Planning for Profit

Five Acre Mixed Vegetable Operation: Full Production

Vancouver Island **Spring 2008**

The **PLANNING FOR PROFIT** enterprise budget series has been developed to encourage British Columbia producers to create enterprise budgets for projecting costs and returns specific to their own operation. These budgets can then be used for decision making and whole farm financial planning purposes. This factsheet consists of the following sections: Overview of the Financial Planning Process, Market Price Analysis, Required Capital Investment, Assumptions and Enterprise Budget, Indirect Costs, Labour Cost, Sensitivity Analysis, and Financial Analysis.

The information presented is a resource for British Columbia farm enterprises and should be used as a guide only. Each farm should develop projections that reflect their own specific production, revenue, costs and market price goals. Information regarding financial planning and other enterprise budgets may be viewed at the B.C. Ministry of Agriculture and Lands (BCMAL) website (http://www.agf.gov.bc.ca/busmgmt) and at InfoBasket, the BCMAL Information Portal, (http://www.infobasket.gov.bc.ca).

Overview of the Financial Planning Process

Research Enterprise Options

- Develop Enterprise mix options

Enterprise Budget Development & Analysis

- Market Price Analysis
- Required Capital Investment
- Assumptions and Enterprise Budget
- Indirect Costs
- Labour Cost
- Sensitivity Analysis
- Financial Analysis

Financial Statement Development

- Accrued Income Statement
- Cash Flow Statement
- Net Worth Statement
- Balance Sheet Statement

Monitor & Review

- Financial Ratios
- Select the Enterprise mix or "Best Fit" option
- Assess Risks & Strategies
- Review efficiencies in using new environmental technologies and innovations

Market Price Analysis

VEGETABLE PRICES - VANCOUVER ISLAND
Prices are in Canadian dollars per pound.

Crop	Hand picked Whole-sale	Hand picked Farm Gate/ Retail	Avg.	BCMAL avg. prices
Canadian dollars per lb.				
Brussel Sprouts	0.95	1.9	1.425	0.75
Beans	1.09	1.45	1.27	1.3
Beets	0.75	1	0.875	0.82
Broccoli	1.17	1.6	1.385	0.96
Cabbage	0.76	0.8	0.78	0.61
Carrots	0.86	0.9	0.88	0.88
Cauliflower	0.55	1.68	1.115	0.98
Cucumbers	0.41	0.75	0.58	1
Garlic	3.39	4	3.695	2.97
Herb (basil)	7.5	10	8.75	n/a
Herb (dill)	3.75	5	4.375	n/a
Herb (Parsley)	2.82	10	6.41	n/a

Crop	Hand picked Wholesale	Hand picked Farm Gate/ Retail	Avg.	BCMAL avg. prices
Canadian dollars per lb.				
Lettuce	0.75	1	0.875	0.91
Onions	1.04	1.2	1.12	0.84
Peas	1.88	2.5	2.19	1.91
Peppers	3.25	3.75	3.5	1.2
Potatoes	0.56	0.75	0.655	0.73
Pumpkin	0.15	0.2	0.175	0.57
Rhubarb	0.75	0.9	0.825	0.77
Spinach	2.24	3	2.62	1.05
Squash	0.6	0.8	0.7	0.57
Tomatoes	1.13	1.5	1.315	0.95
Turnips/ Rutabaga	1.46	1.7	1.58	0.65
Zucchini	0.6	0.8	0.7	0.77

Source: B.C. Ministry of Agriculture and Lands Statistics and local producers.

Required Capital Investment

This section provides details to the equipment and building investment required to begin and efficiently operate this type of enterprise. Capital items may be purchased new or used, thus values may vary a great deal between operations. If the purchase of these items requires financing, an interest charge should be added to the budget. The total required capital investment is also used to determine the depreciation charge for the farm business.

Note:
*Land and residence has not been included in this list. These items should be added as applicable to the specific op*eration.

