



Ontario Berry Crops Establishment and Production Costs 2022 Economic Report

Ministry of Agriculture,
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Ontario 

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Table of Contents

1. Introduction

Objectives	2
Methods and Procedures	2
Assumptions	2
Items not included in the 2022 economic report	3
Summary	4

2. Matted row strawberry

Pre-plant Year	5
Planting Year	7
Second Year	9
Third Year	11
Total Establishment Cost	11

3. Day neutral strawberry

Pre-plant Year	13
Planting Year	15
Second Year	17

4. Raspberry

Pre-plant Year	19
Planting Year	21
Second Year	23
Mature	25
Total Establishment Cost	25

5. Blueberry

Pre-plant Year	27
Planting Year	39
Second Year	31
Third Year	33
Fourth Year	35
Mature	37
Total Establishment Cost	37

1. Introduction

This report tries to reflect the current management practices presently being used by growers today. Soil conditions and the unique microclimates of Ontario result in many different grower practices in training systems, cultivar selections, planting densities and pest management programs.

Objectives

The Ontario Berry sector uses the cost of establishment and cost of production models extensively to determine the profitability of the industry in order to make business decisions and future planting plans. Farmers can use the input costs as general guidelines to identify strengths and opportunities for improvements in their own business.

Methods and Procedures

The information used in this report was derived from previous economic reports, the Berry Growers of Ontario, surveys with growers, and a collaboration of data from researchers, extension specialists and agribusiness.

Input costs were organized into variable and measurable fixed costs. Variable costs, for example include fertilizers, pesticides, hired labour, tractor and machine costs, and interest on operating capital.

Measurable fixed costs include interest on investment, depreciation and other overhead cost items such as a portion of utilities, equipment storage, insurance, accounting, farm vehicles and general maintenance.

Assumptions

Yield data was given as an attainable average obtained from commercial operations, using best management practices.

The establishment period of matted row strawberry was 1 ½ year period: a half of a year for soil preparation, one year to establish the field. Raspberry plantings was a 2 ½ year period: a half of a year for soil preparation, one year for planting and 1 year to grow the canes to full cropping potential. For blueberry: the establishment period covers a 4 ½ year period: a half of a year for soil preparation, one year for planting and 3 years to grow the bush to cropping potential (Table 1).

The establishment costs will need to be recovered over the productive life of the planting.

An estimate of the annual cost to recover establishment costs is included in the Total Establishment Costs. Berry establishment costs of planting life were amortized over the remaining 10 years for Raspberry and 30 years for blueberry at a rate of interest of 3.0%. Harvest for raspberries started in Year 2 and for blueberries started in Year 4.

Table 1 – Establishment Period

Crop	Plants per Acre	Establishment Period
Matted strawberry row	9,335	1 ½ years
Raspberry	2,420	2 ½ years
Blueberry	1,210	4 ½ years

Planting Design Matted row strawberries were spaced at 4 feet between rows and 14 inches between plants within the row. The row length was 545 feet. Day neutral strawberries were spaced at 5 feet between rows and 12 inches x 12 inches double row between plants within the row. The row length was 368 feet. Raspberries were spaced at 9 feet between rows and 24 inches between plants within the row. The row length was 272 feet. Blueberries were spaced at 12 feet between rows and 4 feet between plants within the row. The row length was 381 feet.

Hired Labour, which is usually offshore labour, was charged at \$19.60 per hour which is comprised of minimum wage plus benefits (worker's compensation, employment insurance, Canada pension plan and an allowance for additional costs of air flight, housing and local transportation). Minimum wage in Ontario is now tied to Ontario's Consumer Price Index (CPI). Minimum wage increases are announced by April 1 each year, and are in effect on October 1 of the same year. Employer Health Tax is not included based on the berry planting size.

Harvest Labour was charged at \$20.30 per hour which is comprised of minimum wage plus benefits as above and includes vacation pay.

Hired machine operator labour was charged at \$22.00 per hour including benefits.

Machinery costs were calculated based on the purchase price for 2022, useful life, annual use and trade in value. Machinery and equipment costs were based on a commercial farm size of 10 acres matted row strawberries, 6.75 acres day neutral strawberries, 5 acres raspberries and 7 acres blueberries. The 'Machine Costs' column in each Operation Costs table includes fuel, maintenance and repair.

Trellis Systems were established in raspberry plantings during the year of planting.

Permanent Sod was established by raspberry and blueberry growers in the year of planting.

Fuel costs were based on the size of each tractor, truck or self-propelled machine used in the production operation. The following farm-gate fuel prices were used: gasoline \$1.90/litre and diesel \$1.90/litre. Fuel costs are net of all 2022 provincial and federal rebates.

The interest rate applied to the operating capital of 3.7% was based on the prime lending rate plus one percent. Interest on operating capital is compounded annually until the orchard generates revenue to first pay down the accumulated interest and then the outstanding principal. Operating capital includes cost of materials, fuel, repairs, labour and other cash items but does not include farm overhead expenses.

Interest on investment was calculated at 3.0 %, which was the average interest rate paid by chartered banks on Guaranteed Investment Certificates.

Irrigation costs were included as a variable cost for all berry crops. Irrigation included both the variable and fixed costs associated with owning and operating irrigation equipment.

Miscellaneous costs included materials such as: soil, leaf or nematode lab diagnostic costs.

Cold storage costs for berries have been included under the fixed costs in the annual estimated costs of production. The fixed costs start in the first year of harvest to reflect the first year that cold storage would be built and used.

Acreage Fees of \$250 on operations 2 to 5 acres and an additional \$50 per acre for acreage above 5 acres was included for the year of harvest and beyond in the Other Overhead Costs.

Pesticide costs were obtained from input suppliers. Spray programs may have regional differences and grower costs may change based on the pest.

Plant costs were obtained from plant suppliers.

