

2016



Ontario  
Tender Fruit  
Growers

# Ontario Tender Fruit Establishment & Production Costs



ECONOMIC REPORT IN PARTNERSHIP WITH



Ministry of Agriculture,  
Food and Rural Affairs

# Ontario Tender Fruit Establishment and Production Costs 2016 Economic Report

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## Acknowledgements:

This publication was prepared with the help of the following:  
Dr. Wendy McFadden-Smith, Tender Fruit and Grape IPM Specialist, OMAFRA  
Amanda Green, Tree Fruit Specialist, OMAFRA  
John Warbick, Engineer, Horticultural Crop Systems, OMAFRA  
Vineland Growers Co-op Ltd.  
Niagara Orchard and Vineyard Corp.  
Kasper Land Drainage  
Marquardt Farm Drainage  
Ryan Brewster, KCMS Consulting  
Briann Dorin and Laura Crump for their grower survey work  
Agribusiness - suppliers of materials, farm equipment etc.  
Ontario tender fruit grower members for their participation in the survey

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This project was funded in part through *Growing Forward 2 (GF2)*, a federal-provincial-territorial initiative. The Agricultural Adaptation Council assists in the delivery of *GF2* in Ontario.

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# 1. Introduction

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

## Objectives

The tender fruit industry 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. Growers can use the input costs as general guidelines to identify strengths and weaknesses in their own business.

## Methods and Procedures

The information used in this report was derived from previous economic reports, the Ontario Tender Fruit Growers, 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 orchards, using best management practices.

**The establishment period** of the peach orchard covers a 4 ½ year period: a half of a year for soil preparation, one year for planting and three years to grow the tree to full cropping potential. For high density pear plantings, the establishment period was 7 ½ years (Table 1).

**The establishment costs** will need to be recovered over the productive life of the orchard. An estimate of the annual cost to recover establishment costs is included in the Total Establishment Costs section under Fresh Market Peach. Fresh market peach establishment costs were amortized over the remaining 15 years of orchard life at a rate of interest of 2.0%. Fresh

market pear establishment costs were recovered by year 7, as a result an amortization factor was not included in the mature orchard costs.

In the pre-plant year of establishment, tile drainage and a small amount for laser leveling is included as a land improvement, and also included in the breakeven and profitability worksheet.

**Table 1 – Establishment Period**

Crop	Trees per Acre	Establishment Period
Peach – Fresh Market	242	4 ½ years
Nectarines	242	4 ½ years
Sour Cherries	145	6 ½ years
Plum - European	201	6 ½ years
Plum - Japanese	201	8 ½ years
Apricot	201	8 ½ years
Pear – Standard Fresh	201	8 ½ years
Pear – High Density Fresh	1117	7 ½ years

**Hired Labour**, which is usually offshore labour, was charged at \$14.55 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 an 80-acre tender fruit orchard payroll model.

**Harvest Labour** was charged at \$15.00 per hour which is comprised of minimum wage plus benefits as above and includes vacation pay.

**Hired machine operator labour** was charged at \$17.70 per hour including benefits.



**Machinery costs** were calculated based on the purchase price for 2016, useful life, annual use and trade in value. Machinery and equipment costs were based on a commercial farm size of 80 acres. The 'Machine costs' column in each Operation Costs table includes fuel, maintenance and repair.

**Cover Crops** – Most growers cultivate their orchards and use an annual cover crop instead of using a permanent grass when the trees are mature.

**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 93.0 cents/litre and diesel 81.0 cents/litre. Fuel costs are net of all 2016 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 2.0 %, which was the average interest rate paid by chartered banks on Guaranteed Investment Certificates.

**Consulting fees** were included but rates varied depending upon crop and whether it was full service or partial service. Consulting fees might include soil and /or leaf sampling as well as a full or partial pest monitoring service.

**Irrigation costs** were included as a variable cost for some tender fruit crops. Irrigation included both the variable and fixed costs associated with owning and operating irrigation equipment.

**Miscellaneous** items used for some crops included foliar sprays, soil or leaf lab diagnostic costs, mulch, bees for pollination and bird control.

**Cold storage costs** for fresh market crops 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. No costs were allocated to processing crops since they do not require the use of on-farm cold storage.

**Other overhead** under the fixed costs for processing crops has been reduced to reflect more accurately the building requirements for processing crops compared to fresh market crops.

**Prices** listed for fresh market Ontario grown tender fruit were the 2015–2016 averages obtained through the Ontario Tender Fruit Growers net of shipper commission, service charges and containers.

The price listed for high density pears was the 2016 price for the varieties Cold Snap™ and Bosc pear while prices listed for standard plantings of pears were the average of Bosc and Bartlett.

Prices listed for processing sour cherries were the 2015-2016 averages obtained through the Ontario Tender Fruit Growers net of license fees. The prices were an average of the 92 and 97-100 score.

**Packing costs** begin in the third year of production for fresh market peaches and in the second year for high density pears. These costs can fluctuate considerably based on machinery and labour costs.

**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 2016 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 and worker safety program costs** represent an important aspect of Ontario's tender fruit operations; these costs were not included as part of production costs because of the significant variance from farm to farm. A space has been provided for the user to insert food and worker safety costs in the variable cost section.

**Management allowances** 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.

## Changes from the 2010 Economic Report

High density pear plantings have increased as low density plantings continue to decline. New fire blight tolerant pear cultivars are also being planted in large numbers as the Bartlett cultivar also declines. The tree density per acre for high density pear orchards has increased from 201 to 1117 trees per acre. Fresh Market Standard Pear continues to be included in this report to reflect the older standard plantings of Bartlett and Bosc still in the ground.

Yields improved for apricots from 5 to 6 tons per acre as well as nectarines from 7 to 7.5 tons per acre.

Production insurance was included as a cost for peach, nectarine, pear, sour cherry and plums. It is not included for apricots.

There were very minor changes in a few production practices such as one more mowing, additional time to chop brush and less time for seeding cover crops.

