



# Southwest British Columbia Small-Scale Farm Enterprise Budget: **Rhubarb**



Institute for Sustainable Food Systems  
Kwantlen Polytechnic University

Technical Bulletin 2015-026  
[kpu.ca/isfs](http://kpu.ca/isfs)

*Ermias Afeworki, Wallapak Polasub, Caroline Chiu and Kent Mullinix*

This enterprise budget presents costs and returns for a 0.5 acre of rhubarb grown on a small-scale mixed vegetable farm in southwest British Columbia, Canada. The sample values are typical of small-scale rhubarb production using low-input growing methods and selling directly to consumers through venues such as farmers' markets. These values were derived from data gathering sessions with representative farmers from the region, but do not represent any particular farm, and should be used only as a guide. The actual costs of production may vary from farm to farm depending on production method and scale, machinery use and other input costs. This budget is also available as a static MS Excel spreadsheet.

#### Assumptions:

- 1) The rhubarb crop area is 0.5 acre, consisting of 54 beds, each measuring 4' x 100' (400 square feet per bed) grown on a small-scale mixed-vegetable farm.
- 2) Rhubarb takes two years from seed to harvestable maturity (full production).
- 3) An annual land rent of \$400 per acre is included in overhead charges.
- 4) Physical farm labourers (regular labour) are paid \$12 per hour.
- 5) Equipment operators (operator labour) are paid \$15 per hour.
- 6) A 2% of annual sales of rhubarb is charged as marketing cost.
- 7) The proportion of the farm's total cultivated acreage used to grow rhubarb is used to allocate fixed costs to the rhubarb enterprise.
- 8) Fuel cost is \$1.30 per liter.
- 9) The interest rate is fixed at 5%.
- 10) The annual fixed cost is estimated using the straight-line depreciation method.
- 11) Management time is not included as a cost. The net return over total cost may be considered as the return to management time.

**1<sup>st</sup> YEAR (ESTABLISHMENT)**

<b>REVENUE</b>					
<b>Item</b>	<b>Quantity/0.5 acre</b>	<b>Unit</b>	<b>\$/Unit</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
Rhubarb	0.00	pounds	1.5	0.00	0.00

<b>VARIABLE COST</b>					
<b>Item</b>	<b>Quantity/0.5 acre</b>	<b>Unit</b>	<b>\$/Unit</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
<b>Seeds and Plants</b>					
Transplants (crowns)	1,200.00	number	4.00	4,800.00	88.89
<b>Fertility and Nutrients</b>					
Chicken manure	6,000.00	pounds		40.00	0.74
Fish fertilizer	5.00	gallons		70.00	1.30
<b>Pest Management</b>					
Ferric Phosphate (organic insecticide)	4.00	15 kgs	80.00	320.00	5.93
<b>Labour activities</b>					
Land preparation	3.00	hours	15.00	45.00	0.83
Spreading compost	16.00	hours	12.00	192.00	3.56
Planting	8.00	hours	12.00	96.00	1.78
Mulching	16.00	hours	12.00	192.00	3.56
Spraying insecticide	3.00	hours	12.00	36.00	0.67
Weeding	20.00	hours	12.00	240.00	4.44
Irrigation set up	12.00	hours	12.00	144.00	2.67
Irrigating	4.00	hours	12.00	48.00	0.89
<b>Miscellaneous Expenses</b>					
Fuel cost	3.00	hours	5.20	15.60	0.29
Repair and maintenance				176.67	3.27
Interest on working capital				320.76	5.94
<b>TOTAL ANNUAL VARIABLE COST</b>				<b>6,736.03</b>	<b>124.74</b>