Production Insurance was included for matted row and day neutral strawberries and provided by Agricorp at the Base premium rate.

Prices - The price used is the average reported prices from participating growers.

The contribution margin was obtained by subtracting the total variable costs from the gross income. Contribution margin is the amount of funds that the crop contributes to cover fixed costs and provide returns for owner management and investment.

Due to rounding, figures may not add to total shown.

Items not included in the 2022 Economic Report

Land costs and carrying charges were not included as part of the establishment or production costs because of the extreme variance in land prices across the province.

Land ownership and rental prices vary considerably from farm to farm depending upon road location, services, soil types, access to water and the potential for urban development or establishing a fruit market. For this reason, a space has been provided for the user to insert land rental cost in the variable cost section and land ownership in the fixed cost section.

Food safety audit and program costs represent an important aspect of Ontario's berry operations; these costs were not included as part of production costs because of the significant variance from farm to farm.

Management allowances were not included as part of the establishment or production costs.

Business risk management and income stabilization programs were not calculated in the cost of production. These can be included in the individual grower's cost of production if applicable.

Summary

The assumptions reflect the current practices in the industry and do not necessarily represent

recommendations from the contributors. Newer varieties with premium prices and other innovative cultural practices may change an individual grower's cost of production.

The authors assume no liability or responsibility as a result of the reader relying or acting upon the information contained herein. Any use or misuse of the information is the sole responsibility of the reader.

**MATTED ROW STRAWBERRY: Estimated Cost of Establishment
PRE-PLANT YEAR**

	Cost per Acre \$	
No Yield	Actual	Budget
VARIABLE COSTS		
Labour: machine operator, 0.98 hrs		22
Fertilizer		
Miticides		
Insecticides		
Fungicides		
Herbicides		
Cover crop seed		30
Machine repair, maintenance		6
Fuel		37
Consulting fees		
Miscellaneous (soil test)		
Interest on operating capital		4
Land rental		
Total Variable Costs		98
FIXED COSTS		
Machine: depreciation		10
Machine: interest on investment		5
Other overhead		650
Land ownership		
Measurable Fixed Costs		664
TOTAL MEASURABLE COSTS		763

MATTED ROW STRAWBERRY: Operation Costs
PRE-PLANT YEAR

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
Machine Labour and Machine Costs					
Discing (2x)	0.48	11	21	7	39
Seeding Cover Crop (1x)	0.5	11	22	9	43
Total Machine Operator	0.98	22	43	17	81
* includes maintenance, fuel and repair					

**MATTED ROW STRAWBERRY: Estimated Cost of Establishment
PLANTING YEAR**

	Cost per Acre \$	
No Yield	Actual	Budget
VARIABLE COSTS		
Labour: hand, 47.04 hrs		922
Labour: machine operator, 16.27 hrs		358
Fertilizer N, 34 kg		83
Fertilizer K, 23 kg		40
Miticides		24
Insecticides		
Fungicides		27
Herbicides		272
Plants (9335 per acre)		2,197
Straw, 5 tonne		900
Irrigation (frost protection)		590
Machine repair, maintenance		129
Fuel		620
Miscellaneous (soil test, leaf analysis)		24
Interest on operating capital		229
Land rental		
Total Variable Costs		6,415
FIXED COSTS		
Machine: depreciation		299
Machine: interest on investment		131
Irrigation equipment		
Other overhead		1,300
Land ownership		
Measurable Fixed Costs		1,730
TOTAL MEASURABLE COSTS		8,145

MATTED ROW STRAWBERRY: Operation Costs
PLANTING YEAR

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
Hand Labour					
Hand weeding (2.7x)	14.0	275			275
Planting	15.0	294			294
Blossum removal	2.0	39			39
Irrigation (2x)	8.0	157			157
Apply and remove row cover	5.5	108			108
Remove row cover	2.5	49			49
Total Hand Labour	47.0	922			922
Machine Labour and Machine Costs					
Discing (3.5x)	0.8	18	34	21	74
Rototilling (2x)	3.2	70	137	77	285
Planting (machine)	2.5	55	108	62	226
Fertilizing (2x)	1.4	31	60	37	128
Weed spraying (6x)	1.8	40	77	44	161
Pesticide spraying (5x)	1.5	33	87	81	201
Apply straw mulch	1.3	29	87	85	201
Remove straw mulch	3.7	81	158	90	329
Total Machine Operator	16.3	358	749	497	1604
* includes maintenance, fuel and repair					

**MATTED ROW STRAWBERRY
SECOND YEAR - HARVEST YEAR
WHOLESALE 25%, FARM-GATE RETAIL 45% AND PICK YOUR OWN 30%**

	Cost per Acre \$		
	Actual	Budget	Budget
		5240 lbs	10000 lbs
VARIABLE COSTS			
Labour: hand, 251.2/385.8 hrs		5,082	7,814
Labour: machine operator, 14 hrs		308	308
Fertilizer N, 36 kg		88	88
Fertilizer K, 23 kg		40	40
Miticides		46	46
Insecticides		144	144
Fungicides		259	259
Herbicides		120	120
Straw, 5 tonne		900	900
SECOND YEAR		2,107	4,796
Irrigation (frost protection)		590	590
Comfort station rental		65	65
Parking area maintenance		140	140
Check out equipment		45	45
Advertising		50	50
Machine repair, maintenance		141	141
Fuel		535	535
Production insurance		640	1,455
Interest on operating capital		197	298
Food safety			
Land rental			
Total Variable Costs		11,498	17,834
FIXED COSTS			
Machine: depreciation		300	300
Machine: interest on investment		129	129
Other overhead		1,300	1,300
Land ownership			
Measurable Fixed Costs		1,729	1,729
TOTAL MEASURABLE COSTS		13,227	19,564
CONTRIBUTION MARGIN (No land or food safety costs included)			
Gross income: Pick your own (30%) (1572 lbs/3000 lbs @ \$3.00/lb)		4,716	9,000
Farm gate retail (45%) (2358 lbs/4500 lbs @ \$4.40/lb)		10,375	19,800
Wholesale (25%) (1310 lbs/2500 lbs) @ \$2.80/lb)		3,668	7,000
Total variable costs		11,498	17,834
Establishment costs		4,655	4,655
Contribution margin		2,606	13,310