## Summary

The assumptions reflect the current practices in the industry and do not necessarily represent recommendations from the contributors. Newer plantings of tender fruits may involve higher tree densities, dwarf rootstocks, alternative training systems, new cultivars and other innovative cultural practices.

*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.*

## 2. Fresh Market Peach

### Fresh Market Peach - Pre-plant Year

No Yield	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: machine operator, 4.0 hrs		71
Custom ploughing		50
Fertilizer 10-10-10, 50 kg		40
Cover crop seed		27
Machine repair, maintenance		25
Fuel		56
Consulting fees		40
Tile drainage		2,412
Land Leveling		300
Miscellaneous (soil test)		50
Interest on operating capital		57
Land rental		
<b>Total Variable Costs</b>		<b>3,128</b>
<b>FIXED COSTS</b>		
Machine: depreciation		39
Machine: interest on investment		9
Other overhead		470
Land ownership		
<b>Measurable Fixed Costs</b>		<b>518</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>3,646</b>

### Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Machine Labour and Machine Costs</b>					
Subsoiling (1x)	0.7	12	14	8	34
Discing (2x)	1.4	25	29	22	76
Cultivating (1x)	0.7	12	14	8	35
Fertilizing (1x)	0.7	12	14	8	34
Seeding Cover Crop (1x)	0.5	9	11	8	28
<b>Total Machine Operator</b>	<b>4.0</b>	<b>71</b>	<b>81</b>	<b>55</b>	<b>207</b>

\* includes maintenance, fuel and repair

## Fresh Market Peach - Planting Year

No Yield	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 16 hrs		233
Labour: machine operator, 13.4 hrs		237
Trees (242 trees per acre)		2,468
Custom Planting		242
Fertilizer 15-15-15, 50 kg		40
Insecticides		80
Fungicides		14
Herbicides		27
Cover crop seed		27
Machine repair, maintenance		112
Fuel		190
Interest on operating capital		261
Consulting fees		40
Irrigation		176
Miscellaneous (tree paint)		50
Land rental		
<b>Total Variable Costs</b>		<b>4,198</b>
<b>FIXED COSTS</b>		
Machine: depreciation		152
Machine: interest on investment		34
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,126</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>5,324</b>

## Fresh Market Peach - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	7	102			102
Weed Control - hoeing	3	44			44
Painting trees	6	87			87
<b>Total Hand Labour</b>	<b>16</b>	<b>233</b>			<b>233</b>
<b>Machine Labour and Machine Costs</b>					
Pick up trees	0.5	9	10	5	23
Discing (2x)	1.4	25	29	22	76
Cultivating (3x)	2.1	37	41	25	104
Fertilizing (1x)	0.7	12	14	8	34
Seeding cover crop (1x)	0.5	9	11	8	28
Mowing (3x)	2.1	37	50	37	124
Weed spraying (2x)	1.4	25	32	20	76
Pesticide spraying (5x)	2.0	35	60	53	148
Subsoiling/aerating (1x)	0.7	12	14	8	34
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>13.4</b>	<b>237</b>	<b>302</b>	<b>212</b>	<b>752</b>

\* includes maintenance, fuel and repair



## Fresh Market Peach - Second Year

No Yield	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 10 hrs		146
Labour: machine operator, 13.9 hrs		246
Trees (1% replacement)		62
Fertilizer 27-0-0, 50 kg		31
Fertilizer 0-0-60, 40 kg		22
Insecticides		80
Fungicides		14
Herbicides		27
Cover crop seed		27
Machine repair, maintenance		116
Fuel		199
Interest on operating capital		317
Consulting fees		40
Irrigation		176
Miscellaneous (leaf analysis)		50
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>1,553</b>
<b>FIXED COSTS</b>		
Machine: depreciation		158
Machine: interest on investment		36
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,134</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>2,687</b>

## Fresh Market Peach - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	10	146			146
<b>Total Hand Labour</b>	<b>10</b>	<b>146</b>			<b>146</b>
<b>Machine Labour and Machine Costs</b>					
Re-planting trees	1.0	18	21	12	51
Discing (1x)	0.7	12	15	11	38
Cultivating (3x)	1.4	25	27	17	69
Fertilizing (2x)	1.4	25	27	17	69
Seeding cover crop (1x)	0.5	9	11	8	28
Mowing (4x)	2.8	50	67	50	166
Weed spraying (2x)	1.4	25	32	20	76
Pesticide spraying (5x)	2.0	35	60	53	148
Subsoiling/aerating (1x)	0.7	12	14	8	34
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>13.9</b>	<b>246</b>	<b>315</b>	<b>222</b>	<b>783</b>

\* includes maintenance, fuel and repair

## Fresh Market Peach - Third Year

	Cost per Acre \$	
	Actual	Budget
<b>2.64 Ton Yield (33%)</b>		
<b>VARIABLE COSTS</b>		
Labour: hand, 54 hrs		796
Labour: machine operator, 23.2 hrs		411
Fertilizer 27-0-0, 75 kg		47
Fertilizer 0-0-60, 60 kg		34
Insecticides		254
Fungicides		280
Herbicides		27
Cover crop seed		27
Machine repair, maintenance		193
Fuel		338
Interest on operating capital		451
Production insurance		123
Consulting fees		40
Irrigation		258
Packing		422
Miscellaneous (leaf analysis)		50
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>3,751</b>
<b>FIXED COSTS</b>		
Machine: depreciation		258
Machine: interest on investment		59
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,417</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>5,168</b>
<b>CONTRIBUTION MARGIN (No land or food safety costs included)</b>		
Gross income (2.64 Ton x \$1,351 per ton)		3,567
Total variable costs		3,751
<b>Contribution margin</b>		<b>(185)</b>

