



BUILDING BUSINESS SUCCESS

Cost of Producing Fresh and Processing Blueberries in the Fraser Valley of British Columbia

Spring 2016

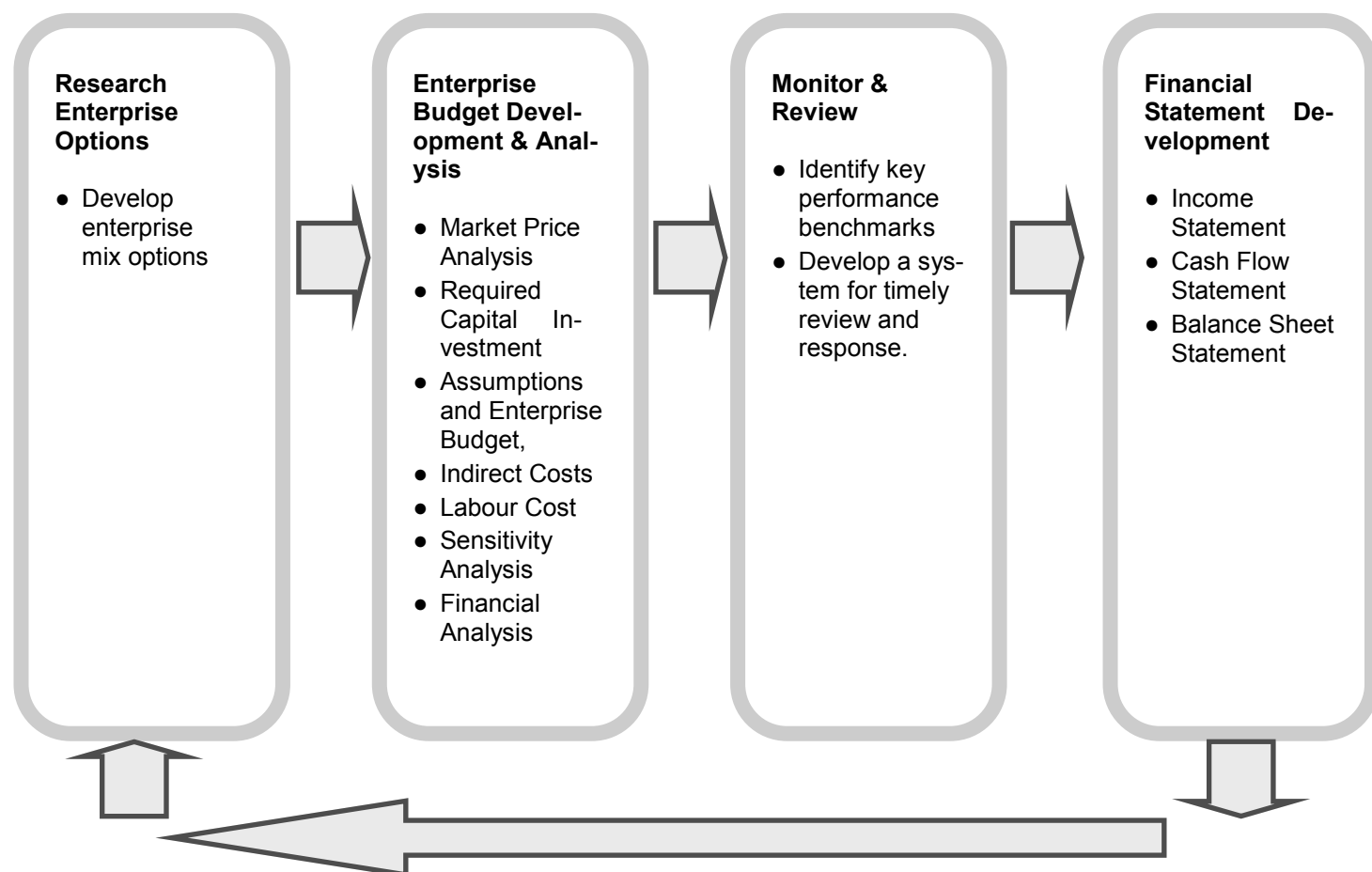
The **BUILDING BUSINESS SUCCESS** enterprise budget series were developed to provide information to assist producers in projecting costs and returns for British Columbia farm enterprises. These budgets are one part of the overall financial planning process that assists in decision making and in monitoring and reviewing the whole farm business.

This information is provided as a tool for projecting costs and returns for specific farm enterprises and as a general guide for preparing individual financial plans. This sample budget is based on prevailing costs and prices at time of publication, and will be different for each farm. Producers should develop their own budget to reflect individual production goals, costs and market prices.

Additional financial planning information and farm enterprise budgets can be found [online](#) or from a local B.C. Ministry of Agriculture office



Overview of the Financial Planning Process





General Background

The production of blueberries has increased substantially in the Fraser valley of British Columbia as well in North and South America, Europe, Asia and other areas around the world with suitable growing conditions.

British Columbia currently has 11,300 hectares (28,000 acres) planted to blueberries. Our blueberry industry produced 77 million kilograms (170 million pounds) in 2015 and production is expected to increase as plantings mature. British Columbia is one of the largest highbush blueberry-growing regions in the world.

Grower prices for both fresh and processing blueberries vary substantially from year to year and it is important to understand this variability when developing budgets and other financial plans for your farm.

This report provides an estimate of the costs and returns for a well-managed, newly established 40 acre blueberry planting producing both fresh and process market blueberries in the Fraser Valley of British Columbia.

Selected blueberry growers, consultants, farm input suppliers and industry experts at the B.C. Ministry of Agriculture have provided input into the preparation of this report.

Yields, prices and expenses can vary greatly between farms given management practices, growing conditions, varieties, soil type etc. The number of years required to reach full production can vary with poorer performing farms taking longer.

Given this variability it is essential that growers prepare a budget reflecting their own circumstances. A list of assumptions used in the preparation of this report are provided to assist preparing individualized budgets.



How to Use This Report

Farm Budgeting

This report has been prepared as a guide to assist farmers in preparing a budget to determine the returns and direct input costs of establishing and growing blueberries in the Fraser Valley of B.C. Given the differences and unique circumstances experienced by each individual farm and grower associated with each specific farm, it is essential that this information is only used as a general guide and that a custom budget is prepared to reflect and capture most-likely, best case and worst case possibilities for each farm.

An individual grower can also use this report to compare their returns, direct costs and margins to the expected experience of a select group of experienced growers.

This budget does not include overhead and indirect costs, such as depreciation, interest, office, general utilities, accounting, insurance, operator living expenses etc. As these expenses vary greatly from farm-to-farm depending on the specific financial and economic situation of each farm, they have not been included but rather a margin to cover these expenses has been calculated.

Cash-Flow Planning

A cash flow projection is key to good financial planning. The information in this report provides an initial guide to the returns and direct expenses as well as a relative indication of the level of these returns and expenses that need to be included. A complete cash-flow budget will need to include both expenses and other cash disbursements such as loan payments (both principle and interest), overhead and indirect expenses such as accounting and professional fees, insurance, office expenses, travel, operator living, and general utilities, income taxes, operator living etc. It will also need to include beginning cash available, loans and other sources of farm and non-farm income.

Financial and Economic Analysis

It is important to note that it is not the intent of this report to provide a complete financial nor economic analysis of the cost of establishing and producing blueberries in the Fraser Valley of B.C. and as such cannot be considered as such.

As mentioned above, indirect and overhead costs have not be calculated nor included in this report. Also, the economic or opportunity costs of other inputs have not been considered nor included. Examples include depreciation, opportunity or ownership costs for use of land, operator labour, management etc.