Required Capital Investment	Total
Buildings - machine shed	$ 6,000.00
- storage & handling	$ 18,000.00
Pest deterents	$ 1,500.00
Equipment/machinery	$ 22,000.00
Perimeter fence (600 m X $20/m)	$ 12,000.00
Irrigation	$ 12,200.00
Vehicles	$ 18,000.00
Tools & misc	$ 3,000.00
Parking area and roads	$ 5,000.00
Greenhouse *	$ 60,000.00
Cold storage	$ 13,000.00
Other	$ 1,200.00
TOTAL	**$ 171,900.00**

** Greenhouse capital include building a 6,000 square foot building at a cost of 10 per square foot.*

Assumptions and Enterprise Budget

1) The production unit is a five acre farm with 4 acres of land and a 6000 square feet greenhouse in vegetable production. Total production area is calculated in square footage as follows:

Land:	4 acres X 43,560 square feet /acre	= 175,000 square feet (approximately)
Greenhouse:	6,000 square feet	= 6,000 square feet
Total:		**= 181,000 square feet**

2) The total production area of 181,000 square feet can be allocated to various vegetable crops that will be harvested either in or out of season based upon when they are planted. The assumption is that 22 crops are planted using approximately 8000 square feet each. The decision as to when to harvest requires special attention as selling "out of season/shoulder season" can provide a significance price gain in some cases. Growers should assess their own ability to produce "out of season" and develop production figures for those months. This enterprise budget does not take into account any possible benefit from selling "out of season" and thus is based on standard prices only.

3) The greenhouse building can be used for the following: start seedling production earlier in the season, grow a high value crop such as tomatoes or cucumbers for better returns, grow seedlings/crops for out of season/shoulder season, or grow a winter crop if so desired. In this budget, the greenhouse acreage of 6,000 square feet is split between greenhouse tomatoes (2,500 sq. ft.) , cucumbers (2,500 sq. ft.) and seedling production (1,000 sq. ft.).

4) While initial germination may take place in a greenhouse, all crops, apart from the greenhouse cucumber and tomatoes, are assumed to be field grown.

5) Prices used in the budget are weighted based on average prices from the BCMAL horticultural statistics, wholesale price, and farmgate/retail price for BC and Vancouver Island prices for 2002-2007. Prices are in Canadian dollars per pound for all crops except corn where price is per ear, greenhouse cucumber where price is per cucumber and greenhouse tomato where prices are per tomato.

6) Marketability is the producers' perceived ability to sell the crop. If the farmer (or market) dictates that only half the crop will be saleable, then marketability will be reduced to 50% and the sales will fall accordingly. This budget assumes 100% marketability of all vegetable crops.

7) Wage rate for picking and production labour (incl. benefits) is 12.00 $/hr. Wages are based on local labour market rates.

8) For simplicity, most of the costs have been generalized across all vegetables. Only those obviously different costs, such as seed & harvest labour, are shown separately since most small scale producers are more likely to have a whole farm production and management strategy rather than a crop specific one. Seed costs and harvest labour costs for herbs and "other" vegetables have been averaged over all crops. Actual figures should be inserted by the grower.

9) Fertilizer requirements averaged at 350kg/acre (300-350kg compound and 50-75kg top dressing.). Manure is applied as required to lessen chemical fertilizers.

10) The other costs category in the budget is calculated as 5% of variable costs.

11) Fuel for greenhouse cucumbers and tomatoes includes heating fuel.

12) Direct Production Costs per Acre and per Square Foot

Direct production costs in dollars per acre for each vegetable crop are provided below. Total direct costs in the table are shown in $ per acre, and then converted to $ per square foot. Note: heating fuel for the greenhouse crops is included as fuel cost and is thus much higher than other non–greenhouse vegetable crop fuel costs.