MATTED ROW STRAWBERRY: Operation Costs
SECOND YEAR - HARVEST YEAR

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
PREHARVEST					
Hand Labour					
Hand weeding (1x)	5.2	102			102
Irrigation (3x)	12.0	235			235
Apply row cover	5.5	108			108
Remove row cover	2.5	49			49
Total Hand Labour	25.2	494			494
Machine Labour and Machine Costs					
Mowing	0.6	14	26	15	54
SECOND YEAR	3.2	70	140	91	301
Fertilizing (2x)	1.4	31	60	37	128
Weed spraying (3x)	0.9	20	39	22	81
Pesticide spraying (9.5x)	2.9	63	168	156	387
Apply straw mulch	1.3	29	87	85	201
Remove straw mulch	3.7	81	158	90	329
Total Machine Operator	14.0	308	677	496	1480
* includes maintenance, fuel and repair					

HARVEST					
LOWER YIELD (5240 lbs/acre)					
Harvesting	98.0	1,989			1,989
Assemble masters	32.0	650			650
Supervision	21.0	426			426
Check out (PYO, Retail)	75.0	1,523			1,523
HIGHER YIELD (11925 lbs/acre)					
Harvesting	222.6	4,519			4,519
Assemble masters	42.0	853			853
Supervision	21.0	426			426
Check out (PYO, Retail)	75.0	1,523			1,523
* includes maintenance, fuel and repair					

MATTED ROW STRAWBERRY

WHOLESALE 25%, FARM-GATE RETAIL 45% AND PICK YOUR OWN 30%

THIRD YEAR	Cost per Acre \$		
	Actual	Budget	Budget
VARIABLE COSTS		4666lbs	9500lbs
Labour: hand, 220/320.3 hrs		4,854	6,890
Labour: machine operator, 43.38 hrs		875	875
Fertilizer N, 36 kg		88	88
Fertilizer K, 23 kg		40	40
Miticides		46	46
Insecticides		144	144
Fungicides		259	259
Herbicides		120	120
Containers		1,876	3,820
Irrigation (frost protection)		590	590
Comfort station rental		105	105
Parking area maintenance		140	140
Check out equipment		45	45
Advertising		50	50
Machine repair, maintenance		115	115
Fuel		337	337
Production insurance		569	1,159
Interest on operating capital		523	274
Food safety			
Land rental			
Total Variable Costs		10,775	15,097
FIXED COSTS			
Machine: depreciation		237	237
Machine: interest on investment		101	101
Cold storage		265	265
Other overhead		1,300	1,300
Land ownership			
Measurable Fixed Costs		1,903	1,903
TOTAL MEASURABLE COSTS		12,678	17,000
CONTRIBUTION MARGIN (No land or food safety costs included)			
Gross income: Pick your own (30%) (1400 lbs/2850 lbs @ \$3.00/lb)		4,200	8,550
Farm gate retail (45%) (2100 lbs/4275 lbs @ \$4.40/lb)		9,240	18,810
Wholesale (25%) (1166 lbs/2375 lbs) @ \$2.80/lb)		3,265	6,650
Total variable costs		10,775	15,097
Establishment costs		4,655	4,655
Contribution margin		1,274	14,258

	Cost per Acre \$	
	Actual	Budget
TOTAL ESTABLISHMENT COST		
Pre-plant		763
Planting		8,145
Total Establishment Cost		8,908
Does not include land and food safety costs.		

ANNUAL COST TO RECOVER ESTABLISHMENT COSTS		
Annual cost		4,655
(amortized over 2 years of production)		

MATTED ROW STRAWBERRY: Operation Costs
THIRD YEAR

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
PREHARVEST					
Hand Labour					
Hand weeding (1x)	5.2	102			102
Irrigation (3x)	12.0	235			235
Apply row cover	5.5	108			108
Remove row cover	2.5	49			49
Total Hand Labour	25.2	494			494
Machine Labour and Machine Costs					
Apply straw mulch	1.3	29	87	85	201
Remove straw mulch	3.7	81	158	90	329
Fertilizing (2x)	1.4	31	60	37	128
Pesticide spraying (9.5x)	2.9	63	168	156	387
Weed spraying (3x)	0.9	20	39	22	81
Total Machine Labour	10.2	224	512	390	1,126
HARVEST					
LOWER YIELD (4666 lbs/acre)					
Harvesting (Retail, Wholesale)	86.8	1,762			1,762
Assemble masters	32.0	650			650
Supervision	21.0	426			426
Check out (PYO, Retail)	75.0	1,523			1,523
HIGHER YIELD (9500 lbs/acre)					
Harvesting (Retail, Wholesale)	177.1	3,595			3,595
Assemble masters	42.0	853			853
Supervision	21.0	426			426
Check out (PYO, Retail)	75.0	1,523			1,523
* includes maintenance, fuel and repair					

**DAY NEUTRAL STRAWBERRY: Estimated Cost of Establishment
PRE-PLANT YEAR**

	Cost per Acre \$	
	Actual	Budget
No Yield		
VARIABLE COSTS		
Labour: machine operator, 1.3 hrs		28
Fertilizer		
Miticides		
Insecticides		
Fungicides		
Herbicides		30
Cover crop seed		30
Machine repair, maintenance		7
Fuel		49
Consulting fees		
Miscellaneous (soil test)		
Interest on operating capital		5
Land rental		
Total Variable Costs		149
FIXED COSTS		
Machine: depreciation		14
Machine: interest on investment		7
Other overhead		650
Land ownership		
Measurable Fixed Costs		671
TOTAL MEASURABLE COSTS		820