For more information or help with developing a financial plan please contact the B.C. Ministry of Agriculture's Farm Business Advisory Service.



Assumptions — Income and Expense

The following assumptions were made and provided the basis for calculating expected costs and returns in this report. As previously noted, these assumptions vary between farms and with different management practices.

1. A typical producer in the Fraser Valley of B.C. growing 40 acres of blueberries for both the fresh and the processing market on a 40 acre farm.
2. Income and expenses are based on 28 acres of Duke and 12 acres of Elliott.
3. The crop is not harvested in years 1 and 2. Both varieties are hand-picked in years 3 and 4 and sold as fresh market berries. The Elliott berries are hand-picked for fresh market in all remaining years. Starting in year 5, the Dukes are harvested once by hand, with 25% of the crop sold for fresh market, while the remaining 75% of the crop is machine-harvested and sold for processing.
4. Hand harvesting piecework rate is calculated at \$0.60/lb. for Duke and \$0.70/lb. for Elliott.
5. Plant spacing is 3 ft. x 10 ft. (1,450 plants per acre) less 15% for headlands.
6. Plant costs are \$3.00 for a 1 gallon, fully rooted Duke or Elliott. Identity protected cultivars would run approximately \$1.00 to \$1.50 more per plant.
7. Life span for the planting is calculated at 25 years including the establishment years.
8. Yields are based on the berries being planted in soil that is uniform and well suited to blueberry production.
9. Drainage is installed on 30' spacing prior to planting.
10. Soil pH is adjusted in the year prior to planting.
11. Pre-planting land preparation (plowing, disking, bed forming etc.) is contracted with custom farming providers.
12. Fifteen units, 112.5 yards of sawdust is incorporated into the soil prior to forming raised beds and planting.
13. Ten units, 75 yards of sawdust mulch is applied ever 3 years during the productive life of the planting.
14. Commercial production begins in year 3 with typical yields of 4,000 lbs. per acre for both Duke and Elliott. Expected yield increases are as presented in the Yield & Marketing table until full production is realized in year 10. Full production yields are calculated at 12,000 lbs. for Elliott and 15,000 lbs. for Duke.
15. Revenues are based on \$1.40 per lb. for hand harvested Elliott berries sold as fresh market berries, \$1.00 per lb. for hand harvested Duke berries sold as fresh market berries and \$0.55 per lb. for machine harvested Duke berries sold as processing berries.
16. Blueberry price is determined by market conditions. For fresh market blueberries, payment from the packer may be delayed up to 6 months after harvest. For process-grade blueberries, payment may be delayed up to 1 year after harvest.
17. Lower yields are estimated in years 5 and 6 for Duke resulting from the initial heavy pruning required prior to machine harvesting.
18. A 20% yield loss is calculated for machine harvested berries.
19. Flowers are hand-stripped in years 1 and 2 by hired labour, while pruning commencing in year 3 and beyond is contracted out.
20. Labour rates were calculated at \$14.00/hr. for general labour, \$17.00/hr. for equipment operators, \$20.00/hr. for mechanical harvester operators and \$15.00/hr. for assistant mechanical harvester operators.



Assumptions — Income and Expenses

21. Pruning costs increase from years 3 to 10 by \$100 per acre per year as the size of the bushes increases, with the Elliott variety requiring 20% more time to prune than the Duke variety.
22. Bee hives are used for pollination and 1.5 hives are rented per acre in years three (3) to six (6) and 3 hives per acre in subsequent years.
23. Bird management is done by hired labour on site every day while fruit is ripening.
24. Blueberries are irrigated from May to September commencing in Year 1.
25. Soil amendment is applied two years in advance of planting.
26. Seventy-five (75) lbs. per acre of 18-9-9 of granular fertilizer is applied by hand in year 1. Granular fertilizer application rates increase as production increases until year 9 when a maximum of 400 lbs. per acre is applied. Granular fertilizer is applied by hand in years 1 and 2, then with a rented fertilizer applicator beginning in year 3.
27. Fertigation commences in year 1 with 125 lbs. per acre of urea (46-0-0) and increased each year as production increased until year 9 when a maximum of 200 lbs. per acre is applied.
28. Pesticide and fungicide application rates increase from 30% to 75% of full rate in years 1 to 5. The full 100% pesticide and fungicide label rate is applied starting in year 6. The labour to spray (hours per acre) increases proportionally as the application rate and volume of water applied increases.
29. Production insurance premiums are based on estimates provided by producers and vary greatly between individual growers based on actual production history and subsequent premium discounts as well as the level of production (yield) coverage and price guarantee selected.
30. The ownership costs for machinery and equipment are calculated based on a 5% rate of interest.
31. The value of the land is not included.
32. Irrigation ownership costs are based on a double-line drip irrigation system and installed either in the preparation and planting year or early in year 1.
33. Trellising is installed in year 2.
34. Machinery cost are based on those typical of a blueberry grower in the B.C. Fraser Valley. The operating and ownership costs are estimated using information from the American Society of Agriculture Engineers.
35. No adjustments were made for inflation during the 10 year period from planting to full-production.
36. Note – Indirect and overhead expenses such as interest, office, general utilities, accounting, operator living expenses etc. have not been included as these expenses vary greatly from farm-to-farm.
37. Note - Economic or opportunity costs such as investment and ownership costs for use of land, forgone interest or opportunity costs on invested capital, operator labour and management etc. have not been included.



Yields and Marketing

The table below provides per acre information regarding the assumptions made with respect to yields and prices for fresh and processing blueberries from planting to full production as well as the total combined production for the 40 acres.

Yield per Acre (lbs)

Acres	Cultivar	Prep & Plant to	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		Year 2								
1	Elliott	-	4,000	7,000	9,000	10,000	10,500	11,000	11,500	12,000
1	Duke	-	4,000	7,000	8,000	8,000	9,000	11,000	13,000	15,000
25%	Duke Hand Harvest	-	4,000	7,000	2,000	2,000	2,250	2,750	3,250	3,750
75%	Duke Mach Harvest	-	-	-	6,000	6,000	6,750	8,250	9,750	11,250
	Average Yield/Acre	-	4,000	7,000	8,300	8,600	9,450	11,000	12,550	14,100

Yield per 40 Acres (lbs)

Acres	Cultivar	Prep & Plant to	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		Year 2								
12	Elliott	-	48,000	84,000	108,000	120,000	126,000	132,000	138,000	144,000
28	Duke	-	112,000	196,000	224,000	224,000	252,000	308,000	364,000	420,000
25%	Duke Hand Harvest	-	112,000	196,000	56,000	56,000	63,000	77,000	91,000	105,000
75%	Duke Mach Harvest	-	-	-	168,000	168,000	189,000	231,000	273,000	315,000
40	Total Yield	-	160,000	280,000	332,000	344,000	378,000	440,000	502,000	564,000

Income per 40 acres (\$)

Acres	Cultivar	Prep & Plant to	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		Year 2								
12	Elliott ¹	-	67,200	117,600	151,200	168,000	176,400	184,800	193,200	201,600
25%	Duke Hand Harvest ²	-	112,000	196,000	56,000	56,000	63,000	77,000	91,000	105,000
75%	Duke Mach Harvest ³	-	-	-	73,920	73,920	83,160	101,640	120,120	138,600
28	Duke Total	-	112,000	196,000	129,920	129,920	146,160	178,640	211,120	243,600
40	Total Income	-	179,200	313,600	281,120	297,920	322,560	363,440	404,320	445,200

¹ Elliott Fresh Price \$1.40/lb.

² Duke Fresh Price \$1.00/lb.