## Fresh Market Peach - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	15	218			218
Thinning	17	247			247
Harvesting	22	330			330
<b>Total Hand Labour</b>	<b>54</b>	<b>796</b>			<b>796</b>
<b>Machine Labour and Machine Costs</b>					
Re-planting trees	1.0	18	21	12	51
Discing (1x)	0.7	12	15	11	38
Cultivating (3x)	2.1	37	41	25	104
Fertilizing (2x)	1.4	25	27	17	69
Seeding cover crop (1x)	0.7	12	15	12	39
Mowing (6x)	4.2	74	100	75	249
Weed spraying (2x)	1.4	25	32	20	76
Pesticide spraying (10x)	4.0	71	120	106	296
Distribute & collect containers	4.0	71	76	40	188
Delivery	1.0	18	29	11	57
Subsoiling/aerating (1x)	0.7	12	14	8	34
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>23.2</b>	<b>411</b>	<b>532</b>	<b>362</b>	<b>1,305</b>

\* includes maintenance, fuel and repair

## Fresh Market Peach - Fourth Year

5.28 Ton Yield (66%)	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 108 hrs		1,591
Labour: machine operator, 27.7 hrs		490
Fertilizer 27-0-0, 100 kg		62
Fertilizer 0-0-60, 80 kg		45
Insecticides		264
Fungicides		182
Herbicides		40
Cover crop seed		27
Machine repair, maintenance		217
Fuel		408
Interest on operating capital		511
Production insurance		246
Consulting fees		40
Irrigation		258
Packing		845
Miscellaneous (leaf analysis)		40
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>5,267</b>
<b>FIXED COSTS</b>		
Machine: depreciation		287
Machine: interest on investment		66
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,453</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>6,720</b>
<b>CONTRIBUTION MARGIN (No land or food safety costs included)</b>		
Gross income (5.28 Ton x \$1351 per ton)		7,133
Total variable costs		5,267
<b>Contribution margin</b>		<b>1,866</b>



## Fresh Market Peach - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	30	437			437
Thinning	34	495			495
Harvesting	44	660			660
<b>Total Hand Labour</b>	<b>108</b>	<b>1,591</b>			<b>1,591</b>
<b>Machine Labour and Machine Costs</b>					
Re-planting trees	1.0	18	21	12	51
Discing (1x)	0.7	12	15	11	38
Cultivating (3x)	2.1	37	41	25	104
Fertilizing (2x)	1.4	25	27	17	69
Seeding cover crop (1x)	0.5	9	11	8	28
Mowing (6x)	4.2	74	100	75	249
Weed spraying (3x)	2.1	37	47	30	114
Pesticide spraying (9x)	3.6	64	108	95	267
Distribute & collect containers	7.4	131	141	75	347
Delivery	2.0	35	57	21	114
Subsoiling/aerating (1x)	0.7	12	14	8	34
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>27.7</b>	<b>490</b>	<b>625</b>	<b>403</b>	<b>1,519</b>

\* includes maintenance, fuel and repair

## Total Establishment Costs

	Cost per Acre \$	
	Actual	Budget
<b>TOTAL ESTABLISHMENT COST</b>		
Pre-plant		3,646
Planting		5,324
Second Year		2,687
Third Year		4,171
Fourth Year		4,754
<b>Total Establishment Cost</b>		<b>20,582</b>

Excludes harvest costs and does not include revenues for years 3 and 4.

Does not include land and food safety costs.

<b>ANNUAL COST TO RECOVER ESTABLISHMENT COSTS</b>		
Annual cost		<b>1,008</b>

(amortized over remaining 15 years of orchard life)

## Fresh Market Peach - Mature Orchard

8 Ton Yield	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 166 hrs		2,446
Labour: machine operator, 32.2 hrs		570
Fertilizer 27-0-0, 125 kg		78
Muriate of potash, 100 kg		56
Insecticides		254
Fungicides		280
Herbicides		40
Cover crop seed		27
Machine repair, maintenance		251
Fuel		478
Interest on operating capital		240
Production insurance		373
Consulting fees		40
Irrigation		258
Packing		1,280
Miscellaneous (leaf analysis)		50
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>6,721</b>
<b>FIXED COSTS</b>		
Machine: depreciation		329
Machine: interest on investment		75
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,505</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>8,225</b>
<b>CONTRIBUTION MARGIN (No land or food safety costs included)</b>		
Gross income (\$1,351 per ton)		10,808
Total variable costs		6,721
<b>Contribution margin</b>		<b>4,087</b>

## Fresh Market Peach - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	45	655			655
Thinning	50	728			728
Harvesting	68	1,020			1,020
Raking Brush	3	44			44
<b>Total Hand Labour</b>	<b>166</b>	<b>2,446</b>			<b>2,446</b>
<b>Machine Labour and Machine Costs</b>					
Brush chopping	1.5	27	34	25	85
Discing (1x)	0.7	12	15	11	38
Cultivating (3x)	2.1	37	41	25	104
Fertilizing (2x)	1.4	25	27	17	69
Seeding cover crop (1x)	0.5	9	11	8	28
Mowing (6x)	4.2	74	100	75	249
Weed spraying (3x)	2.1	37	47	30	114
Pesticide spraying (10x)	4.0	71	120	106	296
Distribute & collect containers	10.0	177	191	101	469
Delivery	3.0	53	86	32	171
Subsoiling/aerating (1x)	0.7	12	14	8	34
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>32.2</b>	<b>570</b>	<b>729</b>	<b>463</b>	<b>1,761</b>

\* includes maintenance, fuel and repair

## Fresh Market Peach Break-even and Profitability Worksheet 8.0 Ton/Acre Yield

Year	Yield %	Revenue	Variable Costs	Fixed Costs	Total Costs	Net Cash Flow	Accum. Profit
Pre-plant	0%	-	3,128	518	3,646	(3,646)	(3,646)
Planting	0%	-	4,198	1,126	5,324	(5,324)	(8,970)
2	0%	-	1,553	1,134	2,687	(2,687)	(11,657)
3	33%	3,567	3,751	1,417	5,168	(1,602)	(13,258)
4	66%	7,133	5,267	1,453	6,720	414	(12,845)
5	100%	10,808	6,987	1,505	8,492	2,316	(10,528)
6	100%	10,808	6,846	1,505	8,350	2,458	(8,071)
7	100%	10,808	6,699	1,505	8,204	2,604	(5,466)
8	100%	10,808	6,547	1,505	8,052	2,756	(2,710)
9	100%	10,808	6,389	1,505	7,894	2,914	205
10	100%	10,808	6,226	1,505	7,730	3,078	3,282
11	100%	10,808	6,056	1,505	7,561	3,247	6,529
12	100%	10,808	5,880	1,505	7,385	3,423	9,952

Break-even results occur in Year 9 (does not include land and food safety costs).