DAY NEUTRAL STRAWBERRY: Operation Costs
PRE-PLANT YEAR

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
Machine Labour and Machine Costs					
Discing (2x)	0.48	11	21	7	39
Seeding Cover Crop (1x)	0.5	11	22	9	43
Weed spraying (1x)	0.3	7	13	7	27
Total Machine Operator	1.3	28	56	24	108
* includes maintenance, fuel and repair					

DAY NEUTRAL STRAWBERRY
PLANTING YEAR
WHOLESALE 43% and FARM-GATE RETAIL 57%

	Cost per Acre \$		
	Actual	Budget	Budget
VARIABLE COSTS		10000 lbs	16500 lbs
Labour: hand, 461.5/644.5 hrs		9,322	13,037
Labour: machine operator, 12.1 hrs		267	267
Fertilizer N, 61 kg		149	149
Fertilizer K, 11 kg		20	20
Miticides		114	114
Insecticides			-
Fungicides		1,242	1,242
Herbicides		46	46
Plants (17,500 per acre)		5,898	5,898
Plastic mulch		296	296
Straw, 2 tonne		360	360
Irrigation (drip)		1,073	1,073
Containers		4,021	6,636
Comfort station rental		105	105
Parking area maintenance		140	140
Check out equipment		45	45
Advertising		50	50
Machine repair, maintenance		172	172
Fuel		463	463
Production Insurance		1,220	2,014
Miscellaneous (soil test, leaf and nematode analysis)		83	83
Interest on operating capital		928	1,192
Food safety			
Land rental			
Total Variable Costs		26,014	33,401
FIXED COSTS			
Machine: depreciation		333	333
Machine: interest on investment		135	135
Other overhead		1,300	1,300
SECOND YEAR - HARVEST YEAR			
Measurable Fixed Costs		1,768	1,768
TOTAL MEASURABLE COSTS		27,782	35,169
CONTRIBUTION MARGIN (No land or food safety costs included)			
Gross income: Wholesale (43%) (4300 lbs/7095 lbs @ \$3.20/lb)		13,760	22,704
Farm gate retail (57%) (5700 lbs/9405 lbs @ \$4.40/lb)		25,080	41,382
Total variable costs		26,014	33,401
Preplant costs		820	820
Contribution margin		12,006	29,864

**DAY NEUTRAL STRAWBERRY: Operation Costs
PLANTING YEAR**

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
Hand Labour					
Hand weeding (2x)	7.0	137			137
Planting	13.0	255			255
Blossum removal (2x)	8.0	157			157
Runner removal (3x)	12.0	235			235
Irrigation (55x)	14.5	284			284
Apply row cover	8.0	157			157
Remove row cover	4.0	78			78
Total Hand Labour	66.5	1303			1,303
Machine Labour and Machine Costs					
Discing (2x)	0.8	18	34	21	74
Seeding Cover Crop (1x)	0.5	11	22	15	48
Shape beds, lay plastic mulch, drip tape	2.0	44	88	64	195
Fertilizing (1x)	0.7	15	30	18	64
Weed spraying (2x)	0.6	13	26	15	54
Pesticide spraying (25x)	7.5	165	434	404	1,004
Total Machine Operator	12.1	267	635	537	1439
* includes maintenance, fuel and repair					

HARVEST					
LOWER YIELD (10000 lbs/acre)					
Harvesting	267.0	5,420			5,420
Assemble masters	32.0	650			650
Supervision	21.0	426			
Check out	75.0	1,523			1,523
HIGHER YIELD (16500 lbs/acre)					
Harvesting	440.0	8,932			8,932
Assemble masters	42.0	853			853
Supervision	21.0	426			
SECOND YEAR - HARVEST YEAR	75.0	1,523			1,523

DAY NEUTRAL STRAWBERRY
SECOND YEAR
WHOLESALE 43% and FARM-GATE RETAIL 57%

	Cost per Acre \$		
50% Yield	Actual	Budget	Budget
VARIABLE COSTS		5000 lbs	8250 lbs
Labour: hand, 243/334.5 hrs		4,901	6,759
Labour: machine operator, 13.1 hrs		288	288
Fertilizer N, 14 kg		33	33
Fertilizer K, 9 kg		16	16
Miticides		114	114
Insecticides		457	457
Fungicides		1,242	1,242
Herbicides		46	46
Containers		2,011	3,317
Irrigation (drip)		1,073	1,073
Comfort station rental		105	105
Parking area maintenance		140	140
Check out equipment		45	45
Advertising		50	50
Machine repair, maintenance		173	173
Fuel		501	501
Production insurance		610	1,007
Miscellaneous (soil test, leaf and nematode analysis)		83	83
Interest on operating capital		207	266
Food safety			
Land rental			
Total Variable Costs		12,095	15,714
FIXED COSTS			
Machine: depreciation		339	339
Machine: interest on investment		139	139
Cold storage		265	265
Other overhead		1,300	1,300
THIRD YEAR			
Measurable Fixed Costs		2,043	2,043
TOTAL MEASURABLE COSTS		14,138	17,757
CONTRIBUTION MARGIN (No land or food safety costs included)			
Gross income: Wholesale (43%) (2150 lbs/3548 lbs @ \$3.20/lb)		6,880	11,352
Farm gate retail (57%) (2850 lbs/4703 lbs @ \$4.40/lb)		12,540	20,691
Total variable costs		12,095	15,714
Contribution margin		7,325	16,329