³ Duke Process Price \$ 0.55/lb.



Cash Flow from Planting to Full Establishment

Blueberry prices and timing of payments are determined by market conditions.

For fresh market blueberries, payment from the packer may be delayed up to 6 months after harvest.

For process-grade blueberries, payment may be delayed up to 1 year after harvest.

A more complete guide to preparing a cash-flow budget is available through the B.C. Ministry of Agriculture.



Operational Costs for Land Preparation and Planting to Year 1

The table below and on the following pages provides an estimate of the operational costs from the year of planting to full establishment of a blueberry field at year 10.

		<u>Contract</u> <u>Work</u> <u>Elliott</u> <u>(\$/Acre)</u>	<u>Contract</u> <u>Work</u> <u>Duke</u> <u>(\$/Acre)</u>	<u>Contract</u> <u>Work</u> <u>Whole</u> <u>Farm</u> <u>(\$/Acre)</u>	<u>Materials</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Rental</u> <u>(\$/Acre)</u>	<u>Labour</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Operation,</u> <u>Repair &</u> <u>Rental</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Ownership</u> <u>(\$/Acre)</u>
	<u># Times</u>								
<u>Land Preparation & Planting Year</u>									
Apply pH Amendment	1			400.00	464.84				
Soil Sample	1			5.00					
Soil Prep (plow, subsoil, disc, till, form beds)	1			1,250.00					
Spray Herbicide					15.00				
Plant	1			1,200.00					
Apply Top Mulch	1			300.00	975.00				
Pickup & Quad	1							69.34	65.68
Total Year 0		0.00	0.00	2,755.00	990.00	0.00	0.00	69.34	65.68
<u>Year 1</u>									
Spray Pesticides	6				83.77		27.20	5.86	46.81
Spray Herbicides	3				108.36		31.88	6.55	62.29
Granular Fertilizer	1				30.63		28.00		
Fertigate	1				42.54		2.80		
Irrigate	1						42.00		
Strip Flowers	1						37.33		
Install Trellising	1						0.00		
Sub-soil	1						6.80	1.31	7.74
Rototill	3						40.80	9.37	74.97



Operational Costs for Years 1 to 3

		<u>Contract</u> <u>Work</u> <u>Elliott</u> <u>(\$/Acre)</u>	<u>Contract</u> <u>Work</u> <u>Duke</u> <u>(\$/Acre)</u>	<u>Contract</u> <u>Work</u> <u>Whole</u> <u>Farm</u> <u>(\$/Acre)</u>	<u>Materials</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Rental</u> <u>(\$/Acre)</u>	<u>Labour</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Operation,</u> <u>Repair &</u> <u>Rental</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Ownership</u> <u>(\$/Acre)</u>
	<u># Times</u>								
<u>Year 1 (continued)</u>									
Seed Grass	1				135.00	5.00	6.80	5.00	
Trellis & Drainage	1							9.95	137.17
Pickup & Quad	1							69.34	65.68
Total Year 1		0.00	0.00	0.00	400.29	5.00	223.61	107.37	394.64
<u>Year 2</u>									
Spray Pesticides	6				83.77		27.20	5.86	46.81
Spray Herbicides	3				94.92		31.88	6.55	62.29
Granular Fertilizer	1				37.76		28.00		
Fertigate	1				45.09		2.80		
Irrigate	1						42.00	20.50	137.35
Strip Flowers	1						37.33		
Mow	4						34.00	0.76	3.97
Trellis & Drainage	1							9.95	137.17
Pickup & Quad	1							69.34	65.68
Total Year 2		0.00	0.00	0.00	261.54	0.00	203.21	112.96	453.25
<u>Year 3</u>									
Spray Pesticides	11				216.99		49.87	10.73	85.81
Spray Herbicides	3				107.17		31.88	6.55	62.29
Pollination	1			150.00			0.00		
Crop Consultant	1			100.00					
Granular Fertilizer	1				46.56	5.00	28.00	5.00	
Fertigate	1				47.79		2.80		
Irrigate	1						42.00	20.50	137.35
Prune Elliott	1	360.00		108.00			0.00		
Prune Duke	1		300.00	210.00			0.00		
Mow	4						34.00	0.76	3.97
SWD Sprays (Elliott)	5				18.01		6.80	1.46	11.70
SWD Sprays (Duke)	3				30.40		9.52	2.05	16.38
Bird Control	1			225.00			0.00		
Hand Pick (Elliott)	1	2,400.00		720.00					
Hand Pick (Duke)	1		2,800.00	1,960.00					
Harvest Supervision Elliott	1						147.00		
Harvest Supervision Duke	1						127.40		
Harvest Trucking	1						306.00		



Operational Costs for Years 3 to 4

		<u>Contract</u> <u>Work</u>	<u>Contract</u> <u>Work</u>	<u>Contract</u> <u>Work</u>	<u>Contract</u> <u>Work</u>	<u>Equipment</u> <u>Rental</u>	<u>Equipment</u> <u>Labour</u>	<u>Equipment</u> <u>Operation, Repair &</u> <u>Rental</u>	<u>Equipment</u> <u>Ownership</u>
	<u># Times</u>	<u>(\$/Acre)</u>	<u>(\$/Acre)</u>	<u>(\$/Acre)</u>	<u>(\$/Acre)</u>	<u>(\$/Acre)</u>	<u>(\$/Acre)</u>	<u>(\$/Acre)</u>	<u>(\$/Acre)</u>
<i><u>Year 3 (continued)</u></i>									
Picking Pails	1				15.00		0.00		
Sanitary Facilities	1			50.00					
Food Safety Certification	1			125.00			0.00		
Production Insurance	1			115.00					
Trellis & Drainage	1							9.95	137.17
Pickup & Quad	1							69.34	65.68
Total Year 3		2,760.00	3,100.00	3,763.00	481.93	5.00	785.26	126.35	520.34
<i><u>Year 4</u></i>									
Spray Pesticides	12				323.94		74.18	15.97	127.65
Spray Herbicides	3				167.30		31.88	6.55	62.29
Pollination	1			150.00			0.00		
Crop Consultant	1			100.00					
Apply Top Mulch	1			300.00	650.00		0.00		
Granular Fertilizer	1				57.41	5.00	28.00	5.00	
Fertigate	1				50.66		2.80		
Irrigate	1						42.00	20.50	137.35
Prune Elliott	1	480.00		144.00			0.00		
Prune Duke	1		400.00	280.00			0.00		
Mow	4						34.00	0.76	3.97
SWD Sprays (Elliott)	5				78.52		9.27	2.00	15.96
SWD Sprays (Duke)	3				45.60		12.98	2.79	22.34
Bird Control	1			225.00			0.00		
Hand Pick (Elliott)	1	4,200.00		1,260.00			0.00		
Hand Pick (Duke)	1		4,900.00	3,430.00			0.00		
Harvest Supervision Elliott	1						147.00		
Harvest Supervision Duke	1						127.40		
Harvest Trucking	1						306.00		
Picking Pails	1				15.00		0.00		
Sanitary Facilities	1			50.00			0.00		
Food Safety Certification	1			125.00			0.00		
Production Insurance	1			115.00					
Trellis & Drainage	1							9.95	137.17
Pickup & Quad	1							69.34	65.68
Total Year 4		4,680.00	5,300.00	6,179.00	1,388.44	5.00	815.51	132.86	572.40



