



PLANNING FOR PROFIT



Ministry of Agriculture,
Food, & Fisheries

MIXED HERB CROPS (CERTIFIED ORGANIC) SMALL SCALE OPERATION - 2 ACRES

WINTER 2002

This information is a tool to project costs and returns for B.C. farm enterprises and is a general guide to plan individual farm operations. This sample budget should be used as a guide only. Each farm should develop their own budget to reflect specific production goals, costs and market prices.

Information regarding financial planning and other enterprise budgets may be viewed at the B.C. Ministry of Agriculture, Food and Fisheries website (<http://www.agf.gov.bc.ca/busmgmt/>).

Key Success Factors

- Medium level of horticultural training and skills.
- Good site selection and preparation.
- Vigilant record keeping of all aspects of operation from production to marketing.
- Strong marketing skills. Identify and research your markets prior to planting.
- Reduce direct and indirect expenses as much as possible.

Risk Factors and Strategies

Production Risks - Disease, weed and insect control are essential to ensure high yields. Climate, topography and soil conditions will affect crop and variety options. Ensure you make selections that are suited to your area. Inexperience and lack of diligence can result in a set back or general reduction in crop yields. Adverse weather conditions can reduce yields and quality. Programs available to offset production risks include NISA and whole farm insurance.

Handling Risks - Ensure all crops are properly harvested, dried, packaged, stored and shipped. Improper handling will reduce the amount of your marketable product.

Price Risks - Depending upon your target market, competition from other local growers or import products is a constant factor. Adjustments in your production or marketing plans may be required. Providing a consistent and high quality product and ensuring your customer needs are met are vital elements in offsetting adverse effects of a competitive market place. Herbs prices are also very quantity sensitive. Small scale production may result in higher gains than production over 250 lbs.

Market Risks - This will depend upon your marketing strategy. Buyers for herb crops appear and disappear quite rapidly. Demand for one herb may be high in one year and slow the next. Ensure that your commodity mix will allow for the rise and fall of the markets for individual herbs. Expect to spend a large portion of time keeping track of the current market.

Crop Selection

The crops selected for this budget are just a small number of herbs which are marketable. They are intended to give a potential grower an indication of the variety of crops available to them. At the time of this budget being prepared, demand for passionflower was high and calendula very low but demand changes constantly. It is advised that any grower wishing to enter this market, do so with a minimum of six different herbs to offer potential buyers. Also remember that almost every weed pulled on an organic herb farm may have some value. Some growers add to their product mix simply by harvesting wild plants already growing on their farms.

Crop Layout

This budget is based on a 2 acre production area broken into 0.25 acre fields. 0.25 acre each of Calendula, German Chamomile, Passionflower, Lemon Balm, Shepherd's Purse and American Skullcap. Two 0.25 acre fields are planted with a cover crop and held in reserve for field rotations.

SAMPLE ENTERPRISE BUDGET AND WORKSHEET 2 ACRES OF MIXED HERB CROPS (Certified Organic)

The sample enterprise budget provided should be viewed as a first approximation only. Use the column "your farm" to add, delete and adjust items to reflect your specific production situation.

Projected Income

	Area	Yield	Unit	Average Price	Total Income	Your Farm
Cover crops for field rotation	.5 acre	0			0.00	
Calendula	.25 acre	175	lbs	13.00	2275.00	
German Chamomile	.25 acre	150	lbs	18.00	2700.00	
Passionflower	.25 acre	500	lbs	11.00	5500.00	
Lemon Balm	.25 acre	450	lbs	9.00	4050.00	
Shepherd's Purse	.25 acre	240	lbs	10.00	2400.00	
American Skullcap	.25 acre	500	lbs	10.00	5000.00	
Total	2.0 acres				\$21,925.00	

Projected Direct Expenses

Labour	Area	Quantity	Unit	Price	Expense	Your Farm
Weeding - hired labour		275	hours	8.00	2,200.00	
Harvest - hired labour		324	hours	8.00	2,592.00	
<i>Total labour costs</i>					4,792.00	
Seeds						
Herb seed	1 acre				1,320.00	
.Cover Crop seed	1.5 acre	60	kg	0.65	39.00	
Tractor Fuel		84	litres	0.50	42.00	
Tractor Oil & lube					6.30	
Packaging						
.Bags-large		77	each	0.05	3.85	
.Boxes - large		77	each	2.50	192.50	
*Marketing					250.00	
*Repair&Maintenance					1,804.50	
*Irrigation	2 acres	2	acres	60.00	120.00	
TOTAL					\$8,570.15	