	SEED, FERTILIZER & PESTS			MACHINERY & IRRIGATION				GENERAL	
	Seed	Fertilizer/ Manure/ lime	Pest Control	Fuel	Machinery Repairs & Mainte-nance	Transport	Irrigation	Sampling& IPM	Bird/animal control
Brussel sprouts	400.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Beans	300.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Beets	310.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Broccoli	140.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Cabbage	310.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Carrots	450.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Cauliflower	840.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Corn	100.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Cucumbers	250.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Garlic	5,000.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Herb 1	450.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Herb 2	450.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Herb 3	450.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Herb 4	450.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Lettuce	25.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Onions	850.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Peas	175.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Peppers	1,250.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Potatoes	400.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Pumpkin	400.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Rhubarb	750.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Spinach	90.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Squash	320.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Tomatoes	1,600.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Turnips/ rutabaga	120.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Zucchini	200.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Other 1	450.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Other 2	450.00	208.00	190.00	95.00	125.00	135.00	115.00	135.00	90.00
Greenhouse cucumbers	7,800.00	1,040.00	950.00	45,000.00	625.00	675.00	575.00	675.00	450.00
Greenhouse tomatoes	4,050.00	1,040.00	950.00	45,000.00	625.00	675.00	575.00	675.00	450.00

		TRANSPORT				LABOUR		OTHER	TOTAL DIRECT COSTS PER ACRE	TOTAL DIRECT COSTS PER SQ. FT
	Rentals	Truck rental/ Operating. Cost	Driver Wage	Fuel	Packaging	Production	Harvest	Misc		
	65.00	436.00	194.00	174.00	650.00	840.00	2,112.00	178.92	**6,142.92**	**0.141**
	65.00	436.00	194.00	174.00	650.00	840.00	4,032.00	233.52	**8,017.52**	**0.184**
	65.00	436.00	194.00	174.00	650.00	840.00	3,960.00	231.66	**7,953.66**	**0.183**
	65.00	436.00	194.00	174.00	650.00	840.00	1,825.20	162.52	**5,579.72**	**0.128**
	65.00	436.00	194.00	174.00	650.00	840.00	2,552.00	189.42	**6,503.42**	**0.149**
	65.00	436.00	194.00	174.00	650.00	840.00	10,285.80	425.63	**14,613.43**	**0.335**
	65.00	436.00	194.00	174.00	650.00	840.00	595.70	146.63	**5,034.33**	**0.116**
	65.00	436.00	194.00	174.00	650.00	840.00	351.00	117.09	**4,020.09**	**0.092**
	65.00	436.00	194.00	174.00	650.00	840.00	497.25	125.98	**4,325.23**	**0.099**
	65.00	436.00	194.00	174.00	650.00	840.00	3,430.00	356.46	**12,238.46**	**0.281**
	65.00	436.00	194.00	174.00	650.00	840.00	2,849.98	202.56	**6,954.54**	**0.160**
	65.00	436.00	194.00	174.00	650.00	840.00	2,849.98	202.56	**6,954.54**	**0.160**
	65.00	436.00	194.00	174.00	650.00	840.00	2,849.98	202.56	**6,954.54**	**0.160**
	65.00	436.00	194.00	174.00	650.00	840.00	2,849.98	202.56	**6,954.54**	**0.160**
	65.00	436.00	194.00	174.00	650.00	840.00	2,247.00	171.72	**5,895.72**	**0.135**
	65.00	436.00	194.00	174.00	650.00	840.00	2,229.72	195.95	**6,727.67**	**0.154**
	65.00	436.00	194.00	174.00	650.00	840.00	8,200.00	354.81	**12,181.81**	**0.280**
	65.00	436.00	194.00	174.00	650.00	840.00	2,790.00	224.76	**7,716.76**	**0.177**
	65.00	436.00	194.00	174.00	650.00	840.00	2,751.00	198.09	**6,801.09**	**0.156**
	65.00	436.00	194.00	174.00	0.00	840.00	602.00	114.12	**3,918.12**	**0.090**
	65.00	436.00	194.00	174.00	650.00	840.00	1,449.00	169.53	**5,820.53**	**0.134**
	65.00	436.00	194.00	174.00	650.00	840.00	10,320.00	415.86	**14,277.86**	**0.328**
	65.00	436.00	194.00	174.00	162.50	840.00	602.00	116.60	**4,003.10**	**0.092**
	65.00	436.00	194.00	174.00	650.00	840.00	4,580.00	288.96	**9,920.96**	**0.228**
	65.00	436.00	194.00	174.00	650.00	840.00	5,301.80	266.21	**9,140.01**	**0.210**
	65.00	436.00	194.00	174.00	650.00	840.00	535.95	125.64	**4,313.59**	**0.099**
	65.00	436.00	194.00	174.00	650.00	840.00	2,849.98	202.56	**6,954.54**	**0.160**
	65.00	436.00	194.00	174.00	650.00	840.00	2,849.98	202.56	**6,954.54**	**0.160**
	325.00	2,180.00	970.00	870.00	3,250.00	10,080.00	48,000.00	3,703.95	**127,168.95**	**2.919**
	325.00	2,180.00	970.00	870.00	3,250.00	10,080.00	55,000.00	3,801.45	**130,516.45**	**2.996**

