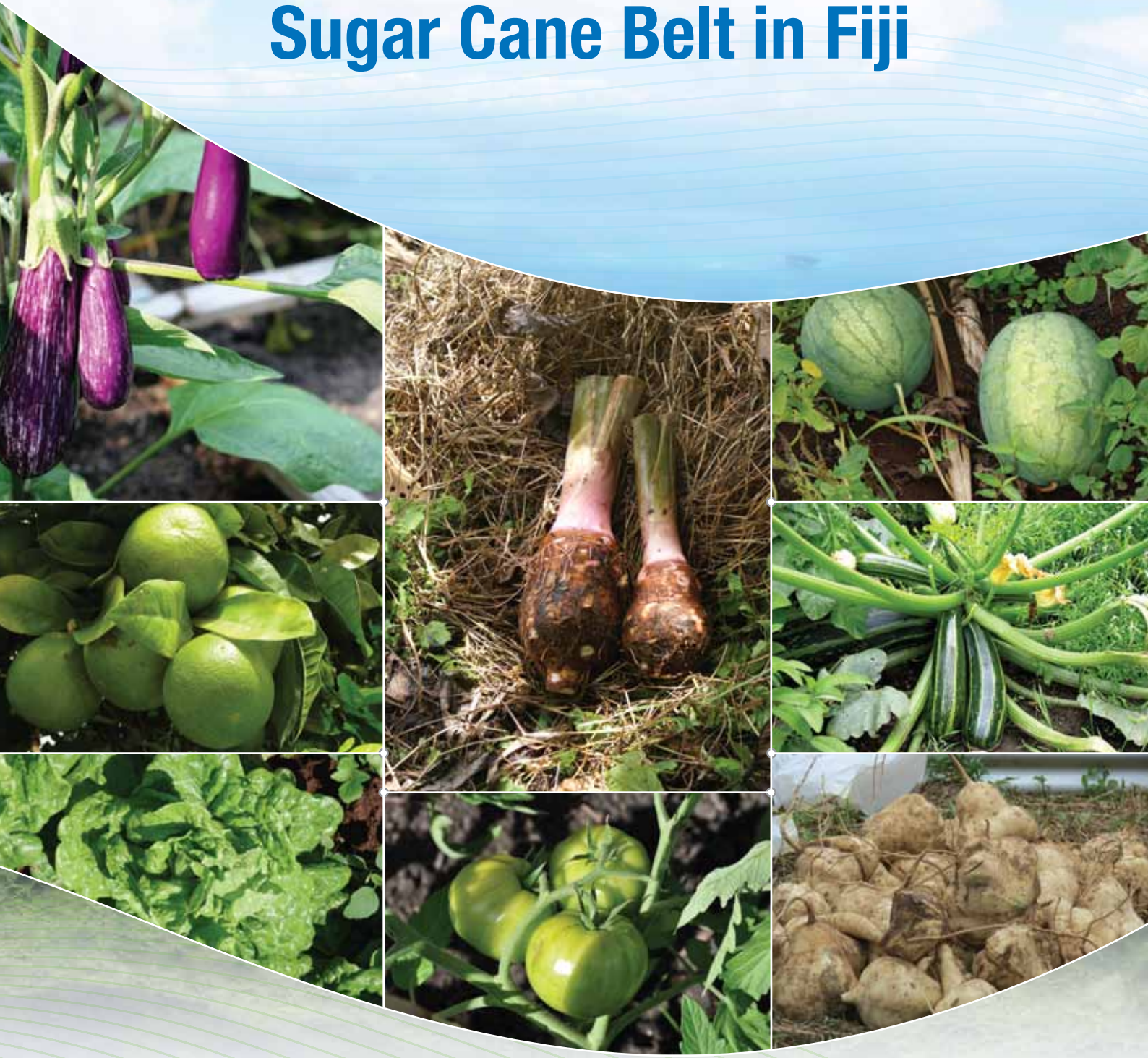
Gross Margins for Selected Fruit, Vegetable and Root Crops for the Sugar Cane Belt in Fiji



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GROSS MARGINS FOR SELECTED FRUIT, VEGETABLE AND ROOT CROPS FOR THE SUGAR CANE BELT IN FIJI

Secretariat of the Pacific Community

compiled by David M. Leslie

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Disclaimer

The gross margins have been prepared for the Land Resources Division, SPC in good faith on the basis of available best practice information.