Income less Direct Expenses (2 acres production)

\$13,354.85

Income less Direct Expenses (per acre basis)

\$6,677.43

** inputs are for the total farm/production area and are not crop specific*

Projected Indirect Expenses

Your Farm

Depreciation	_____
Interest	_____
Insurance	_____
Administration	_____
Legal/accounting	_____
Other	_____
Total		=====

Indirect expenses do not vary with the level of output and are typically associated with inputs used in more than one enterprise and must be allocated appropriately (prorated) between uses.

Projected Net Income

Your Farm

Projected Income	_____
<i>minus</i> Projected Direct AND Indirect Expenses	=====
	Projected Net Income	_____

Individual Crop Budgets and Worksheets

The following income and direct expense information does not account for general farm inputs that are applied to the total farm area (e.g.. organic certification fees, general labour costs; marketing costs; irrigation fees; repair& maint.).

1. Cover Crop (0.5 acres)

Income	Yield	Unit	Price	Income	Your Farm
<i>Total Income</i>				0.00	_____
Direct Expenses	Quantity	Unit	Price	Expense	Your Farm
. fall rye	20	kg	0.65	13.00	_____
Tractor Fuel	28	litres	0.50	14.00	_____
Tractor Oil & lube				2.10	_____
<i>Total direct expenses</i>				29.10	_____
Income less Direct Expenses				-\$29.10	=====

2. Calendula (.25 acre)

Income	Yield	Unit	Price	Income	Your Farm
<i>Total Income</i>	175	lbs	13.00	\$2,275.00	_____
Direct Expenses	Quantity	Unit	Price	Expense	Your Farm
Weeding - hired labour	60	hour	8.00	480.00	_____
Harvest - hired labour	40	hour	8.00	320.00	_____
Seed cost					_____
Calendula seed	1	kg	120.00	120.00	_____
Fall rye - cover crop	10	kg	0.65	6.50	_____
Tractor Fuel	14	litres	0.50	7.00	_____
Tractor Oil & lube				1.05	_____
Packaging					_____
Bags - large	5	each	0.05	0.25	_____
Corrugated boxes	5	each	2.50	12.50	_____
<i>Total expenses</i>				\$947.30	_____
Income less Direct Expenses				\$1,327.70	=====

3. German Chamomile (0.25 acre)

Income	Yield	Unit	Price	Income	Your Farm
<i>Total Income</i>	150	lbs	18.00	\$2,700.00	_____
Direct Expenses	Quantity	Unit	Price	Expense	Your Farm
Weeding - hired labour	45	hour	8.00	360.00	_____
Harvest - hired labour	120	hour	8.00	960.00	_____
Seed Cost					
German Chamomile, Bodegold	1	kg	300.00	300.00	_____
Fall rye - cover crop	10	kg	0.65	6.50	_____
Tractor Fuel	14	litres	0.50	7.00	_____
Tractor Oil & lube				1.05	_____
Packaging					
Bags - large	4	each	0.05	0.20	_____
Corrugated boxes	4	each	2.50	10.00	_____
<i>Total expenses</i>				\$1,644.75	_____
Income less Direct Expenses				\$1,055.25	_____

4. Passionflower (0.25 acres)

Income	Yield	Unit	Price	Income	Your Farm
<i>Total Income</i>	500	lbs	11.00	\$5,500.00	_____
Direct Expenses	Quantity	Unit	Price	Expense	Your Farm
Weeding - hired labour	85	hour	8.00	680.00	_____
Harvest - hired labour	12	hour	8.00	96.00	_____
Seed Cost					
Passionflower	0.5	kg	1,200.00	600.00	_____
Fall rye - cover crop	10	kg	0.65	6.50	_____
Tractor Fuel	14	litres	0.50	7.00	_____
Tractor Oil & lube				1.05	_____
Packaging					
Bags - large	20	each	0.05	1.00	_____
Corrugated boxes	20	each	2.50	50.00	_____
<i>Total expenses</i>				\$1,441.55	_____
Income less Direct Expenses				\$4,058.45	_____