### 3. Fresh Market High Density Pear

#### Fresh Market High Density Pear - Pre-plant Year

No Yield	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: machine operator, 4.0 hrs		71
Custom ploughing		50
Fertilizer 15-15-15, 50 kg		40
Cover crop seed		27
Machine repair, maintenance		25
Fuel		56
Interest on operating capital		74
Consulting fees		40
Tile drainage		3,363
Land Leveling		300
Miscellaneous		50
Land rental		
<b>Total Variable Costs</b>		<b>4,096</b>
<b>FIXED COSTS</b>		
Machine: depreciation		39
Machine: interest on investment		9
Other overhead		470
Land ownership		
<b>Measurable Fixed Costs</b>		<b>518</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>4,614</b>

#### Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Machine Labour and Machine Costs</b>					
Subsoiling (1x)	0.7	12	14	8	34
Discing (2x)	1.4	25	29	22	76
Cultivating (1x)	0.7	12	14	8	35
Fertilizing (1x)	0.7	12	14	8	34
Seeding Cover Crop (1x)	0.5	9	11	8	28
<b>Total Machine Operator</b>	<b>4.0</b>	<b>71</b>	<b>81</b>	<b>55</b>	<b>207</b>

\* includes maintenance, fuel and repair



## Fresh Market High Density Pear - Planting Year

No Yield	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 84 hrs		1,215
Labour: machine operator, 13.6 hrs		241
Trees (1,117 trees per acre)		11,896
Custom Planting		559
Fertilizer 15-15-15, 50 kg		40
Insecticides		172
Fungicides		174
Herbicides		27
Permanent cover crop		82
Machine repair, maintenance		108
Fuel		190
Interest on operating capital		805
Consulting fees		40
Irrigation		176
Miscellaneous		50
Land rental		
Trellis material and Installation		2,700
<b>Total Variable Costs</b>		<b>18,474</b>
<b>FIXED COSTS</b>		
Machine: depreciation		158
Machine: interest on investment		35
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,133</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>19,607</b>

## Fresh Market High Density Pear - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	3	36			36
Weed Control	2	29			29
Tree Painting	27	393			393
Tree Training	52	757			757
<b>Total Hand Labour</b>	<b>84</b>	<b>1,215</b>			<b>1,215</b>
<b>Machine Labour and Machine Costs</b>					
Pick up trees	1.0	18	19	9	46
Discing (2x)	1.4	25	29	22	76
Cultivating (3x)	2.1	37	41	25	103
Fertilizing (1x)	0.7	12	14	8	34
Seeding cover crop (1x)	0.5	9	10	8	27
Mowing (3x)	2.1	37	50	37	124
Weed spraying (2x)	1.4	25	30	20	75
Pesticide spraying (6x)	2.4	42	63	63	169
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>13.6</b>	<b>241</b>	<b>298</b>	<b>220</b>	<b>759</b>

\* includes maintenance, fuel and repair

## Fresh Market High Density Pear - Second Year

	Cost per Acre \$	
1 Ton Yield (2.5%)	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 441 hrs		6,418
Labour: machine operator, 15.9 hrs		281
Trees (2% replacement)		269
Fertilizer 27-0-0, 30 kg		19
Fertilizer 0-0-60, 30 kg		17
Insecticides		172
Fungicides		174
Herbicides		27
Machine repair, maintenance		123
Fuel		228
Interest on operating capital		1,140
Production insurance		61
Consulting fees		40
Irrigation		176
Packing		175
Miscellaneous		50
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>9,371</b>
<b>FIXED COSTS</b>		
Machine: depreciation		175
Machine: interest on investment		40
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,155</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>10,526</b>
<b>CONTRIBUTION MARGIN (no land or food safety costs included)</b>		
Gross income (1 Ton x \$1,432 per ton)		1,432
Total variable costs		9,371
<b>Contribution margin</b>		<b>(7,939)</b>

## Fresh Market High Density Pear - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	8	116			116
Tree Training	430	6,257			6,257
Harvest	3	45			45
<b>Total Hand Labour</b>	<b>441</b>	<b>6,418</b>			<b>6,418</b>
<b>Machine Labour and Machine Costs</b>					
Re-planting trees	2.0	35	42	25	102
Cultivating (2x)	1.4	25	27	17	69
Fertilizing (2x)	1.4	25	27	17	69
Seeding permanent cover (1x)	0.5	9	11	8	28
Mowing (4x)	2.8	50	67	50	166
Weed spraying (2x)	1.4	25	28	20	73
Pesticide spraying (6x)	2.4	42	59	63	165
Distribute & collect containers	1.0	18	19	10	47
Delivery	1.0	18	29	11	57
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>15.9</b>	<b>281</b>	<b>351</b>	<b>246</b>	<b>879</b>

\* includes maintenance, fuel and repair

## Fresh Market High Density Pear - Third Year

5.5 Ton Yield (22%)	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 83 hrs		1,222
Labour: machine operator, 18.4 hrs		326
Trees (1% replacement)		135
Fertilizer 27-0-0, 40 kg		25
Fertilizer 0-0-60, 40 kg		22
Insecticides		172
Fungicides		174
Herbicides		40
Machine repair, maintenance		147
Fuel		269
Interest on operating capital		1,287
Production insurance		337
Consulting fees		40
Irrigation		258
Packing		963
Miscellaneous		150
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>5,566</b>
<b>FIXED COSTS</b>		
Machine: depreciation		210
Machine: interest on investment		49
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,359</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>6,925</b>
<b>CONTRIBUTION MARGIN (no land or food safety costs included)</b>		
Gross income (5.5 Ton x \$1,432 per ton)		7,876
Total variable costs		5,566
<b>Contribution margin</b>		<b>2,310</b>