While the information has been prepared with all due care, users of the document are advised to conduct their own assessments for any crop enterprise or farming system (multiple crops) proposals they might consider. Also, while the information is considered accurate at the date of release, subsequent changes in commodity prices and direct costs may impact on the accuracy of the information.

Product trade names used are given on the understanding that no preference between equivalent products is intended and that the inclusion of a product does not imply endorsement over any other brand from another manufacturer.

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Finally, to Margaret Leslie for word processing and formatting of the Word document and the Excel spreadsheet.

Foreword

It gives me pleasure to present the "Gross Margins for Selected Fruits, Vegetables and Root Crops for the Sugar Cane Belt in Fiji" that has been compiled by David Leslie. This booklet provides a comprehensive, up-to-date source of information to assist farmers, extension officers, investors and all stakeholders involved with farm business assessment and planning, particularly for farmers to make informed decisions about farm enterprises and, ultimately, to maximise returns from agriculture in Fiji. It serves as an invaluable reference for sustainable growth in agriculture.

This is only the starting point because not all crops are yet included. Over time it is planned to add other crops and to look in more detail at the impact on farm profits of different markets, especially exporting. In the short term it provides useful information regarding the returns and costs associated with crop production enterprises.

While the booklet contains information collated from 2012 data it must be remembered that these gross margins are an initial guide and should not be a substitute for the expert advice of agriculturalists. An Excel spreadsheet will be updated regularly to reflect changes in the agriculture sector, particularly changes in commodity prices, yields, markets, technology and farming practices.

I trust this document will enhance the knowledge of all stakeholders and especially benefit farmers by having access to much needed and reliable information.

In conclusion, the Secretariat of the Pacific Community sincerely acknowledges the European Union for their financial support to completing this important project.

Inoke Ratukalou
Director
Land Resources Division, SPC

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1. Assumptions

In preparing the draft crop gross margins for Fiji the following assumptions are made:

- While recognising that mixed crop farming systems prevail in Fiji, only a single crop per hectare is considered when determining the crop gross margins.
- One hectare is the unit area used for each crop. From the data presented, smaller areas can be calculated for individual crops or for multiple crops grown within a hectare.
- Best practice would be applied at all times to ensure optimal production.
- Crops are planted at the spacings, and therefore plant densities, as recommended by Fiji MAFF.
- Crops are not irrigated
- Recognising that family labour prevails on the majority of farms, labour has been costed throughout at F$20/day. Farmers can adjust for where family labour is employed.
- Market commodity prices have been averaged to reflect seasonal fluctuations at the 3 markets (Labasa, Nadi, Suva) recognising weekly prices for September 2012. For export crops (Cassava, Dalo, Eggplant, Ginger and Papaya) farm gate prices are given as a footnote.
- Annual crops and those involving tillage are not considered on slopes >11°.
- Tree crops are not recommended on slopes >20°. Agriculture on steeper slopes is not considered due to unsustainability and erosion risk.
- Direct costs are derived from local data available as at Oct 2012. These include costs of land preparation, planting materials, fertilisers, sprays and transportation.

2. Gross Margins for Crops

2.1 Introduction

A gross margin is determined by deducting the direct costs of growing a crop from the gross income for a crop. Direct costs include those associated with crop production operations, harvesting and marketing. Gross margins do not include overhead costs such as rates, living costs, insurance, that must be met regardless of whether or not a crop is grown. For this reason gross margins are not a measure of the profit of a particular enterprise. However, they do provide a useful tool in terms of farm budgeting and estimating the likely returns or losses of a particular crop. When estimating whole farm profit it is necessary to consider these overhead costs in addition to enterprise gross margins. Table 1 lists the typical direct and overhead costs for farms.