13) Yield, Prices, and Revenue per Acre and per Square Foot

Production area, yield, price and revenue for vegetable crops other than herbs are detailed in the table below. Producers planning to plant herbs as part of their mix of vegetable crops will need to research prices and yields. Yields for vegetables are based on BCMAL horticultural statistics. Greenhouse tomatoes, greenhouse tomatoes and corn yields and prices are provided on a per unit basis as opposed to pounds as in other vegetables (i.e., units of tomatoes, cucumbers and ears).

VEGETABLE CROP	YIELD	PRICE*	= REVENUE Yield X Price	YIELD	PRICE*	= REVENUE Yield X Price
	lbs/sq.ft.	$/lb	$/sq.ft.	lbs/acre	$/lb	$/acre
Brussel sprouts	0.242	1.0875	0.2636	10,560	1.0875	11,484
Beans	0.154	1.2850	0.1982	6,720	1.2850	8,635
Beets	0.455	0.8475	0.3852	19,800	0.8475	16,781
Broccoli	0.179	1.1725	0.2100	7800	1.1725	9,146
Cabbage	0.732	0.6950	0.5090	31,900	0.6950	22,171
Carrots	0.544	0.8800	0.4788	23,700	0.8800	20,856
Cauliflower	0.185	1.0475	0.1936	8,050	1.0475	8,432
Cucumbers	0.336	0.7900	0.2652	14,625	0.7900	11,554
Garlic	0.079	3.3325	0.2624	3,430	3.3325	11,430
Lettuce	0.516	0.8925	0.4604	22,470	0.8925	20,054
Onions	0.753	0.9800	0.7377	32,790	0.9800	32,134
Peas	0.235	2.0500	0.4824	10,250	2.0500	21,013
Peppers	0.213	2.3500	0.5017	9,300	2.3500	21,855
Potatoes	0.451	0.6925	0.3124	19,650	0.6925	13,608
Pumpkin	0.691	0.3725	0.2574	30,100	0.3725	11,212
Rhubarb	0.554	0.7975	0.4421	24,150	0.7975	19,260
Spinach	0.296	1.8350	0.5434	12,900	1.8350	23,672
Squash	0.691	0.6350	0.4388	30,100	0.6350	19,114
Tomatoes	0.526	1.1325	0.5954	22,900	1.1325	25,934
Turnips/Rutabaga	0.869	1.1150	0.9694	37,870	1.1150	42,225
Zucchini	0.228	0.7350	0.1675	9,925	0.7350	7,295
	YIELD	PRICE	= REVENUE Yield X Price	YIELD	PRICE*	= REVENUE Yield X Price
	units/sq.ft.	$/unit	$/sq.ft.	units/acre	$/unit	$/acre
Corn	0.310 ears	0.3400 per ear	0.1054	13,500 ears	0.3400 per ear	4,590
Greenhouse Cucumbers	9.183 cucumbers	0.7500 per cucumber	6.8871	400,000 cucumbers	0.7500 per cucumber	300,000
Greenhouse Tomatoes	6.313 tomatoes	1.1325 per tomato	7.1496	275,000 tomatoes	1.1325 per Tomato	311,438

* Price is a developed as 50% of the average of wholesale and farm gate/retail price and 50% of the BCMAL average price.