<b>1<sup>st</sup> YEAR (ESTABLISHMENT)</b>		
<b>ANNUAL FIXED COST</b>		
<b>Item</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
<b>Machinery</b>		
Tractor	43.33	0.80
Rototiller	6.67	0.12
Cultivator	31.17	0.58
Plow	2.08	0.04
Pick-up truck	175.00	3.24
<b>Equipment and tools</b>	<b>31.20</b>	<b>0.58</b>
<b>Building</b>	<b>287.50</b>	<b>5.32</b>
<b>Irrigation</b>	<b>250.83</b>	<b>4.65</b>
<b>Overhead expenses</b>		
Land lease	210.00	3.89
Soil test	7.00	0.13
Liability insurance	58.80	1.09
Vehicle insurance	84.00	1.56
Electricity	33.60	0.62
Water	3.50	0.06
Internet and telephone	70.00	1.30
Office supplies	35.00	0.65
<b>TOTAL ANNUAL FIXED COST</b>	<b>1,329.68</b>	<b>24.62</b>

<b>TOTAL COST</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
<b>TOTAL VARIABLE AND FIXED COST</b>	<b>8,065.71</b>	<b>149.37</b>

<b>NET RETURNS</b>		
<b>Item</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
<b>Returns Over Variable Cost</b>	<b>-6,736.03</b>	<b>-124.74</b>
<b>Returns Over Fixed Cost</b>	<b>-1,329.68</b>	<b>-24.62</b>
<b>Returns Over Total Cost</b>	<b>-8,065.71</b>	<b>-149.37</b>

**2<sup>nd</sup> YEAR (FRUIT BEARING)**

<b>REVENUE</b>					
<b>Item</b>	<b>Quantity/0.5 acre</b>	<b>Unit</b>	<b>\$/Unit</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
Rhubarb	2,100.00	pounds	1.50	3,150.00	58.33

<b>VARIABLE COST</b>					
<b>Item</b>	<b>Quantity/0.5 acre</b>	<b>Unit</b>	<b>\$/Unit</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
<b>Fertility and Nutrients</b>					
Chicken manure	6,000.00	pounds		40.00	0.74
Fish fertilizer	5.00	gallons		70.00	1.30
<b>Pest Management</b>					
Ferric Phosphate (organic insecticide)	4.00	15 kgs	80.00	320.00	5.93
<b>Labour activities</b>					
Spreading compost	16.00	hours	15.00	240.00	4.44
Mulching	8.00	hours	12.00	96.00	1.78
Spraying insecticide	3.00	hours	12.00	36.00	0.67
Weeding	12.00	hours	12.00	144.00	2.67
Irrigating	4.00	hours	12.00	48.00	0.89
Harvesting	21.00	hours	12.00	252.00	4.67
<b>Miscellaneous Expenses</b>					
Repair and maintenance				176.67	3.27
Interest on working capital				71.13	1.32
Marketing				63.00	1.17
<b>TOTAL ANNUAL VARIABLE COST</b>				<b>1,556.80</b>	<b>28.83</b>

<b>2<sup>nd</sup> YEAR (FRUIT BEARING)</b>		
<b>ANNUAL FIXED COST</b>		
<b>Item</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
<b>Machinery</b>		
Tractor	43.33	0.80
Rototiller	6.67	0.12
Cultivator	31.17	0.58
Plow	2.08	0.04
Pick-up truck	175.00	3.24
<b>Equipment and tools</b>	31.20	0.58
<b>Building</b>	287.50	5.32
<b>Irrigation</b>	250.83	4.65
<b>Overhead expenses</b>		
Land lease	210.00	3.89
Soil test	7.00	0.13
Liability insurance	58.80	1.09
Vehicle insurance	84.00	1.56
Electricity	33.60	0.62
Water	3.50	0.06
Internet and telephone	70.00	1.30
Office supplies	35.00	0.65
<b>TOTAL ANNUAL FIXED COST</b>	<b>1,329.68</b>	<b>24.62</b>
<b>TOTAL VARIABLE AND FIXED COST</b>	<b>2,886.48</b>	<b>53.45</b>