Table 1: Typical direct and overhead costs for farms

Direct Costs	Overhead Costs
Land preparation	Administration – accounting, telecommunication
Planting materials	Depreciation of machinery and equipment
Fertiliser	Farm insurances
Sprays	Interest payment
Casual labour	Repairs to water supplies, roading, buildings
Contract harvesting	Wages of permanent employees
Post-harvest on-farm processing	Taxation payments
Transportation to market	Lease payments

Gross margin analysis is used to provide an indication of the most rewarding enterprise and is a technique for reducing the field of choice without resorting to full budgeting. Once the most promising alternatives have been established the next step after gross margin analysis is to budget at the farm scale.
A gross margin analysis examines separate enterprises such as dalo, mung or lettuce, in isolation from other enterprises, and disregards the fixed costs of the farm. It is concerned only with income derived from the enterprise, and with the direct costs related to producing that income.
The technique derives a gross margin for the enterprise from the income earned. This gross margin may then be compared with the results from other enterprises.

2.2 Use of gross margins

- Gross margins allow comparison to be made of the relative profitability of alternative cropping options that have similar land, machinery and equipment requirements.
- They indicate the costs of production of alternative enterprises, which helps with farm management decisions.
- They can be used to analyse the performance of individual enterprises and may indicate areas where possible improvements can be made.

2.3 Limitations of gross margins

Gross margins may be a reasonable measure of the relative profitability of enterprises that make similar demands on farm resources. If major changes in enterprise mix are being considered, more comprehensive budgeting techniques are required to indicate the real profitability situation. When making relative gross margin comparisons between enterprises the resources used by them must be considered. For example, important to not only compare enterprises on a gross margin per hectare basis but also consider gross margin per unit of labour or per $100 capital.

2.4 Explanation of the Gross Margin format

Spacing (metres) – Describes the spacing between rows and between plants within rows as recommended in the MPI Crop Farmer's Guide and listed in the 2009 National Agriculture Census Report.

Planting density (plants/ha) – Based on the recommended spacings, planting densities are easily calculated; the greater spacings the fewer plants per hectare.

Yield range – This gives the average high and low end of anticipated yields (kgs) given best practice production inputs. The extremes reflect environmental influences, particularly climate rather than management factors. With the exception of wetland rice, irrigation is not an input for all crops, i.e. are rain-fed. The yields are derived from the MPI Crop Farmer's Guide and have been reduced by 10-15% for wastage.

Average price ($/kg) – Market prices for each commodity were determined by averaging data from markets for four weeks in September 2012 using the 'Daily Average Fiji Market Prices' weekly publication. The September data was then compared to the 2012 commodity average price list prepared by MAFF for which there was a good correlation. Seasonal extremes are recognised and should be considered, e.g. prices for capsicum - $11.09, $6.94; English cabbage - $3.78, $1.36; lettuce - $11.43, $3.94; and tomato - $4.01, $1.98; for January and September 2012 respectively.

Income – The per hectare income (sales) from a crop is the on-farm price ($/kg or tonne) received per unit sold multiplied by the number of units (quantity) produced per hectare. Market prices can vary significantly during a season, generally decreasing as supply increases, and vice versa. When using the gross margin as a predictor an attempt should be made to estimate if the harvest coincides with a peak or a trough in supply.

Direct costs

This section examines all expenses incurred from initial land preparation through to harvesting and packaging. The direct costs examined include:

- **Land preparation** – This includes the use of all machinery operations, including ploughing, harrowing, rotovating, furrowing, etc. The number of times for each operation is multiplied by the cost per hectare (inclusive of plant, labour, fuel, etc.).
- **Planting materials** – Describes the number and nature of materials used for propagation, e.g. sucker, seed, grafted plant, etc.
- **Fertiliser** – Included here are the recommended basal and/or side dressings and other foliar applications expressed as cost per unit, e.g. 40 kg bag @ $85. Products and prices are given in Appendix 1.
- **Pest control** – The recommended insecticide, fungicide and herbicide applications expressed as unit cost, e.g. 10litres @ $20. Products and prices are given in Appendix 1.
- **Harvesting and packaging expenses** – The harvesting and packaging costs are calculated on a per packaging unit basis then multiplied by the number of units per hectare.
- **Transportation** – This covers the transport of product from farm to market whether to processing factory, Heat Treatment Plant, domestic market, etc. It takes into account the number of harvests, the nature of the product and is calculated on X cents per kg basis.
- **Labour** – For Fijian farm businesses, the farmer and other family members provide all or a large part of the labour and do not generally receive a cash wage and the value of family labour is often overlooked. The amount of labour required to produce a crop may well influence the decision as to whether to grow that crop. For these crop gross margins both family and hired labour is included as if all were hired and costed at a daily rate of $20/day.