**DAY NEUTRAL STRAWBERRY: Operation Costs
SECOND YEAR**

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
PREHARVEST					
Hand Labour					
Hand weeding (2x)	7.0	137			137
Irrigation (55x)	14.5	284			284
Runner removal (3x)	12.0	235			235
Apply row cover	8.0	157			157
Remove row cover	4.0	78			78
Total Hand Labour	45.5	892			892
Machine Labour and Machine Costs					
Remove plastic and drip tape	5.0	110	214	129	453
Weed spraying (2x)	0.6	13	26	15	54
Pesticide spraying (25x)	7.5	165	434	404	1,004
Total Machine Operator	13.1	288	674	549	1511
* includes maintenance, fuel and repair					

HARVEST					
LOWER YIELD (5000 lbs/acre)					
Harvesting	133.5	2,710			2,710
Assemble masters	16.0	325			325
Supervision	10.5	213			213
Check out	37.5	761			761
HIGHER YIELD (8250 lbs/acre)					
Harvesting	220.0	4,466			4,466
Assemble masters	21.0	426			426
Supervision	10.5	213			213
Check out	37.5	761			761

RASPBERRY: Estimated Cost of Establishment
PRE-PLANT YEAR

	Cost per Acre \$	
No Yield	Actual	Budget
VARIABLE COSTS		
Labour: machine operator, 1.68 hrs		37
Fertilizer K, 55 kg		97
Cover crop seed		30
Machine repair, maintenance		9
Fuel		64
Miscellaneous (soil test)		24
Interest on operating capital		5
Land rental		
Total Variable Costs		266
FIXED COSTS		
Machine: depreciation		21
Machine: interest on investment		10
Other overhead		650
Land ownership		
Measurable Fixed Costs		680
TOTAL MEASURABLE COSTS		946

RASPBERRY: Operation Costs
PRE-PLANT YEAR

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
Machine Labour and Machine Costs					
Discing (2x)	0.48	11	21	7	39
Seeding Cover Crop (1x)	0.5	11	22	9	43
Fertilizing (1x)	0.7	15	30	18	64
Total Machine Operator	1.7	37	73	35	145
* includes maintenance, fuel and repair					

RASPBERRY: Estimated Cost of Establishment
PLANTING YEAR

	Cost per Acre \$	
No Yield	Actual	Budget
VARIABLE COSTS		
PLANTING YEAR		666
Labour: machine operator, 12.6 hrs		276
Fertilizer N, 16 kg		39
Fertilizer K, 38 kg		66
Insecticides		6
Herbicides		57
Plants (2420 per acre)		5,144
Cover crop seed		30
Irrigation (drip)		542
Trellis material (3 twine trellis installed)		3,839
Machine repair, maintenance		
Fuel		478
Miscellaneous (soil test, leaf analysis)		89
Interest on operating capital		416
Land rental		
Total Variable Costs		11,649
FIXED COSTS		
Machine: depreciation		193
Machine: interest on investment		87
Other overhead		1,300
Land ownership		
Measurable Fixed Costs		1,580
TOTAL MEASURABLE COSTS		13,229

RASPBERRY: Operation Costs
PLANTING YEAR

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
PLANTING YEAR					
Planting	12.5	245			245
Irrigation	1.5	29			29
Hand weeding or hoeing (2x)	20.0	392			392
Total Hand Labour	34.0	666			666
Machine Labour and Machine Costs					
Discing (2x)	0.5	11	21	13	44
Rototilling (1x)	1.6	35	69	38	142
Shape beds, lay plastic, mulch and drip tape	1.5	33	66	48	147
Remove plastic and drip tape	4.0	88	171	103	363
Fertilizing (1x)	0.7	15	30	18	64
Mowing in between rows (4x)	3.2	70	136	78	284
Seeding cover crop (1x)	0.5	11	22	9	43
Weed spraying (1.25x)	0.4	9	16	9	34
Pesticide spraying (0.5x)	0.2	3	9	8	20
Total Machine Operator	12.6	276	540	325	1,141
* includes maintenance, fuel and repair					

RASPBERRY: Estimated Cost of Establishment**SECOND YEAR**

Pick your own 60%, Farm gate retail 25% and Wholesale 15%

Partial yield	Cost per Acre \$		
	Actual	Budget	Budget
VARIABLE COSTS		1000 lbs	2700 lbs
Labour: hand, 164.5/279.5 hrs		3,308	5,643
Labour: machine operator, 19.3 hrs		424	424
SECOND YEAR - HARVEST YEAR		48	48
Fertilizer K, 37 kg		65	65
Miticides		32	32
Insecticides		36	36
Fungicides		63	63
Herbicides		73	73
Irrigation (drip)		542	542
Containers		368	993
Comfort station rental		105	105
Parking area maintenance		140	140
Check out equipment		45	45
Advertising		50	50
Trellis materials (maintenance)		192	192
Machine repair, maintenance		114	114
SECOND YEAR		738	738
Miscellaneous (soil test, leaf analysis)		89	89
Interest on operating capital		119	174
Food safety			
Land rental			
Total Variable Costs		6,552	9,566
FIXED COSTS			
Machine: depreciation		323	323
Machine: interest on investment		142	142
Other overhead		1,300	1,300
Cold storage		265	265
Land ownership			
Measurable Fixed Costs		2,030	2,030
TOTAL MEASURABLE COSTS		8,583	11,597
CONTRIBUTION MARGIN (No land or food safety costs included)			
Gross income: Pick your own (60%) (600lbs/1620 lbs @ \$4.67/lb)		2,802	7,565
Farm gate retail (25%) (250lbs/675lbs @ \$7.00/lb)		1,750	4,725
Wholesale (15%) (150lbs/405lbs) @ \$5.33/lb)		800	2,159
Total variable costs		6,552	9,566
Contribution margin		(1,201)	4,883

