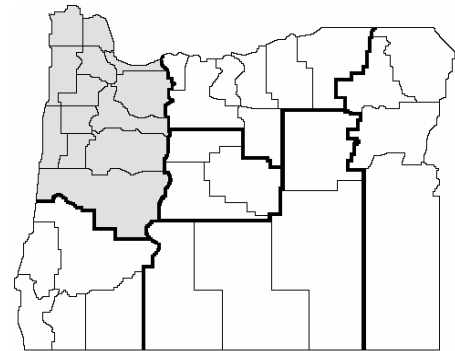


Enterprise Budget

Broccoli, Organic, Processed Market, Willamette Valley Region

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This enterprise budget estimates the typical per-acre costs associated with processed market, organic broccoli production in the Willamette Valley. It should be used as a guide to estimate your actual costs and does not represent any specific farm.

The major assumptions used in constructing this budget are discussed below. An attempt has been made to report typical cultural practices used in processed market, organic broccoli production; however, this does not represent the only production method. Assistance provided by area producers is greatly appreciated.

Typical Farm

The typical farm growing processed market vegetables, conventionally and organically in the Willamette Valley consists of 500 total tillable acres. Other crops include sweet corn, bush beans, and cauliflower. It has four tractors pulling various pieces of equipment and mechanical harvester.

Land and Irrigation

This budget is based on 50 acres of organic broccoli production. Average production is 3.75 tons per acre at a gross price to the grower of \$650 per ton.

The land is owned, however, a \$175 per acre lease rate is charged as a return on investment to the owner for his/her investment in the land, and property taxes of \$35 per acre as fixed cash costs.

Irrigation equipment costs are based on a good used system with a \$25 per acre per year repair and maintenance cost. The irrigation system is composed of "overhead" types of systems such as travelers, linear pivots and/or permanent big guns. Pumping expenses are based on electricity costs of \$3.50 per inch of water applied during the growing season.

Labor

General hand labor is hired at a rate of \$12 per hour, and tractor drivers are paid \$16.50 per hour, both of which include workers compensation, unemployment insurance, and other labor overhead expenses.

Capital

Interest on operating capital (8 percent) is treated as a cash expense. One-half of the cash expenses are

borrowed for a 6 month period. Interest on intermediate and long term capital (8 percent) is treated as a non-cash opportunity cost to the owner.

Machinery and Equipment

The machinery and equipment used in the budget reflect the typical machinery complement for a 500-acre farm growing processed market, organic broccoli in the Willamette Valley.

A detailed breakdown of machinery values is shown in Table 2. Estimated machinery costs are shown in Table 3, assuming straight line depreciation. The machinery costs are estimated based on the total farm use of the machinery. Table 4 shows the per acre labor, variable, and fixed costs for certain machinery operations in the field.

Gasoline costs \$3.00 per gallon, and diesel costs \$3.30 per gallon.

Operations

The cultural operations are listed approximately in the order in which they are performed. A 225-hp tractor is used to pull the v-ripper, moldboard plow, and disk. A 150-hp tractor is used to pull the chisel plow, harrow/roller packer, rotovator, field cultivator, and flail mower. A 70-hp tractor is used to pull the row crop planter, bin trailer, and grain drill. A 110-hp tractor is used to pull the fertilizer spreader. Table 1 shows operation rates and units. Fractional rates indicate operation applies to more than one crop cycle with costs allocated proportionally. Total costs for custom services such as liming are allocated as materials.

Break even Analysis

Tables 5 and 6 show returns per acre for cash and total costs at various yields and prices. Refer to table footnotes for interpretations.

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Table 1. Broccoli, Organic, Processed Market, 2008, \$/acre economic costs and returns