Sensitivity tables

Sensitivity tables are used to predict the effects fluctuating market prices or farm yields may have on the gross margin ($/ha). The figures used in Table 2 are examples only.

Table 2: Sensitivity table – Revenue ($/ha) when prices/yields change

Price ($/kg)					
Revenue ($/ha)			Low	Medium	High
			$4	$8	$12
Yield (kg/ha)	Low	1,000 kg/ha	4,000	8,000	12,000
	Medium	1500 kg/ha	6,000	12,000	18,000
	High	2000 kg/ha	8,000	16,000	24,000

Break even analysis can be used to determine what minimum level of output (yield) must be achieved to 'break even' given average market prices. Sensitivity tables should be used to test the impact of a good or bad year by comparing different yields and prices.

A sensitivity analysis is carried out after calculating the gross margin, to see how any change in key variables, such as yield and price, will change the gross margin. The sensitivity analysis allows the farmer and the adviser to assess the financial impact of something going wrong, and therefore the risks to the farm business.

Gross Margin Budget for AVOCADO *(Persia Americana)*

1 ASSUMPTIONS			
Spacing (m)	9 x 9	Planting density (pl/ha)	123
Yield Range (kgs)	8,000 - 10,000	Average price ($/kg)	$2.30

2 INCOME ($)	*Years*	1	2-5	6	7	8	9	10	Total ($) 10 years
Sales (kg/ha)		0	0	2,000	4,000	6,000	8,000	10,000	
Price ($/kg)		0.00	0.00	2.30	2.30	2.30	2.30	2.30	
Total Income		**$0**	**$0**	**$4,600**	**$9,200**	**$13,800**	**$18,400**	**$23,000**	**$69,000**

3 DIRECT COSTS ($)								
Land Preparation								
Ploughing	112	0	0	0	0	0	0	$112
Harrowing	84	0	0	0	0	0	0	$84
Digging holes (123)	246	0	0	0	0	0	0	$246
Planting Materials								
Plants (@ $1)	123	0	0	0	0	0	0	$123
Fertilisers								
NPK (13:13:21)	94	94	375	375	375	375	375	$2,344
Herbicide								
Agazone	10.16	10.16	10.16	10.16	10.16	10.16	10.16	$102
Fungicide								
Sundomil	74.56	74.56	149.12	149.12	149.12	149.12	149.12	$1,118
Transportation								
@ 10¢/kg	0	0	200	400	600	800	1,000	$3,000
Total Variable Costs								**$7,128**

4 LABOUR INPUTS (person days)								
Description								
Slashing	0	8	8	8	8	8	8	
Planting	1	0	0	0	0	0	0	
Fertiliser application	2	2	4	4	4	4	4	
Spraying	0	2	3	3	3	3	3	
Pruning	0	0	0	3	3	3	3	
Harvesting	0	0	3	6	9	9	12	
Total Days	**3**	**48**	**18**	**24**	**27**	**27**	**30**	**177**
Total Labour Cost @ $20/day	**$60**	**$960**	**$360**	**$480**	**$540**	**$540**	**$600**	**$3,540**
Total Cost								**$10,668**
Gross Margin per hectare								**$58,332**
Return per Labour Inputs								**$329.56**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Avocado - yield (kg/ha)	Price ($/kg)		
	2.00	2.30	2.60
8,000	16,000	18,400	20,800
9,000	18,000	20,700	23,400
10,000	20,000	23,000	26,000