Operational Costs for Years 5 to 6

		<u>Contract</u> <u>Work</u> <u>Elliott</u> <u>(\$/Acre)</u>	<u>Contract</u> <u>Work</u> <u>Duke</u> <u>(\$/Acre)</u>	<u>Contract</u> <u>Work</u> <u>Whole</u> <u>Farm</u> <u>(\$/Acre)</u>	<u>Materials</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Rental</u> <u>(\$/Acre)</u>	<u>Labour</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Operation,</u> <u>Repair &</u> <u>Rental</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Ownership</u> <u>(\$/Acre)</u>
<u>Year 5</u>									
Spray Pesticides	12				323.94		74.18	15.97	127.65
Spray Herbicides	3				167.30		31.88	6.55	62.29
Pollination	1			150.00			0.00		
Crop Consultant	1			100.00					
Granular Fertilizer	1				70.79	5.00	28.00	5.00	
Fertigate	1				53.70		2.80		
Irrigate	1						42.00	20.50	137.35
Prune Elliott	1	600.00		180.00			0.00		
Prune Duke	1		500.00	350.00			0.00		
Mow	4						34.00	0.76	3.97
SWD Sprays (Elliott)	5				78.52		9.27	2.00	15.96
SWD Sprays (Duke)	3				45.60		12.98	2.79	22.34
Bird Control	1			225.00			0.00		
Hand Pick (Elliott)	1	5,400.00		1,620.00			0.00		
Hand pick (Duke)	1		1,400.00	980.00			0.00		
Mach Harvest (Duke)	1						123.53	105.54	213.15
Harvest Supervision Elliott	1						147.00		
Harvest Supervision Duke	1						127.40		
Harvest Trucking	1						306.00		
Picking Pails	1				15.00		0.00		
Sanitary Facilities	1			50.00			0.00		
Food Safety Certification	1			125.00			0.00		
Production Insurance	1			115.00			0.00		
Trellis & Drainage	1							9.95	137.17
Pickup & Quad	1							69.34	65.68
Total Year 5		6,000.00	1,900.00	3,895.00	754.85	5.00	939.04	238.41	785.55
<u>Year 6</u>									
Spray Pesticides	12				478.91		102.00	21.96	175.53
Spray Herbicides	3				167.30		31.88	6.55	62.29
Pollination	1			200.00			0.00		
Crop Consultant	1			100.00					
Granular Fertilizer	1				87.28	5.00	28.00	5.00	
Fertigate	1				56.92		2.80		
Irrigate	1						42.00	20.50	137.35
Prune Elliott	1	720.00		216.00			0.00		
Prune Duke	1		600.00	420.00			0.00		
Mow	4						34.00	0.76	3.97



Operational Costs for Years 6 to 7

		<u>Contract</u> <u>Work</u> <u>Elliott</u> <u>(\$/Acre)</u>	<u>Contract</u> <u>Work</u> <u>Duke</u> <u>(\$/Acre)</u>	<u>Contract</u> <u>Work</u> <u>Whole</u> <u>Farm</u> <u>(\$/Acre)</u>	<u>Materials</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Rental</u> <u>(\$/Acre)</u>	<u>Labour</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Operation,</u> <u>Repair &</u> <u>Rental</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Ownership</u> <u>(\$/Acre)</u>
<u>Year 6 (continued)</u>									
SWD Sprays (Elliott)	5				104.70		12.75	2.74	21.94
SWD Sprays (Duke)	3				60.80		17.85	3.84	30.72
Bird Control				225.00			0.00		
Hand Pick (Elliott)	1	6,000.00		1,800.00			0.00		
Hand Pick (Duke)	1		1,400.00	980.00			0.00		
Mach Harvest (Duke)	1						123.53	105.54	213.15
Harvest Supervision Elliott	1						147.00		
Harvest Supervision Duke	1						127.40		
Harvest Trucking	1						306.00		
Picking Pails	1				15.00		0.00		
Sanitary Facilities	1			50.00			0.00		
Food Safety Certification	1			125.00			0.00		
Production Insurance	1			115.00					
Trellis & Drainage	1							9.95	137.17
Pickup & Quad	1							69.34	65.68
Total Year 6		6,720.00	2,000.00	4,231.00	970.91	5.00	975.20	246.19	847.78
<u>Year 7</u>									
Spray Pesticides	12				478.91		102.00	21.96	175.53
Spray Herbicides	3				167.30		31.88	6.55	62.29
Pollination	1			300.00			0.00		
Crop Consultant	1			100.00					
Apply Top Mulch	1			300.00	650.00		0.00		
Granular Fertilizer	1				107.61	5.00	28.00	5.00	
Fertigate	1				60.34		2.80		
Irrigate	1						42.00	20.50	137.35
Prune Elliott		840.00		252.00			0.00		
Prune Duke	1		700.00	490.00			0.00		
Mow	4						34.00	0.76	3.97
SWD Sprays (Elliott)	5				104.70		12.75	2.74	21.94
SWD Sprays (Duke)	3				60.80		17.85	3.84	30.72
Bird Control	1			225.00			0.00		
Hand Pick (Elliott)	1	6,300.00		1,890.00			0.00		
Hand Pick (Duke)	1		1,575.00	1,102.50			0.00		
Mach Harvest (Duke)	1						138.97	118.74	239.79
Harvest Supervision Elliott	1						147.00		
Harvest Supervision Duke	1						127.40		



Operational Costs for Years 7 to 8

		<u>Contract</u> <u>Work</u> <u>Elliott</u> <u>(\$/Acre)</u>	<u>Contract</u> <u>Work</u> <u>Duke</u> <u>(\$/Acre)</u>	<u>Contract</u> <u>Work</u> <u>Whole</u> <u>Farm</u> <u>(\$/Acre)</u>	<u>Materials</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Rental</u> <u>(\$/Acre)</u>	<u>Labour</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Operation,</u> <u>Repair &</u> <u>Rental</u> <u>(\$/Acre)</u>	<u>Equipment</u> <u>Ownership</u> <u>(\$/Acre)</u>
<i>Year 7 (continued)</i>									
Harvest Trucking	1						306.00		
Picking Pails	1				15.00		0.00		
Sanitary Facilities	1			50.00			0.00		
Food Safety Certification	1			125.00			0.00		
Production Insurance	1			115.00					
Trellis & Drainage	1							9.95	137.17
Pickup & Quad	1							69.34	65.68
Total Year 7		7,140.00	2,275.00	4,949.50	1,644.66	5.00	990.65	259.38	874.42
<i>Year 8</i>									
Spray Pesticides	12				478.91		102.00	21.96	175.53
Spray Herbicides	3				167.30		31.88	6.55	62.29
Pollination	1			300.00			0.00		
Crop Consultant	1			100.00					
Granular Fertilizer	1				132.69	5.00	28.00	5.00	
Fertigate	1				63.96		2.80		
Irrigate	1						42.00	20.50	137.35
Prune Elliott	1	960.00		288.00			0.00		
Prune Duke	1		800.00	560.00			0.00		
Mow	4						34.00	0.76	3.97
SWD Sprays (Elliott)	5				104.70		12.75	2.74	21.94
SWD Sprays (Duke)	3				60.80		17.85	3.84	30.72
Bird Control	1			225.00			0.00		
Hand Pick (Elliott)	1	6,600.00		1,980.00			0.00		
Hand Pick (Duke)	1		1,925.00	1,347.50			0.00		
Mach Harvest (Duke)	1						169.85	145.12	293.08
Harvest Supervision Elliott	1						147.00		
Harvest Supervision Duke	1						127.40		
Harvest Trucking	1						306.00		
Picking Pails	1				15.00		0.00		
Sanitary Facilities	1			50.00			0.00		
Food Safety Certification	1			125.00			0.00		
Production Insurance	1			115.00					
Trellis & Drainage	1								
Pickup & Quad	1							69.34	65.68
Total Year 8		7,560.00	2,725.00	5,090.50	1,023.36	5.00	1,021.53	275.82	790.54