GROSS INCOME	Quantity	Unit	\$/Unit	Total	Price/Ton	Your Income			
Broccoli	3.75	Ton	\$650	\$2,438	\$650				
Total gross income				2,438	650				
VARIABLE CASH COSTS									
	Rate	Units	Labor	Machinery	Materials	Total	Cost/Ton	Your Cost	
<i>Field Preparations & Planting</i>									
Lime application, custom	0.25	x/acre	\$0.00	\$0.00	\$75.00	\$75.00	\$20.00		
Mold Board Plow	1.00	x/acre	2.13	6.44	0.00	8.58	2.29		
Rotovator	1.00	x/acre	3.81	12.68	0.00	16.49	4.40		
Fertilizer Application	2.00	x/acre	1.39	2.41	99.95	103.75	27.67		
Tandem Disk Harrow	2.00	x/acre	3.39	10.48	0.00	13.86	3.70		
V-Ripper	1.00	x/acre	2.54	7.19	0.00	9.73	2.59		
Harrow/Roller Packer	1.00	x/acre	1.52	4.51	0.00	6.04	1.61		
Plant Broccoli	1.00	x/acre	2.54	7.22	168.10	177.86	47.43		
Cultivating weeds	2.00	x/acre	1.69	4.43	0.00	6.13	1.63		
Weed control			420.00	0.00	0.00	420.00	112.00		
Hand labor	42.00	hours							
Self-propelled Boom Sprayer	1.00	x/acre	0.38	0.47	23.10	23.95	6.39		
Chisel Plow	1.00	x/acre	2.13	6.07	0.00	8.21	2.19		
Seed Cover Crop	1.00	x/acre	3.24	6.86	12.50	22.60	6.03		
Flail Chop	1.00	x/acre	1.62	4.89	0.00	6.51	1.74		
Irrigation			50.00	0.00	60.00	110.00	29.33		
Labor, \$10.00	5.00	hours							
Electricity, \$3.50	10.00	acre-inch							
Maint. & Repairs, \$25.00	1.00	x/acre							
Bin Trailer	1.00	x/acre	3.30	5.00	0.00	8.30	2.21		
Organic Certification			0.00	0.00	12.19	12.19	3.25		
Fee per gross income	0.005	per \$							
<i>Harvesting</i>									
Hand Harvest	30.00	x/acre	300.00	0.00	0.00	300.00	80.00		
Truck	1.00	x/acre	8.25	12.39	0.00	20.64	5.50		
<i>Other Costs</i>									
Pickup & ATV	1.00	x/acre	0.00	15.45	0.00	15.45	4.12		
Interest: operating capital	6.0	months	<u>0.00</u>	<u>0.00</u>	<u>54.61</u>	<u>54.61</u>	<u>14.56</u>		
Total variable costs			807.94	106.48	505.45	1,419.87	378.63		
FIXED CASH COSTS							Unit	Total	Cost/Ton
Property insurance	1.00	x/acre				acre	35.00	9.33	
Property taxes	1.00	x/acre				acre	35.00	9.33	
Land Rent	1.00	x/acre				acre	<u>175.00</u>	<u>46.67</u>	
Total cash costs							245.00	65.33	
FIXED NON-CASH COSTS							Unit	Total	Cost/Ton
Machinery and equip - depreciation, interest & insurance						acre	33.16	8.84	
Pickups, truck & ATV - depreciation, interest & insurance						acre	<u>13.81</u>	<u>3.68</u>	
Total non-cash costs							46.97	12.53	
Total fixed costs							291.97	77.86	
Total of all costs per acre								\$1,711.85	\$456.49
Net projected returns								\$725.65	\$193.51

Table 2. Machinery Cost Assumptions.

Machine	Size or description	Market value	Hours or miles of annual use	Expected life (years)	Salvage Value
Tractor # 1	4 wheel dr 225 hp	\$155,000	600	20	\$19,888
Tractor # 2	4 Wheel dr 150 hp	92,000	1,370	20	11,804
Tractor # 3	4 Wheel Dr 110 hp	70,000	400	20	8,981
Tractor # 4	2 Wheel Dr 70 hp	40,000	980	20	5,132
V-Ripper	14 ft	4,500	200	15	432
Tandem Disk Harrow	21 ft	16,500	250	15	1,584
Mold Board Plow	15 ft	16,200	150	15	1,555
Field Cultivator	27 ft	10,000	350	15	960
Harrow/Roller Packer	15 ft	26,900	185	15	2,582
Rotovator	14 ft	15,700	200	15	1,507
Flail Mower	15 ft	13,500	200	10	2,387
Chisel Plow	15 ft	19,000	250	15	1,824
Fertilizer Spreader	40 ft spinner broadcast	5,400	200	10	954
Row Crop Planter	15 ft	21,000	200	15	2,016
Grain Drill	12 ft	12,500	200	12	1,731
Bin Trailer	Wagon	2,800	100	10	495
Self-propelled Boom Sprayer	60 ft	30,000	200	10	5,658
Pickup	3/4 ton 4x4	34,000	12,000	10	12,857
Truck	2 ton	20,000	20,000	20	7,563
ATV	4 wheeler	6,000	500	10	1,772

Table 3. Machinery Cost Calculations.