<b>NET RETURNS</b>		
<b>Item</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
<b>Returns Over Variable Cost</b>	<b>1,593.20</b>	<b>29.50</b>
<b>Returns Over Fixed Cost</b>	<b>1,820.32</b>	<b>33.71</b>
<b>Returns Over Variable &amp; Fixed Cost</b>	<b>263.52</b>	<b>4.88</b>

**3<sup>rd</sup> YEAR (FULL PRODUCTION)**

<b>REVENUE</b>					
<b>Item</b>	<b>Quantity/0.5 acre</b>	<b>Unit</b>	<b>\$/Unit</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
Rhubarb	7,000.00	pounds	1.50	10,500.00	194.44

<b>VARIABLE COST</b>					
<b>Item</b>	<b>Quantity/0.5 acre</b>	<b>Unit</b>	<b>\$/Unit</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
<b>Fertility and Nutrients</b>					
Chicken manure	6,000.00	pounds		40.00	0.74
Fish fertilizer	5.00	gallons		70.00	1.30
<b>Pest Management</b>					
Ferric Phosphate (organic insecticide)	4.00	15 kgs	80.00	320.00	5.93
<b>Labour activities</b>					
Spreading compost	16.00	hours	15.00	240.00	4.44
Planting					
Mulching	8.00	hours	12.00	96.00	1.78
Spraying insecticide	3.00	hours	12.00	36.00	0.67
Weeding	12.00	hours	12.00	144.00	2.67
Irrigating	4.00	hours	12.00	48.00	0.89
Harvesting	70.00	hours	12.00	840.00	15.56
<b>Miscellaneous Expenses</b>					
Repair and maintenance				176.67	3.27
Interest on working capital				100.53	1.86
Marketing				210.00	3.89
<b>TOTAL ANNUAL VARIABLE COST</b>				<b>2,321.20</b>	<b>42.99</b>

<b>3<sup>rd</sup> YEAR (FULL PRODUCTION)</b>		
<b>ANNUAL FIXED COST</b>		
<b>Item</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
<b>Machinery</b>		
Tractor	43.33	0.80
Rototiller	6.67	0.12
Cultivator	31.17	0.58
Plow	2.08	0.04
Pick-up truck	175.00	3.24
<b>Equipment and tools</b>	31.20	0.58
<b>Building</b>	287.50	5.32
<b>Irrigation</b>	250.83	4.65
<b>Overhead expenses</b>		
Land lease	210.00	3.89
Soil test	7.00	0.13
Liability insurance	58.80	1.09
Vehicle insurance	84.00	1.56
Electricity	33.60	0.62
Water	3.50	0.06
Internet and telephone	70.00	1.30
Office supplies	35.00	0.65
<b>TOTAL ANNUAL FIXED COST</b>	<b>1,329.68</b>	<b>24.62</b>

<b>TOTAL COST</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
<b>TOTAL VARIABLE AND FIXED COST</b>	<b>3,650.88</b>	<b>67.61</b>

<b>NET RETURNS</b>		
<b>Item</b>	<b>\$/0.5 acre</b>	<b>\$/100' bed</b>
<b>Returns Over Variable Cost</b>	<b>8,178.80</b>	<b>151.46</b>
<b>Returns Over Fixed Cost</b>	<b>9,170.32</b>	<b>169.82</b>
<b>Returns Over Variable &amp; Fixed Cost</b>	<b>6,849.12</b>	<b>126.84</b>

## **ACKNOWLEDGMENTS**

The authors would like to express our sincere appreciation to all the farmers who contributed information used to develop this enterprise budget. We would also like to thank Chris Bodnar, co-owner of Close to Home Organics Ltd, and Heather Pritchard, farm program manager at Farm Folk City Folk, for helping us connect with experienced farmers. We would like to recognize Kwantlen Polytechnic University's Michael Bomford (Sustainable Agriculture & Food Systems) and Caitlin Dorward (Institute for Sustainable Food Systems) for their invaluable input to this document. Finally, we would like to acknowledge the financial support provided by Vancouver City Savings Credit Union (VanCity).