## Fresh Market High Density Pear - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	12	175			175
Tree Training	30	437			437
Thinning	10	146			146
Harvest	31	465			465
<b>Total Hand Labour</b>	<b>83</b>	<b>1,222</b>			<b>1,222</b>
<b>Machine Labour and Machine Costs</b>					
Re-planting trees	1.0	18	21	12	51
Fertilizing (2x)	1.4	25	27	17	69
Mowing (4x)	2.8	50	67	50	166
Weed spraying (2x)	1.4	25	28	20	73
Pesticide spraying (11x)	4.4	78	108	116	303
Distribute & collect containers	3.4	60	65	34	159
Delivery	2.0	35	57	21	114
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>18.4</b>	<b>326</b>	<b>416</b>	<b>297</b>	<b>1,039</b>

\* includes maintenance, fuel and repair

## Fresh Market High Density Pear - Fourth Year

9 Ton Yield (36%)	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 205 hrs		2,998
Labour: machine operator, 21.3 hrs		377
Trees (1% replacement)		135
Fertilizer 27-0-0, 50 kg		31
Fertilizer 0-0-60, 50 kg		28
Insecticides		353
Fungicides		267
Herbicides		40
Machine repair, maintenance		164
Fuel		316
Interest on operating capital		1,313
Production insurance		551
Consulting fees		40
Irrigation		258
Packing		1,575
Miscellaneous		150
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>8,597</b>
<b>FIXED COSTS</b>		
Machine: depreciation		231
Machine: interest on investment		54
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,385</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>9,982</b>
<b>CONTRIBUTION MARGIN (no land or food safety costs included)</b>		
Gross income (9 Ton x \$1,432 per ton)		12,888
Total variable costs		8,597
<b>Contribution margin</b>		<b>4,291</b>

## Fresh Market High Density Pear - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	16	226			226
Tree training	122	1,775			1,775
Thinning	16	233			233
Harvest	51	765			765
<b>Total Hand Labour</b>	<b>205</b>	<b>2,998</b>			<b>2,998</b>
<b>Machine Labour and Machine Costs</b>					
Fertilizing (2x)	1.4	25	27	17	69
Mowing (4x)	2.8	50	67	50	166
Weed spraying (3x)	2.1	37	42	30	109
Pesticide spraying (11x)	4.4	78	108	116	303
Distribute & collect containers	5.6	99	107	56	263
Delivery	3.0	53	86	32	171
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>21.3</b>	<b>377</b>	<b>480</b>	<b>327</b>	<b>1,184</b>

\* includes maintenance, fuel and repair



## Fresh Market High Density Pear - Fifth Year

14.25 Ton Yield (57%)	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 475 hrs		6,946
Labour: machine operator, 27.2 hrs		481
Fertilizer 27-0-0, 75 kg		47
Fertilizer 0-0-60, 60 kg		34
Insecticides		353
Fungicides		267
Herbicides		40
Machine repair, maintenance		204
Fuel		412
Interest on operating capital		1,351
Production insurance		873
Consulting fees		40
Irrigation		258
Packing		2,494
Miscellaneous		150
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>13,949</b>
<b>FIXED COSTS</b>		
Machine: depreciation		278
Machine: interest on investment		65
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,442</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>15,392</b>
<b>CONTRIBUTION MARGIN (no land or food safety costs included)</b>		
Gross income (14.25 Ton x \$1,432/ton)		20,406
Total variable costs		13,949
<b>Contribution margin</b>		<b>6,457</b>

## Fresh Market High Density Pear - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	16	233			233
Tree training	358	5,209			5,209
Thinning	22	320			320
Harvest	78	1,170			1,170
Raking brush	1	15			15
<b>Total Hand Labour</b>	<b>475</b>	<b>6,946</b>			<b>6,946</b>
<b>Machine Labour and Machine Costs</b>					
Fertilizing (2x)	1.4	25	27	17	69
Mowing (5x)	3.5	62	83	62	207
Weed spraying (3x)	2.1	37	42	30	109
Pesticide spraying (11x)	4.4	78	108	116	303
Distribute & collect containers	8.8	156	168	89	413
Delivery	5.0	89	144	53	286
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>27.2</b>	<b>481</b>	<b>616</b>	<b>393</b>	<b>1,490</b>

\* includes maintenance, fuel and repair

## Fresh Market High Density Pear - Sixth Year

18.75 Ton Yield (75%)	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 255 hrs		3,772
Labour: machine operator, 32.7 hrs		579
Fertilizer 27-0-0, 85 kg		53
Fertilizer 0-0-60, 70 kg		39
Insecticides		353
Fungicides		267
Herbicides		40
Machine repair, maintenance		246
Fuel		495
Interest on operating capital		1,042
Production insurance		1,148
Consulting fees		40
Irrigation		258
Packing		3,281
Miscellaneous		150
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>11,763</b>
<b>FIXED COSTS</b>		
Machine: depreciation		328
Machine: interest on investment		76
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,504</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>13,267</b>
<b>CONTRIBUTION MARGIN (no land or food safety costs included)</b>		
Gross income (18.75 Ton x \$1,432/ton)		26,850
Total variable costs		11,763
<b>Contribution margin</b>		<b>15,087</b>

## Fresh Market High Density Pear - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	22	320			320
Tree training	53	771			771
Thinning	41	597			597
Harvest	137	2,055			2,055
Raking brush	2	29			29
<b>Total Hand Labour</b>	<b>255</b>	<b>3,772</b>			<b>3,772</b>
<b>Machine Labour and Machine Costs</b>					
Summer hedging	1.0	18	26	19	63
Fertilizing (2x)	1.4	25	27	17	69
Mowing/brush chopping (6x)	4.2	74	100	75	249
Weed spraying (3x)	2.1	37	42	30	109
Pesticide spraying (11x)	4.4	78	108	116	303
Distribute & collect containers	11.6	205	222	117	544
Delivery	6.0	106	172	64	343
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>32.7</b>	<b>579</b>	<b>741</b>	<b>463</b>	<b>1,783</b>