5. Lemon Balm (0.25 acre)

Income	Yield	Unit	Price	Income	Your Farm
<i>Total Income</i>	450	lbs	9.00	\$4,050.00	_____
Direct Expenses	Quantity	Unit	Price	Expense	Your Farm
Weeding - hired labour	20	hour	8.00	160.00	_____
Harvest - hired labour	36	hour	8.00	288.00	_____
Packaging					
Bags - large	18	each	0.05	0.90	_____
Corrugated boxes	18	each	2.50	45.00	_____
<i>Total expenses</i>				\$493.90	_____
Income less Direct Expenses				\$3,556.10	_____

6. Shepherd's Purse (0.25acre)

Income	Yield	Unit	Price	Income	Your Farm
<i>Total Income</i>	240	lbs	\$10.00	\$2,400.00	

Direct Expenses	Quantity	Unit	Price	Expense	Your Farm
Weeding - hired labour	45	hour	8.00	360.00	
Harvest - hired labour	80	hour	8.00	640.00	
Seed Cost					
Shepherd's Purse	1	kg	300.00	300.00	
Fall rye - cover crop	10	kg	0.65	6.50	
Tractor Fuel	14	litres	0.50	7.00	
Tractor Oil & lube				1.05	
Packaging					
Bags - large	10	each	0.05	0.50	
Corrugated boxes	10	each	2.50	25.00	
<i>Total expenses</i>				\$1,340.05	
Income less Direct Expenses				\$1,059.95	

7. American Skullcap (0.25acre)

Income	Yield	Unit	Price	Income	Your Farm
<i>Total Income</i>	500	lbs	10.00	\$5,000.00	

Direct Expenses	Quantity	Unit	Price	Expense	Your Farm
Weeding - hired labour	20	hour	8.00	160.00	
Harvest - hired labour	36	hour	8.00	288.00	
Packaging					
Bags - large	20	each	0.05	1.00	
Corrugated boxes	20	each	2.50	50.00	
<i>Total expenses</i>				\$499.00	
Income less Direct Expenses				\$4,501.00	

SENSITIVITY ANALYSIS OF TOTAL PRODUCTION INCOME

Profitability is strongly influenced by market prices and yield. The tables below illustrate the changes to income as prices and yield vary.

Price vs. Income

	70% of Target Price	85% of Target Price	Target Price	125% of Target Price	150% of Target Price
Total Income	6,777.35	10,066.10	13,354.85	18,836.10	24,317.35

Yield vs. Income

	75% of Target Yield	85% of Target Yield	Target Yield	115% of Target Yield	125% of Target Yield
Total Income	8,521.60	10,454.90	13,354.85	16,254.80	18,188.10

SENSITIVITY ANALYSIS OF INDIVIDUAL CROP INCOME

1. Calendula (0.25 acre)

Price vs. Income	70% of Target Price	85% of Target Price	Target Price	125% of Target Price	150% of Target Price
Total Income	645.20	986.45	1,327.70	1,896.45	2,465.20

Yield vs. Income	75% of Target Yield	85% of Target Yield	Target Yield	115% of Target Yield	125% of Target Yield
Total Income	838.95	1,034.45	1,327.70	1,620.95	1,816.45

2. German Chamomile (0.25 acre)

Price vs. Income	70% of Target Price	85% of Target Price	Target Price	125% of Target Price	150% of Target Price
Total Income	245.25	650.25	1,055.25	1,730.25	2,405.25

Yield vs. Income	75% of Target Yield	85% of Target Yield	Target Yield	115% of Target Yield	125% of Target Yield
Total Income	620.25	794.25	1,055.25	1,316.25	1,490.25

3. Passionflower (0.25 acre)

Price vs. Income	70% of Target Price	85% of Target Price	Target Price	125% of Target Price	150% of Target Price
Total Income	2,408.45	3,233.45	4,058.45	5,433.45	6,808.45

Yield vs. Income	75% of Target Yield	85% of Target Yield	Target Yield	115% of Target Yield	125% of Target Yield
Total Income	2,707.45	3,247.85	4,058.45	4,869.05	5,409.45

4. Lemon Balm (0.25 acres)

Price vs. Income	70% of Target Price	85% of Target Price	Target Price	125% of Target Price	150% of Target Price
Total Income	\$2,341.10	2,948.60	3,556.10	4,568.60	5,581.10