REVENUE, DIRECT COSTS AND GROSS MARGIN PER SQUARE FOOT AND TOTAL PRODUCTION AREA OF THE FARM

VEGETABLE CROP	PRODUCTION AREA	REVENUE	REVENUE FOR TOTAL PRODUC-TION AREA = Production Area X Revenue	DIRECT COSTS	DIRECT COSTS FOR TOTAL PRODUCTION AREA = Production Area X Direct Cost	GROSS MARGIN = Revenue less Direct Costs	GROSS MARGIN FOR TOTAL PRODUCTION AREA =Revenue less Direct Costs
	sq.ft	$/sq.ft.		$/sq.ft.	$	per sq/ ft	
Brussel Sprouts	8,000	0.2636	$ 2,109.09	0.141	$ 1,128.18	0.1226	**$ 980.91**
Beans	8,000	0.1982	$ 1,585.90	0.184	$ 1,472.46	0.0142	**$ 113.44**
Beets	8,000	0.3852	$ 3,081.82	0.183	$ 1,460.73	0.2022	**$ 1,621.09**
Broccoli	8,000	0.2100	$ 1,679.61	0.128	$ 1,024.74	0.0820	**$ 654.87**
Cabbage	8,000	0.5090	$ 4,071.72	0.149	$ 1,194.38	0.3600	**$ 2,877.33**
Carrots	8,000	0.4788	$ 3,830.30	0.335	$ 2,683.83	0.1438	**$ 1,146.48**
Cauliflower	8,000	0.1936	$ 1,548.65	0.116	$ 924.58	0.0776	**$ 624.07**
Corn	8,000	0.1054	$ 842.98	0.092	$ 738.31	0.0134	**$ 104.67**
Cucumbers	8,000	0.2652	$ 2,121.90	0.099	$ 794.35	0.1662	**$ 1,327.55**
Garlic	8,000	0.2624	$ 2,099.26	0.281	$ 2,247.65	-0.0186	**$ (148.39)**
Lettuce	8,000	0.4604	$ 3,683.10	0.135	$ 1,082.78	0.3254	**$ 2,600.32**
Onions	8,000	0.7377	$ 5,901.60	0.154	$ 1,235.57	0.5837	**$ 4,666.03**
Peas	8,000	0.4824	$ 3,859.04	0.280	$ 2,237.25	0.2024	**$ 1,621.80**
Peppers	8,000	0.5017	$ 4,013.77	0.177	$ 1,417.22	0.3247	**$ 2,596.55**
Potatoes	8,000	0.3124	$ 2,499.10	0.156	$ 1,249.05	0.1564	**$ 1,250.05**
Pumpkin	8,000	0.2574	$ 2,059.18	0.090	$ 719.58	0.1674	**$ 1,339.60**
Rhubarb	8,000	0.4421	$ 3,537.12	0.134	$ 1,068.97	0.3081	**$ 2,468.15**
Spinach	8,000	0.5434	$ 4,347.38	0.328	$ 2,622.20	0.2154	**$ 1,725.19**
Squash	8,000	0.4388	$ 3,510.28	0.092	$ 735.19	0.3468	**$ 2,775.10**
Tomatoes	8,000	0.5954	$ 4,762.95	0.228	$ 1,822.03	0.3674	**$ 2,940.92**
Turnips/Rutabaga	8,000	0.9694	$ 7,754.83	0.210	$ 1,678.61	0.7594	**$ 6,076.22**
Zucchini	8,000	0.1675	$ 1,339.74	0.099	$ 792.21	0.0685	**$ 547.53**
Greenhouse Cucumbers	2,500	6.8871	$ 17,217.63	2.919	$ 7,298.49	3.9681	**$ 9,919.14**
Greenhouse Tomatoes	2,500	7.1496	$ 17,874.05	2.996	$ 7,490.61	4.1530	**$ 10,383.44**
TOTAL FOR ALL CROPS	**181,000**		**$ 105,331.01**		**$ 45,118.95**		**$ 60,212.06**