Machine	Size or description	--- Variable costs ---		---- Fixed costs ----		Total Cost
		Fuel & Lube	Repairs & Maint.	Depr. & Interest	Insurance	
----- Costs per hour -----						
Tractor # 1	4 wheel dr 225 hp	\$37.95	\$5.58	\$22.92	\$1.31	\$67.76
Tractor # 2	4 Wheel dr 150 hp	30.36	7.56	5.96	0.34	44.22
Tractor # 3	4 Wheel Dr 110 hp	22.77	1.68	15.53	0.89	40.86
Tractor # 4	2 Wheel Dr 70 hp	18.98	5.49	3.62	0.21	28.29
V-Ripper	14 ft	0.00	3.14	2.34	0.07	5.56
Tandem Disk Harrow	21 ft	0.00	7.49	6.87	0.22	14.58
Mold Board Plow	15 ft	0.00	6.27	11.24	0.36	17.87
Field Cultivator	27 ft	0.00	5.24	2.97	0.09	8.31
Harrow/Roller Packer	15 ft	0.00	10.92	15.14	0.48	26.54
Rotovator	14 ft	0.00	16.96	8.17	0.26	25.39
Flail Mower	15 ft	0.00	11.88	8.73	0.24	20.85
Chisel Plow	15 ft	0.00	9.03	7.91	0.25	17.19
Fertilizer Spreader	40 ft spinner broadcast	0.00	4.19	3.49	0.10	7.78
Row Crop Planter	15 ft	0.00	22.50	10.93	0.35	33.78
Grain Drill	12 ft	0.00	10.48	7.33	0.21	18.03
Bin Trailer	Wagon	0.00	0.53	3.62	0.10	4.25
Self-propelled Boom Sprayer	60 ft	11.39	9.09	19.30	1.87	41.65
----- Costs per mile -----						
Pickup	3/4 ton 4x4	\$0.29	\$0.05	\$0.33	\$0.11	\$0.78
Truck	2 ton	1.14	0.10	0.09	0.06	1.39
----- Costs per acre -----						
ATV	4 wheeler	\$8.28	\$0.42	\$1.47	\$0.45	\$10.62

Table 4. Estimated Cost of Each Operation with Power Unit.

Operation	Tractor	Miles per hour	Acres per hour	Labor costs per acre	-- Machine costs --		Total costs per acre
					Variable costs per acre	Fixed costs per acre	
V-Ripper	Tractor # 1	4.50	6.49	\$2.54	\$7.19	\$4.10	\$13.83
Tandem Disk Harrow	Tractor # 1	4.50	9.74	1.69	5.24	3.22	10.15
Mold Board Plow	Tractor # 1	5.00	7.73	2.13	6.44	4.63	13.21
Field Cultivator	Tractor # 2	7.00	19.48	0.85	2.22	0.48	3.54
Harrow/Roller Packer	Tractor # 2	7.00	10.82	1.52	4.51	2.02	8.06
Rotovator	Tractor # 2	3.00	4.33	3.81	12.68	3.40	19.89
Flail Mower	Tractor # 2	7.00	10.19	1.62	4.89	1.50	8.01
Chisel Plow	Tractor # 2	5.00	7.73	2.13	6.07	1.87	10.08
Fertilizer Spreader	Tractor # 3	7.00	23.77	0.69	1.21	0.84	2.74
Row Crop Planter	Tractor # 4	5.50	6.50	2.54	7.22	2.32	12.08
Grain Drill	Tractor # 4	5.00	5.09	3.24	6.86	2.23	12.33
Bin Trailer	Tractor # 4	5.00	5.00	3.30	5.00	1.51	9.81

Table 5. Estimated Per Acre Returns Over CASH Costs at Varying Yields & Prices¹.

Price/Ton	----- Tons per Acre -----						
	2.25	2.75	3.25	3.75	4.25	4.75	5.25
\$450	(\$652)	(\$427)	(\$202)	\$23	\$248	\$473	\$698
\$500	(540)	(290)	(40)	210	460	710	960
\$550	(427)	(152)	123	398	673	948	1,223
\$600	(315)	(15)	285	585	885	1,185	1,485
\$650	(202)	123	448	773	1,098	1,423	1,748
\$700	(90)	260	610	960	1,310	1,660	2,010
\$750	23	398	773	1,148	1,523	1,898	2,273

Table 6. Estimated Per Acre Returns Over TOTAL ECONOMIC Costs at Varying Yields & Prices².

Price/Ton	----- Tons per Acre -----						
	2.25	2.75	3.25	3.75	4.25	4.75	5.25
\$450	(\$699)	(\$474)	(\$249)	(\$24)	\$201	\$426	\$651
\$500	(587)	(337)	(87)	163	413	663	913
\$550	(474)	(199)	76	351	626	901	1,176
\$600	(362)	(62)	238	538	838	1,138	1,438
\$650	(249)	76	401	726	1,051	1,376	1,701
\$700	(137)	213	563	913	1,263	1,613	1,963
\$750	(24)	351	726	1,101	1,476	1,851	2,226

¹ Table 5 estimates the returns over cash costs per acre based on varying yields and prices. In this budget, a grower should expect \$773, based upon a yield of 3.75 tons at \$650 per ton. At this yield, breakeven occurs at approximately \$435 per ton for cash costs.

² Table 6 estimates the returns over total economic costs per acre based on varying yields and prices. In this budget a grower should expect \$726, based on 3.75 tons at \$650 per ton. At this yield, breakeven occurs at approximately \$445 per ton for total costs.