Yield vs. Income	75% of Target Yield	85% of Target Yield	Target Yield	115% of Target Yield	125% of Target Yield
Total Income	2,615.60	2,991.80	3,556.10	4,120.40	4,496.60

5. Shepherd's Purse (0.25 acre)

Price vs. Income	70% of Target Price	85% of Target Price	Target Price	125% of Target Price	150% of Target Price
Total Income	\$339.95	699.95	1,059.95	1,659.95	2,259.95

Yield vs. Income	75% of Target Yield	85% of Target Yield	Target Yield	115% of Target Yield	125% of Target Yield
Total Income	619.95	795.95	1,059.95	1,323.95	1,499.95

6. Skullcap (0.25 acre)

Price vs. Income	70% of Target Price	85% of Target Price	Target Price	125% of Target Price	150% of Target Price
Total Income	\$3,001.00	3,751.00	4,501.00	5,751.00	7,001.00

Yield vs. Income	75% of Target Yield	85% of Target Yield	Target Yield	115% of Target Yield	125% of Target Yield
Total Income	3,323.00	3,794.20	4,501.00	5,207.80	5,679.00

Cash Flow Timing

The table below indicates the monthly flow of income and indirect expenses.

	J	F	M	A	M	J	J	A	S	O	N	D
% Income	0	0	0	0	0	0	0	0	35	35	30	0
% Direct Expenses	0	0	15	5	15	20	20	20	0	0	0	0

Labour Required for Total Production Area (hours)

	Cover Crop & Overhead	Calendula	German Chamomile	Passion-flower	Lemon Balm	Shepherd's Purse	American Skullcap
Operator labour hours							
Plant crops		1.5	1.5	1		1	
Cover crop							
Soil Prep. spring&fall	3	1.5	1.5	1.5		1.5	
broadcast seed	1	0.5	0.5	0.5		0.5	
Weeding		60	40	35	20	40	20
Pest/Disease Control		4	4	4	2	4	2
Fertilization		2	2	2	2	2	2
Irrigation		2	2	2	2	2	2
Harvest		45	30	22	8	40	8
Drying		2	3	3	8	3	8
Packaging		2	2	2	4	2	4
Irrigating Crops	64						
General Maintenance	180						
Sales & Marketing Research	208						
Total operator: 924 hrs.	456	120.5	86.5	73	46	96	46
Hired labour hours	Cover crop	Calendula	Chamomile	Passionflr	Lem. Balm	Sh. Purse	Skullcap
Weeding		60	45	85	20	45	20
Harvest		40	120	12	36	80	36
Total hired: 599 hrs.	0	100	165	97	56	125	56
Total Labour: 1523 hrs	456	220.5	251.5	170	102	221	102

Investment Capital Replacement Costs

Buildings	\$15,000
Tractor	15,000
Implements	
..... Tillers	8,000
..... Mower	2,000
Rototiller	500
Rightway™ Planter	150
Washing equipment	200
Dryers (2)	3,000
Hand rakes for flower harvest	300
Bins/totes etc.	100
Hand trucks/dolleys	100
Scale	300
Vehicle	12,000
Small Tools & Equipment	500
Irrigation System	3,000
Total	\$60,150

Assumptions

The following assumptions were made in calculating the sample budget:

General Farm Assumptions

Income & Expenses:

- Projected income and expenses are based on 2 acres of certified organic production from 10 acre total farm area.

Planting Information:

- Crops grown: 0.25 acre Calendula, 0.25 acre German Chamomile, 0.25 acre Passionflower, 0.25 acre Lemon Balm 0.25 acre Shepherd's Purse, 0.25 acre American Skullcap and 0.5 acre of cover crop held for field rotations.
- Planting equipment: single row, push-type "Rightway TM" precision seeder for some direct seeded crops, all others by hand.
- The lemon balm and skullcap crops listed are perennials and values are based on established plantings.
- All fertilizer is on-farm compost and is applied by hand.

- Cover crop (fall rye) planted in the fall (September) after harvest of annual crops - Time to work in crop residues and prepare soil for seeding is 3hr/acre. Seed is broadcasted by hand (1hr/acre) & then disced into the soil (1 hr/ac). In the spring the cover crop is worked back into the soil and the land is prepared for planting (3hr/acre).
- All crops are planted in rows with 30" centres.