Indirect Costs

INDIRECT COSTS	
GENERAL	**$15,700**
Accounting & legal	900.00
Bank charges	300.00
Insurance	1,250.00
Taxes	2,200.00
Utilities	3,000.00
Unallocated R&M	1,000.00
Auto expenses	1,200.00
Office supplies & postage	950.00
Telephone	1,200.00
Small tools & supplies	2,500.00
WCB, EI, CPP	1,200.00
INTEREST ON TERM DEBT	**$16,076**
Short term (50,000 X 8% for 6 months)	2,000
Intermediate Term (85,950 X 8%)	6,876
Long Term (90,000 X 8%	7,200
DEPRECIATION	**$17,190**
Year 1: 10% X 171,900	17, 190
SALARY FOR MANAGER/OWNER	**$12,000**
	12,000
TOTAL INDIRECT COSTS	**$ 60,966**

General includes those items that are required for operation but are not easily allocated to each crop.

Annual depreciation is calculated as 10 percent of the original value of the required capital investment for the first year. In all subsequent years, depreciation is calculated as 10 percent of the remaining value of required capital investment. For example:
Year 1 :10% X 171,900 = $ 17,190
Year 2: 10% X (171,900-17,190) = $ 15,471

Interest on Term Debt includes interest charges for short term (operating loan, supplier credit, accounts payable); intermediate term (machinery and equipment); and long term (land and building) debt. This operation is assumed to carry the following:

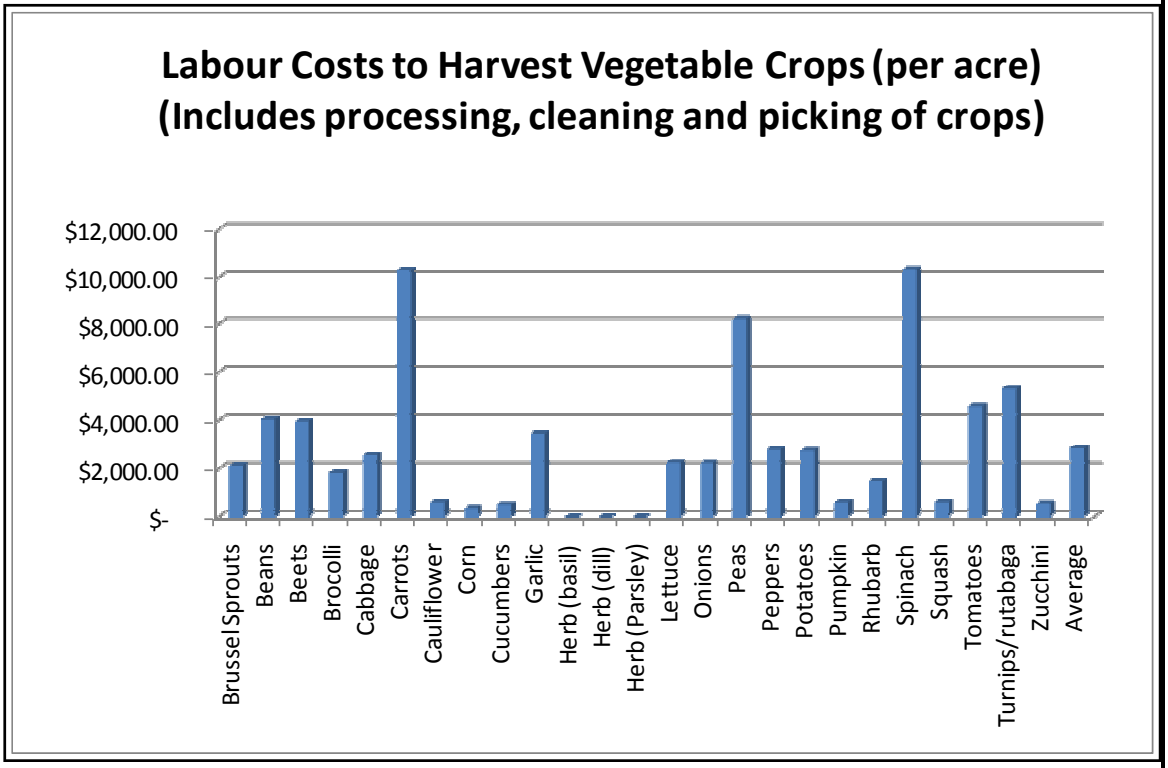
- $50,000 short term debt (e.g., labour/supplies, 6 mths, 8%.)
- $85,950 intermediate debt (50 % of required capital investment of $171,900 is owned, the balance is purchased with debt, 10 yrs, 8%)
- $90,000 long term debt (70 % of the land base valued at 300,000 is owned and 30% is financed with debt, 10 yrs, 8%)