**RASPBERRY: Operation Costs
SECOND YEAR**

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
Hand Labour					
Hand weeding (1x)	10.0	196			196
Tipping raspberries	5.0	98			98
SECOND YEAR - HARVEST YEAR	20.0	392			392
Irrigation	1.5	29			29
Trellis maintenance	8.0	157			157
Total Hand Labour	44.5	872			872
Machine Labour and Machine Costs					
Fertilizing (1x)	0.7	15	30	18	64
Rototilling (1x)	1.6	35	70	46	150
Seeding cover crop	0.5	11	22	9	43
Mowing between rows (11x)	8.8	194	375	213	782
Lay plastic, mulch and drip tape	1.5	33	66	48	147
Remove plastic	4.0	88	171	103	363
Weed spraying (2x)	0.6	13	26	15	54
Pesticide spraying (5.25x)	1.6	35	93	86	214
SECOND YEAR	19.3	424	853	539	1815
* includes maintenance, fuel and repair					

HARVEST					
LOWER YIELD (1000 lbs/acre)	Hours	Labour \$			Total \$
Harvest	70.0	1,421			1,421
Assemble masters	5.0	102			102
Supervision	15.0	305			305
Check out staff (Pick your own, Ready picked)	30.0	609			609
HIGHER YIELD (2700 lbs/acre)					
Harvest	180.0	3,654			3,654
Assemble masters	10.0	203			203
Supervision	15.0	305			305
Check out	30.0	609			609

**RASPBERRY
PREHARVEST AND HARVEST
MATURE**

Pick your own 60%, Farm gate retail 25% and Wholesale 15%

	Cost per Acre \$		
	Actual	Budget	Budget
Full yield		4000 lbs	7000 lbs
VARIABLE COSTS			
THIRD YEAR		9,242	9,242
Labour: machine operator, 17.5 hrs		385	385
Fertilizer N, 24 kg		58	58
Fertilizer K, 37 kg		65	65
Miticides		65	65
Insecticides		187	187
Fungicides		183	183
Herbicides		103	103
Irrigation (drip)		542	542
Containers		1,471	2,575
Comfort station rental		105	105
Parking area maintenance		140	140
Check out equipment		45	45
Advertising		50	50
Trellis materials (supplies and maintenance)		192	192
Machine repair, maintenance		148	148
Fuel		880	880
Miscellaneous (soil test, leaf analysis)		89	89
Interest on operating capital		258	278
Food safety			
Land rental			
Total Variable Costs		14,207	15,332
FIXED COSTS			
Machine: depreciation		403	403
Machine: interest on investment		176	176
Cold storage		265	265
Other overhead		1,300	1,300
Land ownership			
Measurable Fixed Costs		2,144	2,144
TOTAL MEASURABLE COSTS		16,352	17,476
CONTRIBUTION MARGIN (No land or food safety costs included)			
Gross income: Pick your own (60%) (2400lbs/4200 lbs @ \$4.67/lb)		11,208	19,614
Farm gate retail (25%) (1000lbs/1750lbs @ \$7.00/lb)		7,000	12,250
Wholesale (15%) (600lbs/1050lbs @ \$5.33/lb)		3,198	5,597
Total variable costs		14,207	15,332
Establishment costs		1,580	1,580
Contribution margin		5,618	20,548

	Cost per Acre \$	
	Actual	Budget
TOTAL ESTABLISHMENT COST		
Pre-plant		946
Planting		13,229
Year 2		6,268
Total Establishment Cost		20,443
Does not include land and food safety costs.		

ANNUAL COST TO RECOVER ESTABLISHMENT COSTS		
Annual cost		1,580
(amortized over 10 years of production)		

**RASPBERRY: Operation Costs
PREHARVEST AND HARVEST
MATURE**

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
THIRD YEAR					
Hand Labour					
Tying	11.0	216			216
Tipping	5.0	98			98
Pruning	24.0	470			470
Trellis maintenance	8.0	157			157
Irrigation	1.5	29			29
Total Hand Labour	49.5	970			970
Machine Labour and Machine Costs					
Fertilizing (1x)	0.7	15	30	18	15
Rototilling (1x)	1.6	35	70	41	35
Mowing between rows (11x)	8.8	194	375	213	194
Seeding cover crop	0.5	11	22	9	11
Weed spraying (2.5x)	0.8	17	32	19	17
Pesticide spraying (8.5x)	2.6	56	148	138	56
Flail mowing	2.6	57	113	74	57
Total Machine Operator	17.5	385	790	512	385
* includes maintenance, fuel and repair					
HARVEST					
LOWER YIELD (4000 lbs/acre)	Hours	Labour \$			Total \$
Harvest	350.0	7,105			7,105
Assemble masters	12.5	254			254
Supervision	15.0	305			305
Check out	30.0	609			609
HIGHER YIELD (7000 lbs/acre)					
Harvest	350.0	7,105			7,105
Assemble masters	12.5	254			254
Supervision	15.0	305			305
Check out	30.0	609			609

BLUEBERRY: Estimated Cost of Establishment
PRE-PLANT YEAR

No Yield	Cost per Acre \$	
	Actual	Budget
VARIABLE COSTS		
Labour: machine operator, 2.4 hrs		52
Fertilizer K, 110 kg		194
Fertilizer Sulphur, 470 kg		574
Cover crop seed		30
Machine repair, maintenance		12
Fuel		91
Miscellaneous (soil test)		24
Interest on operating capital		36
Land rental		
Total Variable Costs		1,014
FIXED COSTS		
Machine: depreciation		31
Machine: interest on investment		15
Other overhead		650
Land ownership		
Measurable Fixed Costs		696
TOTAL MEASURABLE COSTS		1,709

BLUEBERRY: Operation Costs
PRE-PLANT YEAR

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
Machine Labour and Machine Costs					
Discing (2x)	0.5	11	21	7	39
Seeding Cover Crop (1x)	0.5	11	22	9	43
Fertilizing (2x)	1.4	31	60	36	127
Total Machine Operator	2.4	52	103	53	208
* includes maintenance, fuel and repair					