Operational Costs for Years 9 to 10 (Full Establishment)

		<u>Contract</u> <u>Work</u> <u>Elliott</u> (\$/Acre)	<u>Contract</u> <u>Work</u> <u>Duke</u> (\$/Acre)	<u>Contract</u> <u>Work</u> <u>Whole</u> <u>Farm</u> (\$/Acre)	<u>Materials</u> (\$/Acre)	<u>Equipment</u> <u>Rental</u> (\$/Acre)	<u>Labour</u> (\$/Acre)	<u>Equipment</u> <u>Operation,</u> <u>Repair &</u> <u>Rental</u> (\$/ Acre)	<u>Equipment</u> <u>Ownership</u> (\$/Acre)
<u>Year 9</u>									
Spray Pesticides	12				478.91		102.00	21.96	175.53
Spray Herbicides	3				167.30		31.88	6.55	62.29
Pollination	1			300.00			0.00		
Crop Consultant	1			100.00					
Granular Fertilizer	1				163.34	5.00	28.00	5.00	
Fertigate	1				68.06		2.80		
Irrigate	1						42.00	20.50	137.35
Prune Elliott	1	1,080.00		324.00			0.00		
Prune Duke	1		900.00	630.00			0.00		
Mow	4						34.00	0.76	3.97
SWD Sprays (Elliott)	5				104.70		12.75	2.74	21.94
SWD Sprays (Duke)	3				60.80		17.85	3.84	30.72
Bird Control	1			225.00			0.00		
Hand Pick (Elliott)	1	6,900.00		2,070.00			0.00		
Hand Pick (Duke)	1		2,275.00	1,592.50			0.00		
Mach Harvest (Duke)	1						200.74	171.51	346.37
Harvest Supervision Elliott	1						147.00		
Harvest Supervision Duke	1						127.40		
Harvest Trucking	1						306.00		
Picking Pails	1				15.00		0.00		
Sanitary Facilities	1			50.00			0.00		
Food Safety Certification	1			125.00			0.00		
Production Insurance	1			115.00					
Trellis & Drainage	1							9.95	137.17
Pickup & Quad	1							69.34	65.68
Total Year 9		7,980.00	3,175.00	5,531.50	1,058.11	5.00	1,052.41	312.16	981.00
<u>Year 10</u>									
Spray Pesticides	12				478.91		102.00	21.96	175.53
Spray Herbicides	3				167.30		31.88	6.55	62.29
Pollination	1			300.00			0.00		
Crop Consultant	1			100.00					
Apply Top Mulch	1			300.00	650.00		0.00		
Granular Fertilizer	1				163.34	5.00	28.00	5.00	
Fertigate	1				68.06		2.80		
Irrigate	1						42.00	20.50	137.35
Prune Elliott	1	1,200.00		360.00			0.00		
Prune Duke	1		1,000.00	700.00			0.00		



Operational Costs for Year 10 (Full Establishment)

		<u>Contract</u>	<u>Contract</u>	<u>Contract</u>		<u>Equipment</u>	<u>Equipment</u>	<u>Equipment</u>
		<u>Work</u>	<u>Work</u>	<u>Work</u>		<u>Rental</u>	<u>Repair &</u>	<u>Ownership</u>
	<u># Times</u>	<u>Elliott</u>	<u>Duke</u>	<u>Farm</u>	<u>Materials</u>	<u>Rental</u>	<u>Labour</u>	<u>Rental</u>
		<u>(\$/Acre)</u>	<u>(\$/Acre)</u>	<u>(\$/Acre)</u>	<u>(\$/Acre)</u>	<u>(\$/Acre)</u>	<u>(\$/Acre)</u>	<u>(\$/Acre)</u>
<i><u>Year 10 (continued)</u></i>								
Mow	4						34.00	0.76
SWD Sprays (Elliott)	5				104.70		12.75	2.74
SWD Sprays (Duke)	3				60.80		17.85	15.37
Bird Control	1			225.00			0.00	
Hand Pick (Elliott)	1	7,200.00		2,160.00			0.00	
Hand Pick (Duke)	1		2,625.00	1,837.50			0.00	
Mach Harvest (Duke)	1						231.62	197.89
Harvest Supervision Elliott	1						147.00	
Harvest Supervision Duke	1						127.40	
Harvest Trucking	1						306.00	
Picking Pails	1				15.00		0.00	
Sanitary Facilities	1			50.00			0.00	
Food Safety Certification	1			125.00			0.00	
Production Insurance	1			115.00				
Trellis & Drainage	1							9.95
Pickup & Quad	1							69.34
Total Year 10		8,400.00	3,625.00	6,272.50			1,083.29	350.07
								1,088.95



Fertilizer & Chemical Application from Planting to Year 3

The table below and on the following pages provides an estimate of per acre costs for fertilizer and chemical inputs from the year of planting to full establishment of a blueberry field at year 10.

	<u>Fields Treated</u>	<u>Total Acres</u>	<u>Fertilizers</u> <u>\$/Acre</u>	<u>Herbicides & Pesticides</u>	
				<u>% Label Rate</u>	<u>\$/Acre</u>
<u>Land Preparation & Planting Year</u>					
Sulphur Soil Amendment	Duke & Elliott	40	400		
Fertilizer (0-20-20 In Planting Bed)	Duke & Elliott	40	65		
Pre-Emergent Herbicide	Duke & Elliott	40		100%	15.00
Total			465		15.00
<u>Year 1</u>					
Herbicides (pre- and post-emergent)	Duke & Elliott	40		100%	108.36
Insecticides (midge)	Duke & Elliott	40		30%	25.49
Fungicides (dormant, post harvest, root rot)	Duke & Elliott	40			58.28
Granular Fertilizer (18-9-9)	Duke & Elliott	40	30.63		
Urea Fertigation (46-0-0)	Duke & Elliott	40	42.54		
Total Year 1			73.16		192.13
<u>Year 2</u>					
Herbicides (pre- and post-emergent)	Duke & Elliott	40		100%	94.92
Insecticides (midge)	Duke & Elliott	40		30%	25.49
Fungicides (dormant, post harvest, root rot)	Duke & Elliott	40		30%	58.28
Granular Fertilizer (18-9-9)	Duke & Elliott	40	37.76		
Urea Fertigation (46-0-0)	Duke & Elliott	40	45.09		
Total Year 2			82.85		178.69
<u>Year 3</u>					
Herbicides (pre- and post-emergent)	Duke & Elliott	40		100%	107.17
Insecticides (caterpillars, aphids)	Duke & Elliott	40		50%	24.02
SWD Insecticides (Elliott)	Elliott	12		50%	18.01
SWD insecticides (Duke)	Duke	28		50%	30.40
Fungicides (dormant, post harvest, root rot)	Duke & Elliott	40		50%	97.13
Fungicides (mummyberry)	Duke & Elliott	40		75%	17.55
Fungicides (fruit rot)	Duke & Elliott	40		50%	78.29
Granular Fertilizer (18-9-9)	Duke & Elliott	40	46.56		
Urea Fertigation (46-0-0)	Duke & Elliott	40	47.79		
Total Year 3			94.35		372.57