\* includes maintenance, fuel and repair

## Fresh Market High Density Pear - Seventh Year

	Cost per Acre \$	
	Actual	Budget
<b>23.125 Ton Yield (93%)</b>		
<b>VARIABLE COSTS</b>		
Labour: hand, 203 hrs		3,015
Labour: machine operator, 37.4 hrs		662
Fertilizer 27-0-0, 100 kg		62
Fertilizer 0-0-60, 80 kg		45
Insecticides		353
Fungicides		267
Herbicides		40
Machine repair, maintenance		276
Fuel		573
Interest on operating capital		502
Production insurance		1,416
Consulting fees		40
Irrigation		258
Packing		4,047
Miscellaneous		150
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>11,707</b>
<b>FIXED COSTS</b>		
Machine: depreciation		361
Machine: interest on investment		84
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,546</b>
<b>TOTAL MEASURABLE COSTS</b>		
		<b>13,253</b>
<b>CONTRIBUTION MARGIN (no land or food safety costs included)</b>		
Gross income (23.125 Ton x \$1,432/ton)		33,115
Total variable costs		11,707
<b>Contribution margin</b>		<b>21,408</b>

## Fresh Market High Density Pear - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	22	320			320
Thinning	41	597			597
Harvest	137	2,055			2,055
Raking Brush	3	44			44
<b>Total Hand Labour</b>	<b>203</b>	<b>3,015</b>			<b>3,015</b>
<b>Machine Labour and Machine Costs</b>					
Summer hedging	1.0	18	26	19	63
Fertilizing (2x)	1.4	25	27	17	69
Mowing/brush chopping (6x)	4.2	74	100	75	249
Weed spraying (3x)	2.1	37	42	30	109
Pesticide spraying (11x)	4.4	78	108	116	303
Distribute & collect containers	14.3	253	273	144	671
Delivery	8.0	142	230	85	457
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>37.4</b>	<b>662</b>	<b>849</b>	<b>512</b>	<b>2,023</b>

\* includes maintenance, fuel and repair

## Total Establishment Costs

	Cost per Acre \$	
	Actual	Budget
<b>TOTAL ESTABLISHMENT COST</b>		
Pre-plant		4,614
Planting		19,607
Year 2		10,202
Year 3		5,224
Year 4		7,208
Year 5		11,030
Year 6		7,044
Year 7		6,024
<b>Total Establishment Cost</b>		<b>70,954</b>

Excludes harvest costs and does not include revenues for years 2 to 7.

Establishment costs are recovered by Year 7 (not including land and food safety costs).

## Fresh Market High Density Pear - Mature Orchard

25 Ton Yield (100%)	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 203 hrs		3,015
Labour: machine operator, 38.6 hrs		683
Fertilizer 27-0-0, 115 kg		71
Fertilizer 0-0-60, 90 kg		50
Insecticides		353
Fungicides		267
Herbicides		40
Machine repair, maintenance		282
Fuel		590
Interest on operating capital		433
Production insurance		1,531
Consulting fees		40
Irrigation		258
Packing		4,375
Miscellaneous		150
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>12,139</b>
<b>FIXED COSTS</b>		
Machine: depreciation		370
Machine: interest on investment		86
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,556</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>13,696</b>
<b>CONTRIBUTION MARGIN (no land or food safety costs included)</b>		
Gross income (25 Ton x \$1,432 per ton)		35,800
Total variable costs		12,139
<b>Contribution margin</b>		<b>23,661</b>

## Fresh Market High Density Pear - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	22	320			320
Thinning	41	597			597
Harvest	137	2,055			2,055
Raking brush	3	44			44
<b>Total Hand Labour</b>	<b>203</b>	<b>3,015</b>			<b>3,015</b>
<b>Machine Labour and Machine Costs</b>					
Summer hedging	1.0	18	26	19	63
Fertilizing (2x)	1.4	25	27	17	69
Mowing/brush chopping (6x)	4.2	74	100	75	249
Weed spraying (3x)	2.1	37	42	30	109
Pesticide spraying (11x)	4.4	78	108	116	303
Distribute & collect containers	15.5	274	296	156	727
Delivery	8.0	142	230	85	457
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>38.6</b>	<b>683</b>	<b>872</b>	<b>524</b>	<b>2,080</b>

\* includes maintenance, fuel and repair



**Fresh Market High Density Pear  
Break-even and Profitability Worksheet  
25.0 Ton/Acre Yield**

<b>Year</b>	<b>Yield %</b>	<b>Revenue</b>	<b>Variable Costs</b>	<b>Fixed Costs</b>	<b>Total Costs</b>	<b>Net Cash Flow</b>	<b>Accum. Profit/Acre</b>
Pre-plant	0%	-	4,096	518	4,614	(4,614)	(4,614)
Planting	0%	-	18,474	1,133	19,607	(19,607)	(24,221)
2	3%	1,432	9,371	1,155	10,526	(9,094)	(33,316)
3	22%	7,876	5,566	1,359	6,925	951	(32,365)
4	36%	12,888	8,597	1,385	9,982	2,906	(29,459)
5	57%	20,406	13,949	1,442	15,392	5,014	(24,445)
6	75%	26,850	11,763	1,504	13,267	13,583	(10,862)
7	93%	33,115	11,707	1,546	13,253	19,862	9,000
8	100%	35,800	11,435	1,556	12,991	22,809	31,809
9	100%	35,800	10,533	1,556	12,090	23,710	55,520
10	100%	35,800	9,598	1,556	11,155	24,645	80,165
11	100%	35,800	8,629	1,556	10,185	25,615	105,780
12	100%	35,800	7,623	1,556	9,180	26,620	132,400

Break-even results occur in Year 7 (does not include land and food safety costs).