Marketing Information:

- Prices are based on selling entire production to a small to mid-sized manufacturer - A more difficult market is selling directly to retail customers, small craft companies or herbalists. This would increase income but also will increase the time and expense required for marketing and packaging.
- Small scale production may result in higher gains than production over 250 lbs.

Quality Information:

- All crops must retain as much natural colour after drying as possible.

Labour requirements:

- Labour requirements (operator) for irrigating crops calculated at 4 hrs/week x 16 weeks.
- Labour requirements (operator) for general maintenance calculated at 4.5 hrs/week x 40 weeks.
- Labour requirements (operator) for sales & marketing research calculated at 4 hrs/week for 52 weeks.
- Most weed control labour is needed during the seedling stage when plants are the least weed tolerant. Once the plants reach 12", they begin to shade out weeds and the labour requirements diminish. Perennial crops such as lemon balm and skullcap tend to spread and crowd out most weeds by the second year.

Equipment Costs:

- Tractor Fuel Costs are calculated as follows: no - of tractor hours x 8L/hr consumption x \$0.50/L price.
- Oil & lube costs are assumed at 15% of fuel costs.
- Repair and Maintenance costs are calculated at 3% of investment capital replacement costs.
- Investment Capital replacements costs are for a 10 acre farm with 2 acres in production.

Individual Crop Assumptions**Cover crop Assumptions (0.5 acres held for field rotation****+ 1.0 acre for fields with annual crops):**

- 1 - Planting rate: 40 kg fall rye/acre.
2. Tractor hours: 3hrs/acre soil prep in fall; 1hr/acre discing in seed; 3hrs/acre soil prep in spring;
total 7hrs/acre x 3 acres = 21hrs.
3. Cover crop is used as a green manure (ie.nutrient/organic matter source) with no direct income gained .

Calendula Assumptions (0.25 acre)

1. Planting density: row spacing 30 inches; seed spacing 6 inches.
2. Quality considerations: Flowers must be picked during the heat of the day when resin content is highest.
3. Harvest labour: 2 dried lbs/hour.

German Chamomile Assumptions (0.25 acre)

1. Planting density: row spacing 30 inches; seed spacing 2-6 inches.
2. Quality considerations: Plant Bodegold variety for larger flowerheads. Harvest with as little stem as possible.
3. Harvest labour: 1 dried lb/hour,

Passionflower Assumptions (0.25 acre)

1. Planting density: row spacing 30 inch centres; seed spacing 18-24 inches.
2. Seed vs seedlings: Although seedling costs are higher than seed, yields can be increased by using them.
3. Harvest labour: 15 dried lbs/hour.
4. Growers in coastal areas may be able to overwinter this crop rather than growing it as an annual.

Lemon Balm Assumptions (0.25 acre)

1. Planting density: row spacing 30"; seed spacing 12-18 inches.
2. Quality consideration: Prone to bruising and heating during harvest. Care must be taken. Large stems to be removed after drying.
3. Replant crop every 5-7 years.
4. Harvest labour: 12 dried lbs/hour, two harvests per season.
5. Harvest could be mechanized.
6. Lemon balm is a perennial. Yields and figures listed are for established plantings. First year establishment costs are estimated at \$300 (seed, maintenance,etc.).

Shepherd's Purse Assumptions (0.25 acre)

1. Planting density: row spacing 30 inches; seed spacing 1-2 inches.
2. Fall planting of shepherd's purse is considered the most successful.
3. Harvest labour: 2 dried lbs/hours.

American Skullcap Assumptions (0.25 acre)

1. Planting density: row spacing 30" centres; seed spacing 12".
2. Harvest labour: 12.5 dried lbs/hour, 2 harvests per season.
3. Harvest could be mechanized.
4. Skullcap is a perennial crop. Yields and figures listed are for established plantings. First year establishment costs are estimated at \$800 (seed, maintenance, etc).

References:

- Technical Feasibility Study for Medicinal & Aromatic Plants - AG Consulting
- Medicinal Herbs in the Garden, Field & Marketplace, L - Sturdivant, T - Blakeley
- Potential of Herbs as a Cash Crop, RA Miller
- Richters Herbs, www.richters.com
- BCMAFF - Planning for Profit Budgets - available at <http://www.agf.gov.bc.ca/busmgt/budgets/>

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