BLUEBERRY: Estimated Cost of Establishment
PLANTING YEAR

	Cost per Acre \$	
	Actual	Budget
No Yield		
PLANTING YEAR		
Labour: hand, 122.5 hrs		2,401
Labour: machine operator, 8.8 hrs		193
Fertilizer N, 18 kg		68
Fertilizer K, 70 kg		123
Fertilizer Sulphur, 21 kg		25
Insecticides		36
Herbicides		17
Plants (1210 per acre)		7,260
Grass seed		30
Irrigation (drip)		
Mulch - wood chips		2,250
Machine repair, maintenance		59
Fuel		336
Miscellaneous (soil test, leaf analysis)		154
Interest on operating capital		479
Land rental		
Total Variable Costs		13,432
FIXED COSTS		
Machine: depreciation		153
Machine: interest on investment		68
Other overhead		1,300
Land ownership		
Measurable Fixed Costs		1,522
TOTAL MEASURABLE COSTS		14,953

BLUEBERRY: Operation Costs
PLANTING YEAR

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
Hand Labour					
Planting	20.0	392			392
Irrigation (45x)	67.5	1323			
Hand weeding or hoeing (3.5x)	35.0	686			686
Total Hand Labour	122.5	2401			1,078
Machine Labour and Machine Costs					
Discing (2x)	0.5	11	21	13	44
Lay drip tape	2.0	44	88	64	
Mulch spreading	1.3	29	68	52	
Fertilizing (1x)	0.7	15	30	18	64
Mowing in between rows (4x)	3.2	70	136	78	284
Seeding grass walkway (1x)	0.5	11	22	9	43
Weed spraying (1x)	0.3	7	13	7	
Pesticide spraying (1x)	0.3	7	17	16	40
Total Machine Operator	8.8	193	395	257	475
* includes maintenance, fuel and repair					

**BLUEBERRY: Estimated Cost of Establishment
SECOND YEAR**

	Cost per Acre \$	
No yield	Actual	Budget
VARIABLE COSTS		
SECOND YEAR - HARVEST YEAR		1,754
Labour: machine operator, 11.8 hrs		260
Fertilizer N, 30 kg		114
Fertilizer K, 70 kg		123
Fertilizer Sulphur, 34 kg		42
Miticides		
Insecticides		36
Fungicides		44
Herbicides		30
Irrigation (drip)		440
Machine repair, maintenance		59
Fuel		452
Miscellaneous (soil test, leaf analysis)		154
Interest on operating capital		130
SECOND YEAR		
Land rental		
Total Variable Costs		3,639
FIXED COSTS		
Machine: depreciation		184
Machine: interest on investment		82
Other overhead		1,300
Land ownership		
Measurable Fixed Costs		1,566
TOTAL MEASURABLE COSTS		5,205

**BLUEBERRY: Operation Costs
SECOND YEAR**

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
Hand Labour					
SECOND YEAR - HARVEST YEAR	20.0	392			392
Pruning	2.0	39			39
Irrigation (45x)	67.5	1323			1,323
Total Hand Labour	89.5	1,754			1,754
Machine Labour and Machine Costs					
Fertilizing (1x)	0.7	15	30	18	64
Mowing between rows (11x)	8.8	194	375	213	782
Brush removal	1.5	33	65	43	141
Weed spraying (1.25x)	0.4	8	16	9	34
Pesticide spraying (1.5x)	0.5	10	26	24	60
Total Machine Operator	11.8	260	512	308	1080
* includes maintenance, fuel and repair					

**BLUEBERRY
THIRD YEAR**

No yield	Cost per Acre \$	
	Actual	Budget
VARIABLE COSTS		
Labour: hand, 89.5 hrs		1,754
Labour: machine operator, 15 hrs		329
Fertilizer N, 35 kg		133
Fertilizer K, 70 kg		123
Fertilizer Sulphur, 40 kg		49
Miticides		
Insecticides		459
Fungicides		253
Herbicides		81
Irrigation (drip)		440
Machine repair, maintenance		122
Fuel		573
Miscellaneous (soil test, leaf analysis)		154
THIRD YEAR		165
Food safety		
Land rental		
Total Variable Costs		4,635
FIXED COSTS		
Machine: depreciation		291
Machine: interest on investment		123
Other overhead		1,300
Land ownership		
Measurable Fixed Costs		1,714
TOTAL MEASURABLE COSTS		6,349

BLUEBERRY: Operation Costs
THIRD YEAR

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
Hand Labour					
Hand weeding (2x)	20.0	392			392
Pruning	2.0	39			39
Irrigation (45x)	67.5	1323			1,323
Total Hand Labour	89.5	1,754			1,754
Machine Labour and Machine Costs					
Fertilizing (1x)	0.7	15	30	18	64
Mowing between rows (11x)	8.8	194	375	213	782
Brush removal	1.5	33	65	43	
Weed spraying (1.25x)	0.4	8	16	9	34
Pesticide spraying (12x)	3.6	79	208	194	482
THIRD YEAR	15.0	329	695	478	1361
* includes maintenance, fuel and repair					