Salary for Manager/Owner is the amount of wages paid to the owner for activities beyond the required machine, production and harvest labour included in the direct costs and consists of marketing, hiring, record keeping, planning, and decision making. This is not a living cost withdrawal. It is a salary for management activities that need to be conducted by the owner/ manager or hired out.

Labour Cost

Labour is allocated as a specific number of hours of harvest and process/ packing for each of vegetable crops. The largest hours are required by carrots, peas, and spinach.

For simplicity, production labour costs have been generalized across all vegetables. Only those obviously different labour costs, such as harvest are shown separately,



Sensitivity Analysis

Sensitivity analysis is used to provide risk assessment in terms of the change in the operation's gross margin (revenue less direct costs) that results from price, cost and/or production fluctuations.

The tables below show the change in gross margin per acre as the average price, average production yield, and/or average variable cost changes. For example, if the average price of vegetable crops decreases from 1.14 to .91 $/lb (20% decrease) while the production level stays at 100% or average of 18,296 lbs/acre, the gross margin will change from $13,455 to $9,287 per acre (30% decrease). This analysis allows producers to review the risk associated with price, cost and yield variations. In this case , sensitivity analysis is conducted for the combined enterprises. Note: The average values used in this analysis are simply the sum of direct costs to grow all crops ($/acre), sum of all prices ($/lb) or sum of all yields (lbs/acre) divided by the number of crops grown. Greenhouse cucumber and tomatoes are not included in this average cost or analysis due to their very different direct levels of production costs and prices.

Effect on Gross Margin (Revenue less Direct Costs) of Yield and Price Changes

PRICE **Vary Price from 80% to 120% of the Target Price of $1.14/lb. (i.e., average of all crops)**		**YIELD** **Vary Crop Yield from 80% to 120% of Target Yield of 18, 295 lbs/acre (i.e., average of all crops)**				
Percent	**Price - $/lb**	**14,636 (80%)**	**16,466 (90%)**	**18,295 (100%)**	**20,125 (110%)**	**21,954 (120%)**
80%	**0.91**	5,952	7,619	9,287	10,954	12,622
90%	**1.03**	7,619	9,495	11,371	13,247	15,123
100%	**1.14**	9,287	11,371	**13,455**	15,540	17,624
110%	**1.25**	10,954	13,247	15,540	17,833	20,126
120%	**1.37**	12,622	15,123	17,624	20,126	22,627

Effect on Gross Margin (Revenue less Direct Costs) of Direct Cost and Price Changes

PRICE **Vary Price from 80% to 120% of the Target Price of $1.14/lb. (i.e., average of all crops)**		**YIELD** **Vary Directs Costs from 80% to 120% of Target Direct Costs 7,388 $/acre (i.e., average of all crops)**				
Percent	**Price - $/lb**	**5,910.66 (80%)**	**6,649.50 (90%)**	**7,388.33 (100%)**	**8,127.16 (110%)**	**8,865.99 (120%)**
80%	**0.91**	10,764	10,026	9,287	8,548	7,809
90%	**1.03**	12,849	12,110	11,371	10,632	9,893
100%	**1.14**	14,933	14,194	**13,455**	12,717	11,978
110%	**1.25**	17,018	16,279	15,540	14,801	14,062
120%	**1.37**	19,102	18,363	17,624	16,885	16,147