Fertilizer & Chemical Application for Years 4 to 7

	<u>Fields Treated</u>	<u>Total Acres</u>	<u>Fertilizers</u> \$/Acre	<u>Herbicides & Pesticides</u> % Label Rate	<u>\$/Acre</u>
<u>Year 4</u>					
Herbicides (Pre- and post-emergent)	Duke & Elliott	40		100%	167.30
Insecticides (caterpillars, aphids)	Duke & Elliott	40		75%	10.02
SWD Insecticides (Elliott)	Elliott	12		75%	78.52
SWD insecticides (Duke)	Duke	28		75%	45.60
Fungicides (dormant, post harvest, root rot)	Duke & Elliott	40		75%	149.58
Fungicides (mummyberry)	Duke & Elliott	40		75%	17.55
Fungicides (fruit rot)	Duke & Elliott	40		75%	146.79
Granular Fertilizer (18-9-9)	Duke & Elliott	40	57.41		
Urea Fertigation (46-0-0)	Duke & Elliott	40	50.66		
Total Year 4			108.07		615.36
<u>Year 5</u>					
Herbicides (pre- and post-emergent)	Duke & Elliott	40		100%	167.30
Insecticides (caterpillars, aphids)	Duke & Elliott	40		75%	10.02
SWD Insecticides (Elliott)	Elliott	12		75%	78.52
SWD insecticides (Duke)	Duke	28		75%	45.60
Fungicides (dormant, post harvest, root rot)	Duke & Elliott	40		75%	149.58
Fungicides (mummyberry)	Duke & Elliott	40		75%	17.55
Fungicides (fruit rot)	Duke & Elliott	40		75%	146.79
Granular Fertilizer (18-9-9)	Duke & Elliott	40	70.79		
Urea Fertigation (46-0-0)	Duke & Elliott	40	53.70		
Total Year 5			124.49		615.36
<u>Year 6</u>					
Herbicides (pre- and post-emergent)	Duke & Elliott	40		100%	167.30
Insecticides (caterpillars, aphids)	Duke & Elliott	40		100%	16.03
SWD Insecticides (Elliott)	Elliott	12		100%	104.70
SWD insecticides (Duke)	Duke	28		100%	60.80
Fungicides (dormant, post harvest, root rot)	Duke & Elliott	40		100%	204.61
Fungicides (mummyberry)	Duke & Elliott	40		100%	23.40
Fungicides (fruit rot)	Duke & Elliott	40		100%	234.86
Granular Fertilizer (18-9-9)	Duke & Elliott	40	87.28		
Urea Fertigation (46-0-0)	Duke & Elliott	40	56.92		
Total Year 6			144.20		811.71
<u>Year 7</u>					
Herbicides (pre- and post-emergent)	Duke & Elliott	40		100%	167.30
Insecticides (caterpillars, aphids)	Elliott	12		100%	16.03
SWD Insecticides (Elliott)	Duke	28		100%	104.70
SWD insecticides (Duke)				100%	60.80



Fertilizer & Chemical Application for Years 7 to 10 (Full Establishment)

	<u>Field Treated</u>	<u>#Acres</u>	<u>Fertilizers</u> <u>\$/Acre</u>	<u>Herbicides & Pesticides</u> <u>% Label Rate</u>	<u>\$/Acre</u>
<u>Year 7 (continued)</u>					
Fungicides (dormant, post harvest, root rot)	Duke & Elliott	40		100%	204.61
Fungicides (mummyberry)	Duke & Elliott	40		100%	23.40
Fungicides (fruit rot)	Duke & Elliott	40		100%	234.86
Granular Fertilizer (18-9-9)	Duke & Elliott	40	107.61		
Urea Fertigation (46-0-0)	Duke & Elliott	40	60.34		
Total Year 7			167.95		811.71
<u>Year 8</u>					
Herbicides (pre- and post-emergent)	Duke & Elliott	40		100%	167.30
Insecticides (caterpillars, aphids)	Duke & Elliott	40		100%	16.03
SWD Insecticides (Elliott)	Elliott	12		100%	104.70
SWD insecticides (Duke)	Duke	28		100%	60.80
Fungicides (dormant, post harvest, root rot)	Duke & Elliott	40		100%	204.61
Fungicides (mummyberry)	Duke & Elliott	40		100%	23.40
Fungicides (fruit rot)	Duke & Elliott	40		100%	234.86
Granular Fertilizer (18-9-9)	Duke & Elliott	40	132.69		
Urea Fertigation (46-0-0)	Duke & Elliott	40	63.96		
Total Year 8			196.65		811.71
<u>Year 9</u>					
Herbicides (pre- and post-emergent)	Duke & Elliott	40		100%	167.30
Insecticides (caterpillars, aphids)	Duke & Elliott	40		100%	16.03
SWD Insecticides (Elliott)	Elliott	12		100%	104.70
SWD insecticides (Duke)	Duke	28		100%	60.80
Fungicides (dormant, post harvest, root rot)	Duke & Elliott	40		100%	204.61
Fungicides (mummyberry)	Duke & Elliott	40		100%	23.40
Fungicides (fruit rot)	Duke & Elliott	40		100%	234.86
Granular Fertilizer (18-9-9)	Duke & Elliott	40	163.34		
Urea Fertigation (46-0-0)	Duke & Elliott	40	68.06		
Total Year 9			231.40		811.71
<u>Year 10</u>					
Herbicides (pre- and post-emergent)	Duke & Elliott	40		100%	167.30
Insecticides (caterpillars, aphids)	Duke & Elliott	40		100%	16.03
SWD Insecticides (Elliott)	Elliott	12		100%	104.70
SWD insecticides (Duke)	Duke	28		100%	60.80
Fungicides (dormant, post harvest, root rot)	Duke & Elliott	40		100%	204.61
Fungicides (mummyberry)	Duke & Elliott	40		100%	23.40
Fungicides (fruit rot)	Duke & Elliott	40		100%	234.86
Granular Fertilizer (18-9-9)	Duke & Elliott	40	163.34		
Urea Fertigation (46-0-0)	Duke & Elliott	40	68.06		
Total Year 10			231.40		811.71



Machinery and Equipment Costs

The tables below provides an estimate of the costs for the equipment required to operate a 40 acre blueberry farm, and the costs of capital investments such as drainage, irrigation and trellising.

<u>Equipment</u>	<u>Purchase Price (\$)</u>	<u>Operation Repair & Maintenance (\$/Hr)</u>	<u>Depreciation, Interest & Insurance (\$/Hr)</u>	<u>Total (\$/Hr)</u>
Mechanical Harvester	174,000	42.72	86.28	129.00
Pick-up	22,000	57.56	55.69	113.25
Quad	6,000	11.78	9.99	21.76
Roto-tiller	7,000	0.74	13.88	14.62
Rotary Mower	2,000	0.38	1.98	2.36
Sprayer 100 gal	8,000	0.33	15.87	16.19
Sprayer 200 gal	12,000	0.49	11.90	12.39
Sub -soiler	1,000	0.11	1.98	2.09
Tractor 4WD 35 HP	35,000	3.17	17.35	20.52

<u>Capital Investments</u>	<u>Purchase Price (\$)</u>	<u>Repair and Maintenance (\$/Ac)</u>	<u>Depreciation & Interest (\$/Ac)</u>	<u>Total (\$/Ac)</u>
Drainage	60,000	-	70.50	70.50
Irrigation System	82,000	20.50	137.35	157.85
Trellis	39,800	9.95	66.67	76.62



Blueberry Budget from Planting to Full Establishment

The table on the following two pages provides an estimate of the yearly per acre operating margin and accumulated operating margin for blueberries from the year of planting to full establishment at year 10. A three year average at maturity is included to provide an estimate for later years of production. This blueberry budget was developed for the model farm outlined at the beginning of this document, and is based on the following assumptions:

- 12 acres Elliott, 28 acres Duke
- Elliott Fresh Market Price: \$1.40/lb, Duke Fresh Market Price: \$1.00/lb, Duke Process Price: \$0.55/lb
- Margins are reduced in years 4, 7 & 10 due to the cost of purchasing and applying top mulch
- Duke yields do not increase in year 6 due to heavy pruning in the previous year for machine harvesting
- Net yield of processing berries includes a 20% decrease due to machine harvesting
- Per acre expenses are pro-rated due to differences in acreage
- Equipment operating & ownership costs include irrigation system, drainage & trellising as well as machinery and equipment
- Production insurance premiums are based on estimates provided by producers and vary greatly between individual growers based on actual production history and subsequent premium discounts as well as the level of production (yield) coverage and price guarantee selected.