## **Mature Orchard Costs**

**Nectarine**  
**European Plum**  
**Japanese Plum**  
**Apricot**  
**Sour Cherry**  
**Fresh Market Standard Pear**

## Nectarine – Mature Orchard Cost

7.5 Ton Yield	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 151 hrs		2,223
Labour: machine operator, 32.6 hrs		577
Ammonium nitrate, 125 kg		78
Muriate of potash, 100 kg		56
Insecticides		254
Fungicides		316
Herbicides		40
Cover crop seed		27
Machine repair, maintenance		251
Fuel		478
Interest on operating capital		234
Production insurance		478
Consulting fees		40
Irrigation		258
Packing		1,200
Miscellaneous (leaf analysis)		50
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>6,560</b>
<b>FIXED COSTS</b>		
Machine: depreciation		329
Machine: interest on investment		75
Cold storage and packing equipment		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,505</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>8,064</b>
<b>CONTRIBUTION MARGIN (no land or food safety costs included)</b>		
Gross income (7.5 Ton x \$1,788/ton)		13,410
Total variable costs		6,560
<b>Contribution margin</b>		<b>6,850</b>

## Nectarine - Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	45	655			655
Thinning	45	655			655
Harvest	58	870			870
Raking brush	3	44			44
<b>Total Hand Labour</b>	<b>151</b>	<b>2,223</b>			<b>2,223</b>
<b>Machine Labour and Machine Costs</b>					
Brush chopping	1.5	27	34	25	85
Discing (1x)	0.7	12	15	11	38
Cultivating (3x)	2.1	37	41	25	104
Fertilizing (2x)	1.4	25	27	17	69
Seeding cover crop (1x)	0.5	9	11	8	28
Mowing (6x)	4.2	74	100	75	249
Weed spraying (3x)	2.1	37	47	30	114
Pesticide spraying (11x)	4.4	78	120	106	303
Distribute & collect containers	10.0	177	191	101	469
Delivery	3.0	53	86	32	171
Subsoiling/aerating (1x)	0.7	12	14	8	34
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>32.6</b>	<b>577</b>	<b>729</b>	<b>463</b>	<b>1,769</b>

\* includes maintenance, fuel and repair

## Japanese Plum – Mature Orchard Cost

6 Ton Yield	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 193 hrs		2,853
Labour: machine operator, 28.0 hrs		496
Ammonium nitrate, 125 kg		78
Muriate of potash, 100 kg		56
Insecticides		264
Fungicides		150
Herbicides		40
Cover crop seed		27
Machine repair, maintenance		202
Fuel		411
Interest on operating capital		242
Production insurance		830
Consulting fees		20
Irrigation		176
Packing		840
Miscellaneous (leaf analysis, 1 hive)		100
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>6,785</b>
<b>FIXED COSTS</b>		
Machine: depreciation		265
Machine: interest on investment		60
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,425</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>8,210</b>
<b>CONTRIBUTION MARGIN (no land or food safety costs included)</b>		
Gross income (6 Ton x \$2,270 per ton)		13,620
Total variable costs		6,785
<b>Contribution margin</b>		<b>6,835</b>

## Japanese Plum – Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	60	873			873
Thinning	30	437			437
Harvest	100	1,500			1,500
Raking brush	3	44			44
<b>Total Hand Labour</b>	<b>193</b>	<b>2,853</b>			<b>2,853</b>
<b>Machine Labour and Machine Costs</b>					
Brush chopping	1.7	30	39	28	97
Discing (1x)	0.7	12	15	11	38
Cultivating (2x)	1.4	25	27	17	69
Fertilizing (2x)	1.4	25	27	17	69
Seeding cover crop (1x)	0.5	9	11	8	28
Mowing (4x)	2.8	50	67	50	166
Weed spraying (3x)	2.1	37	47	30	114
Pesticide spraying (6x)	2.4	42	60	53	155
Distribute & collect containers	10.0	177	191	101	469
Delivery	3.0	53	86	32	171
Subsoiling/aerating (1x)	0.0	-	-	-	-
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>28.0</b>	<b>496</b>	<b>613</b>	<b>372</b>	<b>1,480</b>

\* includes maintenance, fuel and repair

## European Plum – Mature Orchard Cost

6 Ton Yield	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 143 hrs		2,117
Labour: machine operator, 30.0 hrs		531
Ammonium nitrate, 125 kg		78
Muriate of potash, 100 kg		56
Insecticides		284
Fungicides		227
Herbicides		40
Cover crop seed		27
Machine repair, maintenance		220
Fuel		434
Interest on operating capital		226
Production insurance		830
Consulting fees		20
Irrigation		176
Packing		960
Miscellaneous (leaf analysis, 1 hive)		100
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>6,325</b>
<b>FIXED COSTS</b>		
Machine: depreciation		288
Machine: interest on investment		65
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,453</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>7,778</b>
<b>CONTRIBUTION MARGIN (no land or food safety costs included)</b>		
Gross income (6 Ton x \$2,030 per ton)		12,180
Total variable costs		6,325
<b>Contribution margin</b>		<b>5,855</b>

## European Plum – Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	48	698			698
Thinning	12	175			175
Harvest	80	1,200			1,200
Raking brush	3	44			44
<b>Total Hand Labour</b>	<b>143</b>	<b>2,117</b>			<b>2,117</b>
<b>Machine Labour and Machine Costs</b>					
Brush chopping	1.5	27	34	25	85
Discing (1x)	0.7	12	15	11	38
Cultivating (2x)	1.4	25	27	17	69
Fertilizing (2x)	1.4	25	27	17	69
Seeding cover crop (1x)	0.5	9	11	8	28
Mowing (6x)	4.2	74	100	75	249
Weed spraying (3x)	2.1	37	47	30	114
Pesticide spraying (8x)	3.2	57	72	63	192
Distribute & collect containers	10.0	177	191	101	469
Delivery	3.0	53	86	32	171
Subsoiling/aerating (1x)	0.0	-	-	-	-
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>30.0</b>	<b>531</b>	<b>654</b>	<b>404</b>	<b>1,589</b>

