.60	0.14	0.20	2.84	12.58	15.42	19.36
04	280 HP Crawler	1,600	7.77	0.30	0.44	4.67	27.10	31.77	40.28
04	Bed shaper, 3 row	166	1.45	0.05	0.08	1.26	0.00	1.26	2.84
04	Chisel - Heavy 16'	166	3.79	0.13	0.19	1.94	0.00	1.94	6.05
04	Cultivator - 6 Row	200	3.19	0.10	0.15	1.79	0.00	1.79	5.23
04	Disc - Finish 21'	172	7.72	0.26	0.39	3.11	0.00	3.11	11.48
04	Mower, flail 10'	200	2.19	0.06	0.09	2.33	0.00	2.33	4.67
04	Pickup - new	267	6.70	0.15	0.22	1.26	6.31	7.57	14.64
04	Plntr/Sld/Prdsn/4R	150	8.72	0.28	0.41	4.70	0.00	4.70	14.11
04	Ringroller - 21'	200	1.57	0.05	0.07	0.47	0.00	0.47	2.16
04	Roller - Flat 16'	166	0.94	0.03	0.05	0.26	0.00	0.26	1.28
04	Subsoiler - 8'	200	2.99	0.10	0.14	1.81	0.00	1.81	5.04
04	Triplane - 16'	250	5.44	0.19	0.27	3.04	0.00	3.04	8.94

UC COOPERATIVE EXTENSION  
**Table 6. RANGING ANALYSIS**  
 CENTRAL COAST – Monterey County 2004

COSTS PER ACRE AT VARYING YIELD TO PRODUCE BROCCOLI

	YIELD (22 lb box/acre)						
	515	565	615	665	715	765	815
<b>OPERATING COSTS/ACRE:</b>							
Cultural Cost	1,109	1,109	1,109	1,109	1,109	1,109	1,109
Harvest Cost	3,399	3,729	4,059	4,389	4,719	5,049	5,379
Postharvest Cost	12	12	12	12	12	12	12
Interest on operating capital	45	47	49	51	53	55	57
<i>TOTAL OPERATING COSTS/ACRE</i>	4,565	4,897	5,229	5,561	5,893	6,225	6,557
<i>TOTAL OPERATING COSTS/box</i>	8.86	8.67	8.50	8.36	8.24	8.14	8.05
<b>CASH OVERHEAD COSTS/ACRE</b>							
<i>TOTAL CASH COSTS/ACRE</i>	5,527	5,859	6,191	6,523	6,855	7,187	7,519
<i>TOTAL CASH COSTS/box</i>	10.73	10.37	10.07	9.81	9.59	9.39	9.23
<b>NON-CASH OVERHEAD COSTS/ACRE</b>							
<i>TOTAL COSTS/ACRE</i>	5,575	5,907	6,239	6,571	6,903	7,235	7,567
<i>TOTAL COSTS/box</i>	10.83	10.45	10.14	9.88	9.65	9.46	9.28

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE \$/box	YIELD (22 lb box/acre)						
	515	565	615	665	715	765	815
5.00	-1,990	-2,072	-2,154	-2,236	-2,318	-2,400	-2,482
6.00	-1,475	-1,507	-1,539	-1,571	-1,603	-1,635	-1,667
7.00	-960	-942	-924	-906	-888	-870	-852
8.00	-445	-377	-309	-241	-173	-105	-37
9.00	70	188	306	424	542	660	778
10.00	585	753	921	1,089	1,257	1,425	1,593
11.00	1,100	1,318	1,536	1,754	1,972	2,190	2,408

NET RETURN PER ACRE ABOVE CASH COSTS

PRICE \$/box	YIELD (22 lb box/acre)						
	515	565	615	665	715	765	815
5.00	-2,952	-3,034	-3,116	-3,198	-3,280	-3,362	-3,444
6.00	-2,437	-2,469	-2,501	-2,533	-2,565	-2,597	-2,629
7.00	-1,922	-1,904	-1,886	-1,868	-1,850	-1,832	-1,814
8.00	-1,407	-1,339	-1,271	-1,203	-1,135	-1,067	-999
9.00	-892	-774	-656	-538	-420	-302	-184
10.00	-377	-209	-41	127	295	463	631
11.00	138	356	574	792	1,010	1,228	1,446

NET RETURN PER ACRE ABOVE TOTAL COSTS

PRICE \$/box	YIELD (22 lb box/acre)						
	515	565	615	665	715	765	815
5.00	-3,000	-3,082	-3,164	-3,246	-3,328	-3,410	-3,492
6.00	-2,485	-2,517	-2,549	-2,581	-2,613	-2,645	-2,677
7.00	-1,970	-1,952	-1,934	-1,916	-1,898	-1,880	-1,862
8.00	-1,455	-1,387	-1,319	-1,251	-1,183	-1,115	-1,047
9.00	-940	-822	-704	-586	-468	-350	-232
10.00	-425	-257	-89	79	247	415	583
11.00	90	308	526	744	962	1,180	1,398



UC COOPERATIVE EXTENSION  
**Table 7. OPERATIONS WITH EQUIPMENT**  
 CENTRAL COAST 2004 BROCCOLI

Operation	Operation Month	Tractor	Implement	Material	Broadcast Rate/acre	Unit
Cultural:						
Manure/Compost 1/4cost/crop	October	Custom		Manure	0.75	ton
Sub Soil 1/2 cost	October	280 HP Crawler	Subsoiler 8'			
Disc & Roll 2X	October	280 HP Crawler	Disc Finish 21'			
Chisel 2X			Ringroller 21'			
Chisel 2X	October	280 HP Crawler	Chisel 16'			
Land plane field 2X	October	280 HP Crawler	Triplane 16'			
Disc & Roll 1X	November	280 HP Crawler	Disc Finish 21'			
			Ringroller 21'			
List Beds & Preplant Fertilizer	November	Custom		15-15-15	400.00	lb
Shape Beds & Roll	January	130 HP 2WD	Bed Shaper 13'			
			Roller Flat 16'			
Plant-Herbicide-Insecticide	January	130 HP 2WD	Plntr/Sld/Precision	Seed	69.70	thou
				Diazinon	1.75	lb
				Dacthal	2.00	lb
Irrigate - Sprinkle 3X	January			Water	1.00	acin
	February			Water	1.00	acin
	February			Water	1.00	acin
Irrigate 8X	February			Water	3.35	acin
	March			Water	10.14	acin
	April			Water	10.14	acin
	May			Water	3.35	acin
Fertilize - 2X Sidedress	March	Custom		AN 20	80.00	lb N
	April	Custom		AN 20	80.00	lb N
Cultivate & furrow 3X	March	130 HP 2WD	Cultivator 6 Row			
	March	130 HP 2WD	Cultivator 6 Row			
	March	130 HP 2WD	Cultivator 6 Row			
Hand Hoe	April			Labor	4.00	hr
	April			Labor	4.00	hr
Pest Control 2X	March	Custom		MSR	2.00	pt
				Success	4.00	floz
	April	Custom		MSR	2.00	pt
				Success	4.00	floz
Harvest: Cut, Bunch, Pack, Haul	May	Custom				
Cool, Palletize, Sell	May	Custom				
Chop Stubble	June	130 HP 2WD	Mower, Flail 10'			