Blueberry Budget from Planting to Year 5

	<u>Prep & Plant</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
<u>Yield (lbs)</u>						
Elliott Fresh Mkt				1200.00	2100.00	2700.00
Duke Fresh Mkt				2800.00	4900.00	1400.00
Duke Process Mkt				0.00	0.00	4200.00
Total yield				4000.00	7000.00	8300.00
<u>Sales (\$)</u>						
Elliott Fresh Mkt	0.00	0.00	0.00	1680.00	2940.00	3780.00
Duke Fresh Mkt	0.00	0.00	0.00	2800.00	4900.00	1400.00
Duke Process Mkt	0.00	0.00	0.00	0.00	0.00	1848.00
Total Sales				4480.00	7840.00	7028.00
<u>Expenses (\$)</u>						
Apply pH Amendment	400.00	0.00	0.00	0.00	0.00	0.00
Soil Sample	5.00	0.00	0.00	0.00	0.00	0.00
Soil Prep	1250.00	0.00	0.00	0.00	0.00	0.00
Plant	1200.00	0.00	0.00	0.00	0.00	0.00
Top Mulch	975.00	0.00	0.00	0.00	650.00	0.00
Apply Top Mulch	300.00	0.00	0.00	0.00	300.00	0.00
Seed Grass	0.00	135.00	0.00	0.00	0.00	0.00
Bee Hive rental	0.00	0.00	0.00	150.00	150.00	150.00
Crop Consultant	0.00	0.00	0.00	100.00	100.00	100.00
Prune Elliott	0.00	0.00	0.00	108.00	144.00	180.00
Prune Duke	0.00	0.00	0.00	210.00	280.00	350.00
Bird Control	0.00	0.00	0.00	225.00	225.00	225.00
Hand Pick Elliott	0.00	0.00	0.00	720.00	1260.00	1620.00
Hand Pick Duke	0.00	0.00	0.00	1960.00	3430.00	980.00
Picking Pails	0.00	0.00	0.00	15.00	15.00	15.00
Sanitary Facilities	0.00	0.00	0.00	50.00	50.00	50.00
Food Safety Certification	0.00	0.00	0.00	125.00	125.00	125.00
Production Insurance	0.00	0.00	0.00	115.00	115.00	115.00
Labour	0.00	223.61	203.21	785.26	815.51	939.04
Fert & Amendments	464.84	73.16	82.85	94.35	108.07	124.49
Herbicides & Pesticides	15.00	192.13	178.69	372.57	563.86	563.86
Equip Oper, Repairs & Rent	69.34	107.37	112.96	126.35	132.86	238.41
Equip Ownership	65.68	394.64	453.25	520.34	572.40	785.55
Total Direct Expenses	4744.85	1125.91	1030.96	5676.88	9036.70	6561.34
Operating Margin	-4744.85	-1125.91	-1030.96	-1196.88	-1196.70	466.66
<u>Ownership/Investment (\$)</u>						
Equip **	65.68	394.64	453.25	383.18	435.23	648.38
Drainage		70.50	70.50	70.50	70.50	70.50
Irrigation		157.85	157.85	157.85	157.85	157.85
Trellising		76.62	76.62	76.62	76.62	76.62
Total Investment/ Overhead	65.68	699.61	758.22	688.14	740.20	953.35
Accumulated Operating Margin	-4744.85	-5870.76	-6901.72	-8098.60	-9295.29	-8828.63



Blueberry Budget from Year 6 to Year 10

	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>	<u>3 Year Avg, at Maturity</u>
<u>Yield (lbs)</u>						
Elliott Fresh Mkt	3000.00	3150.00	3300.00	3450.00	3600.00	3600.00
Duke Fresh Mkt	1400.00	1575.00	1925.00	2275.00	2625.00	2625.00
Duke Process Mkt	4200.00	4725.00	5775.00	6825.00	7875.00	7875.00
Total yield	8600.00	9450.00	11000.00	12550.00	14100.00	14100.00
<u>Sales (\$)</u>						
Elliott Fresh Mkt	4200.00	4410.00	4620.00	4830.00	5040.00	5040.00
Duke Fresh Mkt	1400.00	1575.00	1925.00	2275.00	2625.00	2625.00
Duke Process Mkt	1848.00	2079.00	2541.00	3003.00	3465.00	3465.00
Total Sales	7448.00	8064.00	9086.00	10108.00	11130.00	11130.00
<u>Expenses (\$)</u>						
Apply pH Amendment	0.00	0.00	0.00	0.00	0.00	
Soil Sample	0.00	0.00	0.00	0.00	0.00	
Soil Prep	0.00	0.00	0.00	0.00	0.00	
Plant	0.00	0.00	0.00	0.00	0.00	
Top Mulch	0.00	650.00	0.00	0.00	650.00	216.67
Apply Top Mulch	0.00	300.00	0.00	0.00	300.00	100.00
Seed Grass	0.00	0.00	0.00	0.00	0.00	
Bee Hive rental	200.00	300.00	300.00	300.00	300.00	300.00
Crop Consultant	100.00	100.00	100.00	100.00	100.00	100.00
Prune Elliott	216.00	252.00	288.00	324.00	360.00	360.00
Prune Duke	420.00	490.00	560.00	630.00	700.00	700.00
Bird Control	225.00	225.00	225.00	225.00	225.00	225.00
Hand Pick Elliott	1800.00	1890.00	1980.00	2070.00	2160.00	2160.00
Hand Pick Duke	980.00	1102.50	1347.50	1592.50	1837.50	1837.50
Picking Pails	15.00	15.00	15.00	15.00	15.00	15.00
Sanitary Facilities	50.00	50.00	50.00	50.00	50.00	50.00
Food Safety Certification	125.00	125.00	125.00	125.00	125.00	125.00
Production Insurance	115.00	115.00	115.00	115.00	115.00	115.00
Labour	975.20	990.65	1021.53	1052.41	1083.29	1083.29
Fert & Amendments	144.20	167.95	196.65	231.40	231.40	231.40
Herbicides & Pesticides	743.03	743.03	743.03	743.03	743.03	743.03
Equip Oper, Repairs & Rent	246.19	259.38	275.82	312.16	350.07	350.07
Equip Ownership	847.78	874.42	790.54	981.00	1088.95	1088.95
Total Direct Expenses	7202.41	8649.94	8133.07	8866.49	10434.24	9800.91
Operating Margin	245.59	-585.94	952.93	1241.51	695.76	1329.09
<u>Ownership/Investment (\$)</u>						
Equip **	710.61	737.26	790.54	843.83	951.79	951.79
Drainage	70.50	70.50	70.50	70.50	70.50	70.50
Irrigation	157.85	157.85	157.85	157.85	157.85	157.85
Trellising	76.62	76.62	76.62	76.62	76.62	76.62
Total Investment/ Overhead	1015.58	1042.22	1095.51	1148.80	1256.75	1256.75
Accumulated Operating Margin	-8583.04	-9168.97	-8216.05	-6974.54	-6278.78	



Sensitivity Analysis for Elliott (Fresh) Blueberry Production

Sensitivity analysis is used to assess the change in operating margin (return over direct costs) from changes in yield and price. The table below shows the per acre operating margin for fresh market Elliott blueberries harvested from a mature field..