Financial Analysis

1. Profitability: Reviews the operation's ability to generate surplus over all direct and indirect cost. Profitability is primarily determined by the net income value. Net income is the owners return to labour, capital and management. Owners will use net income to pay principle payment on loans, withdraw for living or other personal uses, and invest in future capital for the operation.

	SAMPLE FARM	YOUR FARM
Production area	181,000 sq. ft. production area	
REVENUE	$ 105,331	
Less		
DIRECT COSTS	$ 45,118.95	
Equals		
GROSS MARGIN	$ 60,212.06	
Less		
INDIRECT COSTS	$ 60,966.00	
General Items	15,700	
Interest on Term Debt	16,076	
Depreciation	17,190	
Salary for Owner/ Manager	12,000	
Equals		
NET INCOME	($753.94)	

2. Cash Flow Analysis: Reviews the month to month timing of required cash outflows (e.g., wages, supplies, interest charges) and inflows (e.g. product sales) to determine cash shortfalls, manage cash reserves and assist in planning for interim financing/short term loans.

YOUR FARM	Jan	Feb	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Opening Cash Balance												
Inflow												
Outflow												
Net Cash Flow												

3. Sensitivity Analysis: Reviews the impact of the specific items such as cost, price and yield on the gross margin and profitability of the operation. Select items that may vary a great deal or are important to the operation (i.e., fuel cost, wage rates, production amounts, market prices) and vary them in the budget to determine the effect on gross margin.

YOUR FARM	Increase Price by 10 % and Use Target Production Yield	Decrease Price by 10 % and Use Target Production Yield	Use Target Production Yield and Target Price
Gross Margin			

4. Return on Assets (ROA) This is the return generated from the operation's assets. The value indicates the productivity of the assets and how well these assets are managed. ROA is calculate as:

$$\frac{\text{(Net Income plus Annual Interest Charges)}}{\text{Value of Total Assets}}$$

Note that the ROA and asset values are dependant on current valuation of the farm assets. The values used in this sample farm are for calculation purposes and is not intended to imply current target values. Each producer should conduct their own valuation based on current and regional valuation.

	Example of how to calculate ROA using the Sample Farm	Your Farm
Net Income	**($753.94)**	
Annual Interest Charges	**16,076**	
Value of Total Assets (Assets equal 5 acres of land plus required capital investment. Does not include residence)	**$471,900** Land 5 acres = $300,000 * Required Capital Investment = $171,900	
Return on Assets	Negative net income	

* Based on local information on land sales and BC Assessment Authority data for October 2007.

5. Return on Equity (ROE) This is the return generated from the assets that are owned by the owner (not all assets), and measures the profit earned for each dollar the owner has invested into the operation. ROE is determined as:

$$\frac{\text{Net Income}}{\text{Value of Owner Equity}}$$

Note that the ROE and values of owner equity are dependant on current valuation of the farm assets plus the level of debt or liabilities of the farm. The values used in this sample farm are for calculation purposes and are not intended to imply current target values. Each producer should conduct their own farm operation.

	Example of how to calculate ROE using the Sample Farm	Your Farm
Net Income	**($753.94)**	
Value of Total Assets (Assets equal 5 acres of land plus required capital investment. Does not include residence)	**$471,900** Land 5 acres = $300,000 * Required Capital Investment = $171,900	
Value of Total Liabilities	**$175,950** Intermediate Debt $85,950 Long term Debt $90,000	
Value of Owner Equity **(Value of Total Assets less Value of Total Liabilities)**	**$295,950** Assets $471,900 Liabilities $175,950	
Return on Owner Equity	**negative value**	

* Based on local information on land sales and BC Assessment Authority data for October 2007.