**BLUEBERRY
PREHARVEST AND HARVEST
FOURTH YEAR**

Pick your own 60%, Farm gate retail 25% and Wholesale 15%

Partial yield	Cost per Acre \$		
	Actual	Budget	Budget
VARIABLE COSTS		4000 lbs	4500 lbs
Labour: hand, 581.5 hrs		11,742	11,742
Labour: machine operator, 15 hrs		329	329
Fertilizer N, 50 kg		190	190
Fertilizer K, 70 kg		123	123
Fertilizer Sulphur, 57 kg		70	70
Miticides			
Insecticides		459	459
Fungicides		253	253
Herbicides		81	81
Irrigation (drip)		440	440
Containers		1,608	1,810
Comfort station rental		105	105
Parking area maintenance		140	140
Check out equipment		45	45
Advertising		50	50
Netting		175	175
Machine repair, maintenance		122	122
Fuel		573	573
Miscellaneous (soil test, leaf analysis)		154	154
Interest on operating capital		308	312
Food safety			
Land rental			
Total Variable Costs		16,966	17,172
FIXED COSTS			
Machine: depreciation		291	291
Machine: interest on investment		123	123
Cold storage		265	265
Other overhead		1,300	1,300
Land ownership			
Measurable Fixed Costs		1,979	1,979
TOTAL MEASURABLE COSTS		18,946	19,151
CONTRIBUTION MARGIN (No land or food safety costs included)			
Gross income: Pick your own (60%) (2400lbs/2700 lbs @ \$3.25/lb)		7,800	8,775
Farm gate retail (25%) (1000lbs/1125lbs @ \$4.25/lb)		4,250	7,438
Wholesale (15%) (600lbs/675lbs) @ \$3.25/lb)		1,950	3,413
Total variable costs		16,966	17,172
Contribution margin		(2,966)	2,453

**BLUEBERRY: Operation Costs
FOURTH YEAR**

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
PREHARVEST					
Hand Labour					
Hand weeding (2x)	20.0	392			392
Pruning	2.0	39			39
Irrigation (45x)	67.5	1323			1,323
Total Hand Labour	89.5	1754			1,754
Machine Labour and Machine Costs					
Fertilizing (1x)	0.7	15	30	18	64
Mowing between rows (11x)	8.8	194	375	213	782
Brush removal	1.5	33	65	43	
Weed spraying (1.25x)	0.4	8	16	9	34
Pesticide spraying (12x)	3.6	79	208	194	482
Total Machine Operator	15.0	329	695	478	1361
* includes maintenance, fuel and repair					

HARVEST					
LOWER YIELD (4000 lbs/acre)					
Harvesting	400.0	8,120			8,120
Assemble masters	16.0	325			325
Supervision	16.0	325			325
Check out	60.0	1,218			1,218
HIGHER YIELD (4500 lbs/acre)					
Harvesting	400.0	8,120			8,120
Assemble masters	16.0	325			325
Supervision	16.0	325			325
Check out	60.0	1,218			1,218

**BLUEBERRY
PREHARVEST AND HARVEST
MATURE**

Pick your own 60%, Farm gate retail 25% and Wholesale 15%

Full yield	Cost per Acre \$		
	Actual	Budget	Budget
VARIABLE COSTS		6000 lbs	10000 lbs
Labour: hand, 581.5 hrs		11,742	11,742
Labour: machine operator, 15.3 hrs		337	337
Fertilizer N, 60 kg		228	228
Fertilizer K, 70 kg		123	123
Fertilizer Sulphur, 69 kg		84	84
Miticides			
Insecticides		459	459
Fungicides		253	253
Herbicides		81	81
Wood chips (reapplied every 3 - 4 years)		563	563
Irrigation (drip)		440	440
Containers		2,011	3,218
Comfort station rental		105	105
Parking area maintenance		140	140
Check out equipment		45	45
Advertising		50	50
Machine repair, maintenance		127	127
Fuel		585	585
Miscellaneous (soil test, leaf analysis)		154	154
Interest on operating capital		324	347
Food safety			
Land rental			
Total Variable Costs		17,849	19,078
FIXED COSTS			
Machine: depreciation		299	299
Machine: interest on investment		127	127
Cold storage		265	265
Other overhead		1,300	1,300
Land ownership			
Measurable Fixed Costs		1,990	1,990
TOTAL MEASURABLE COSTS		19,839	21,069
CONTRIBUTION MARGIN (No land or food safety costs included)			
Gross income: Pick your own (60%) (3600lbs/6000 lbs @ \$3.25/lb)		11,700	19,500
Farm gate retail (25%) (1500lbs/2500lbs @ \$4.25/lb)		6,375	10,625
Wholesale (15%) (900lbs/1500lbs) @ \$3.25/lb)		2,925	4,875
Total variable costs		17,849	19,078
Establishment costs		1,554	1,554
Contribution margin		1,598	14,368

	Cost per Acre \$	
	Actual	Budget
TOTAL ESTABLISHMENT COST		
Pre-plant		1,709
Planting		14,953
Year 2		5,205
Year 3		6,349
Year 4		7,010
Total Establishment Cost		35,226
Does not include land and food safety costs.		

ANNUAL COST TO RECOVER ESTABLISHMENT COSTS		
Annual cost		1,554
(amortized over 30 years of production)		

BLUEBERRY: Operation Costs
MATURE

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
PREHARVEST					
Hand Labour					
Hand weeding (2x)	20.0	392			392
Pruning	2.0	39			39
Irrigation (45x)	67.5	1323			1,323
Total Hand Labour	89.5	1754			1,754
Machine Labour and Machine Costs					
Fertilizing (1x)	0.7	15	30	18	64
Mowing between rows (11x)	8.8	194	375	213	782
Mulch spreading (0.25 x)	0.3	7	17	13	37
Brush removal	1.5	33	65	43	141
Weed spraying (1.25x)	0.4	8	16	9	34
Pesticide spraying (12x)	3.6	79	208	194	482
Total Machine Operator	15.3	337	712	490	1539
* includes maintenance, fuel and repair					

HARVEST					
LOWER YIELD (5000 lbs/acre)					
Harvesting	400.0	8,120			8,120
Assemble masters	16.0	325			325
Supervision	16.0	325			325
Check out	60.0	1,218			1,218
HIGHER YIELD (8000 lbs/acre)					
Harvesting	400.0	8,120			8,120
Assemble masters	16.0	325			325
Supervision	16.0	325			325
Check out	60.0	1,218			1,218