	% DECREASE				BASE	% INCREASE			
	-10.0%	-7.5%	-5.0%	-2.5%	0.0%	2.5%	5.0%	7.5%	10.0%
Harvested Yield (lbs)	11,100	11,400	11,600	11,700	12,000	12,300	12,600	12,900	13,200
Price(\$/lb)									
\$1.00	(702)	(582)	(562)	(642)	(522)	(402)	(282)	(162)	(42)
\$1.10	408	558	598	528	678	828	978	1,128	1,278
\$1.20	1,518	1,698	1,758	1,698	1,878	2,058	2,238	2,418	2,598
\$1.30	2,628	2,838	2,918	2,868	3,078	3,288	3,498	3,708	3,918
\$1.40	3,738	3,978	4,078	4,038	4,278	4,518	4,758	4,998	5,238
\$1.50	4,848	5,118	5,238	5,208	5,478	5,748	6,018	6,288	6,558
\$1.60	5,958	6,258	6,398	6,378	6,678	6,978	7,278	7,578	7,878
\$1.70	7,068	7,398	7,558	7,548	7,878	8,208	8,538	8,868	9,198
\$1.80	8,178	8,538	8,718	8,718	9,078	9,438	9,798	10,158	10,518

* 100% of Elliotts marketed as fresh berries

Direct costs calculated with top-dressing costs pro-rated over three years



Sensitivity Analysis for Duke (Fresh and Processing) Blueberry Production

The table below shows the changes in the per acre operating margin for Duke blueberries harvested from a mature field as yield or price changes. Duke blueberries are sold for both fresh (25%) and processing (75%)

		% DECREASE				BASE	% INCREASE			
		-10.0%	-7.5%	-5.0%	-2.5%	0.0%	2.5%	5.0%	7.5%	10.0%
Gross Yield (lbs)		13,500	13,875	14,250	14,625	15,000	15,375	15,750	16,125	16,500
Fresh Yield (lbs)		3,375	3,469	3,563	3,656	3,750	3,844	3,938	4,031	4,125
Gross Process Yield (lbs)		10,125	10,406	10,688	10,969	11,250	11,531	11,813	12,094	12,375
Net Process Yield (20% loss)		8,100	8,325	8,550	8,775	9,000	9,225	9,450	9,675	9,900
Net Harvested Yield (lbs)		11,475	11,794	12,113	12,431	12,750	13,069	13,388	13,706	14,025
Fresh (\$/lb)	Process (\$/lb)									
\$0.60	\$0.33	(3,732)	(3,561)	(3,512)	(3,463)	(3,415)	(3,336)	(3,316)	(3,266)	(3,217)
\$0.70	\$0.39	(2,949)	(2,756)	(2,685)	(2,615)	(2,545)	(2,445)	(2,402)	(2,331)	(2,260)
\$0.80	\$0.44	(2,166)	(1,951)	(1,859)	(1,767)	(1,675)	(1,553)	(1,489)	(1,396)	(1,303)
\$0.90	\$0.50	(1,383)	(1,146)	(1,032)	(919)	(805)	(661)	(575)	(461)	(346)
\$1.00	\$0.55	(600)	(342)	(206)	(70)	65	231	338	475	611
\$1.10	\$0.73	1,163	1,470	1,655	1,840	2,024	2,239	2,395	2,581	2,766
\$1.20	\$0.79	2,035	2,367	2,576	2,784	2,993	3,232	3,413	3,622	3,832
\$1.30	\$0.86	2,907	3,263	3,496	3,729	3,962	4,225	4,430	4,664	4,898
\$1.40	\$0.92	3,779	4,159	4,417	4,674	4,931	5,218	5,447	5,706	5,964

* 25% * 75%

* Percentage of total Duke production marketed as fresh and processing berries

Direct costs calculated with top-dressing costs pro-rated over three years



Cumulative Sensitivity Analysis for Elliott and Duke (Fresh and Processing)

The table below shows changes to the cumulative per acre operating margin for Elliott and Duke blueberries as yield or price changes. This sensitivity analysis is based on a mature planting of 30% Elliott, 70% Duke acreage, with Duke blueberries sold for both fresh and processing as outlined in the assumptions.

			% DECREASE				BASE	% INCREASE			
			-10.0%	-7.5%	-5.0%	-2.5%	0.0%	2.5%	5.0%	7.5%	10.0%
Gross Yield (lbs)*			12,700	13,050	13,400	13,750	14,100	14,450	14,800	15,150	15,500
Net Harvested Yield (lbs)*			11,273	11,586	11,899	12,212	12,525	12,838	13,151	13,464	13,778
Fresh Elliott (\$/lb)	Fresh Duke (\$/lb)	Process Duke (\$/lb)									
1.20	\$0.80	\$0.44	1,015)	1,005)	(904)	(756)	(609)	(515)	(422)	(329)	(235)
1.30	\$0.90	\$0.50	143)	(109)	17	188	360	478	595	713	831
1.40	\$1.00	\$0.55	729	787	937	1,133	1,329	1,471	1,613	1,755	1,897
1.50	\$1.10	\$0.73	2,287	2,389	2,582	2,821	3,060	3,246	3,431	3,616	3,801
1.60	\$1.20	\$0.79	3,222	3,349	3,568	3,834	4,099	4,310	4,521	4,732	4,943
1.70	\$1.30	\$0.86	4,156	4,310	4,555	4,846	5,137	5,374	5,611	5,848	6,085
1.80	\$1.40	\$0.92	5,091	5,270	5,541	5,858	6,175	6,438	6,701	6,964	7,227

** 30%

** 70%

*** 17%

*** 53%

* Combined weighted yields for Elliott and Duke

** Percentage of total production that is Elliott or Duke

*** Percentage of Duke marketed as fresh or processed berries

Direct costs are calculated with top-dressing mulch costs pro-rated over three years



Investment Analysis—Business Planning

Whole Farm Business Plan

Before investing in a new blueberry planting, it is recommended that you develop a whole farm business plan. This plan should reflect your situation, assess the potential financial feasibility and the associated risks of a blueberry farm. Fundamental questions to ask in this process include:

- Is there a market for my blueberries? Who will I sell them to?
- Will I be selling for fresh market or for processing?
- Is it technically feasible (is the site suitable, is labour available, resources, etc?)
- Is it economically sound?
- Is it financially feasible?

The BC Ministry of Agriculture's Farm Business Advisory Services Program provides support for farm business planning.



Risk Factors

This budget has been prepared based on good management and production practices.

There are numerous factors that can impact the level and quality of production and resulting profitability. These could include items such as weather, horticulture management, pollination, disease, pests, harvest labour, transportation and storage, marketing and other factors.

It is important to assess the assumptions used in this budget against your specific farm situation and expectations. Both external and internal risk factors should be assessed in terms of probability and impact. In particular, managing risks with high probability and high impact will be critical to meeting production and revenue projections and associated farm profitability.

One way of assessing risks for your farm is to categorize risks into production, market, financial, human or policy areas. Then address each area of risk. Decide if the risk is a high or low possibility, what the impact on your farm is and then develop a strategy to mitigate that risk. Be sure all members of your operation are knowledgeable of the risk considerations.

For additional resources on managing risk and information about government risk management programs, contact the BC Ministry of Agriculture.