\* includes maintenance, fuel and repair



## Apricot – Mature Orchard Cost

6 Ton Yield	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 141 hrs		2,083
Labour: machine operator, 28.2 hrs		499
Ammonium nitrate, 125 kg		78
Muriate of potash, 100 kg		56
Insecticides		242
Fungicides		237
Herbicides		40
Cover crop seed		27
Machine repair, maintenance		200
Fuel		408
Interest on operating capital		188
Consulting fees		20
Irrigation		176
Packing		960
Miscellaneous (leaf analysis)		50
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>5,264</b>
<b>FIXED COSTS</b>		
Machine: depreciation		262
Machine: interest on investment		60
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,422</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>6,686</b>
<b>CONTRIBUTION MARGIN (no land or food safety costs included)</b>		
Gross income (6 ton x \$4,271 per ton)		25,626
Total variable costs		5,264
<b>Contribution margin</b>		<b>20,362</b>

## Apricot – Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	48	698			698
Thinning	20	291			291
Harvest	70	1,050			1,050
Raking brush	3	44			44
<b>Total Hand Labour</b>	<b>141</b>	<b>2,083</b>			<b>2,083</b>
<b>Machine Labour and Machine Costs</b>					
Brush chopping	1.5	27	34	25	85
Discing (1x)	0.7	12	15	11	38
Cultivating (2x)	1.4	25	27	17	69
Fertilizing (2x)	1.4	25	27	17	69
Seeding cover crop (1x)	0.5	9	11	8	28
Mowing (4x)	2.8	50	67	50	166
Weed spraying (3x)	2.1	37	47	30	114
Pesticide spraying (7x)	2.8	50	60	53	162
Distribute & collect containers	10.0	177	191	101	469
Delivery	3.0	53	86	32	171
Subsoiling/aerating (0x)	0.0	-	-	-	-
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>28.2</b>	<b>499</b>	<b>608</b>	<b>369</b>	<b>1,476</b>

\* includes maintenance, fuel and repair

## Sour Cherry – Mature Orchard Cost

6 Ton Yield	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 27 hrs		393
Labour: machine operator, 22.3 hrs		395
Ammonium nitrate, 125 kg		78
Muriate of potash, 100 kg		56
Insecticides		176
Fungicides		241
Herbicides		40
Cover crop seed		27
Machine repair, maintenance		205
Fuel		415
Interest on operating capital		176
Production insurance		210
Consulting fees		20
Irrigation		-
Machine Harvest (20 cents per lb)		2,400
Miscellaneous (leaf analysis, 1 hive)		100
Land rental		
<b>Total Variable Costs</b>		<b>4,931</b>
<b>FIXED COSTS</b>		
Machine: depreciation		269
Machine: interest on investment		61
Cold storage		-
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,270</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>6,201</b>
<b>CONTRIBUTION MARGIN (no land costs included)</b>		
Gross income (6 Ton x \$726 per ton)		4,356
Total variable costs		4,931
<b>Contribution margin</b>		<b>(575)</b>

## Sour Cherry – Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	24	349			349
Thinning	-	-			-
Harvest	-	-			-
Raking brush	3	44			44
<b>Total Hand Labour</b>	<b>27</b>	<b>393</b>			<b>393</b>
<b>Machine Labour and Machine Costs</b>					
Brush chopping	0.9	16	21	15	51
Discing (1x)	0.7	12	15	11	38
Cultivating (3x)	2.1	37	41	25	104
Fertilizing (2x)	1.4	25	27	17	69
Seeding cover crop (1x)	0.5	9	11	8	28
Mowing (4x)	2.8	50	67	50	166
Weed spraying (3x)	2.1	37	47	30	114
Pesticide spraying (7x)	2.8	50	72	63	185
Distribute & collect bins	4.0	71	191	101	363
Delivery	3.0	53	86	32	171
Subsoiling/aerating	-	-	-	-	-
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>22.3</b>	<b>395</b>	<b>620</b>	<b>378</b>	<b>1,392</b>

\* includes maintenance, fuel and repair

## Fresh Market Standard Pear – Mature Orchard Cost

8 Ton Yield	Cost per Acre \$	
	Actual	Budget
<b>VARIABLE COSTS</b>		
Labour: hand, 133 hrs		1,960
Labour: machine operator, 20.6 hrs		365
Ammonium nitrate, 125 kg		78
Muriate of potash, 100 kg		56
Insecticides		353
Fungicides		338
Herbicides		40
Cover crop seed		-
Machine repair, maintenance		191
Fuel		317
Interest on operating capital		219
Production insurance		367
Consulting fees		40
Irrigation		258
Packing		1,400
Miscellaneous (leaf analysis, 2 hives)		150
Food safety		
Land rental		
<b>Total Variable Costs</b>		<b>6,131</b>
<b>FIXED COSTS</b>		
Machine: depreciation		241
Machine: interest on investment		56
Cold storage		160
Other overhead		940
Land ownership		
<b>Measurable Fixed Costs</b>		<b>1,397</b>
<b>TOTAL MEASURABLE COSTS</b>		<b>7,528</b>
<b>CONTRIBUTION MARGIN (no land or food safety costs included)</b>		
Gross income (8 Ton x \$1,366 per ton)		10,928
Total variable costs		6,131
<b>Contribution margin</b>		<b>4,797</b>

## Fresh Market Standard Pear – Operation Costs

Operation Costs	Labour Hours	Labour \$	Machine* \$	Fixed \$	Total \$
<b>Hand Labour</b>					
Pruning	50	728			728
Thinning	25	364			364
Harvest	55	825			825
Raking brush	3	44			44
<b>Total Hand Labour</b>	<b>133</b>	<b>1,960</b>			<b>1,960</b>
<b>Machine Labour and Machine Costs</b>					
Brush chopping	1.5	27	34	25	85
Fertilizing (2x)	1.4	25	27	17	69
Mowing (6x)	4.2	74	100	75	249
Weed spraying (3x)	2.1	37	47	30	114
Pesticide spraying (11x)	4.4	78	132	116	326
Distribute bins	2.0	35	38	20	94
Delivery	3.0	53	86	32	171
Orchard maintenance	2.0	35	43	26	104
<b>Total Machine Operator</b>	<b>20.6</b>	<b>365</b>	<b>508</b>	<b>340</b>	<b>1,212</b>

\* includes maintenance, fuel and repair