Gross Margin Budget for BANANA *(Musa sapientum)*

1 ASSUMPTIONS			
Spacing (m)	3 x 2	Planting density (pl/ha)	1,650
Yield Range (kgs)	20,000 - 30,000	Average price ($/kg)	$1.40

2 INCOME ($)	*Years*	1	2	3	4	Total ($)
Sales (kg)		20,000	30,000	30,000	20,000	
Price ($/kg)		1.40	1.40	1.40	1.40	
Total Income (p.a.)		**$28,000**	**$42,000**	**$42,000**	**$28,000**	**$140,000**

3 DIRECT COSTS ($)					
Land Preparation					
Ploughing	224.00	0.00	0.00	0.00	$224.00
Harrowing	84.00	0.00	0.00	0.00	$84.00
Planting Materials					
1,650 suckers (@ $0.15)	247.50	0.00	0.00	0.00	$247.50
Fertilisers					
NPK (13:13:21)	773.36	888.91	888.91	888.91	$3,440.10
Borax	618.36	412.24	412.24	412.24	$1,855.08
Herbicide					
Agazone	304.71	203.14	203.14	203.14	$914.13
Pest and Disease Control					
Punch	275.64	344.55	344.55	344.55	$1,309.29
Rogor	49.13	65.50	65.50	65.50	$245.63
Misting Oil	270.00	300.00	300.00	300.00	$1,170.00
Other					
Propping Sticks (@ 30¢)	105.00	105.00	105.00	105.00	$420.00
Transportation					
@ 10¢kg	2,000.00	3,000.00	3,000.00	2,000.00	$10,000.00
Total Variable Costs					**$19,909.72**

4 LABOUR INPUTS (person days)					
Description					
Preparing planting materials	12	0	0	0	
Planting/replanting	25	0.5	0	0	
Fertiliser application	5	5	5	5	
Weeding	13	13	13	11	
Propping	8	8	8	8	
Harvesting	25	35	35	25	
Total Days	**88**	**61.5**	**61**	**49**	**260**
Total Labour Cost @ $20/day	**$1,760**	**$1,230**	**$1,220**	**$980**	**$5,190**
Total Cost					**$25,099.72**
Gross Margin per hectare					**$114,900.28**
Return per Labour Inputs					**$442.78**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Banana - yield (kg/ha)	Price ($/kg)		
	1.00	1.40	1.80
20,000	20,000	28,000	36,000
25,000	25,000	35,000	45,000
30,000	30,000	42,000	54,000

Gross Margin Budget for BREADFRUIT *(Artocarpus altilis)*

1 ASSUMPTIONS			
Spacing (m)	12 x 12	Planting density (pl/ha)	70
Yield Range (kgs)	20,000 - 40,000	Average price ($/kg)	$0.75

2 INCOME ($)	*Years*	1	2-4	5	6	7	8+	Total ($)
Sales (kg)		0	0	3,327	6,655	9,982	13,310	
Price ($/kg)		0	0	0.75	0.75	0.75	0.75	
Total Income		**$0**	**$0**	**$2,495**	**$4,991**	**$7,487**	**$9,983**	**$24,956**

3 DIRECT COSTS ($)							
Land Preparation							
Ploughing	112.00	0	0	0	0	0	$112.00
Harrowing	84.00	0	0	0	0	0	$84.00
Digging holes (70)	140.00	0	0	0	0	0	$140.00
Planting Materials							
Plants (@ 50¢)	35.00	0	0	0	0	0	$35.00
Fertilisers							
NPK (13:13:21)	468.70	468.70	468.70	468.70	468.70	468.70	$3,749.60
Herbicide							
Agazone	10.16	10.16	10.16	10.16	10.16	10.16	$81.26
***Pest and Disease Control**							
Transportation							
Load (@ 10¢)	0.00	0.00	332.70	665.50	998.20	1,331.00	$3,327.40

* Spray Protein bait each week for 7 weeks pre export

Total Variable Costs	**$7,529.26**

4 LABOUR INPUTS (person days)							
Description							
Planting	2	0	0	0	0	0	
Fertiliser application	2	2	2	2	2	2	
Spraying	2	2	2	2	2	2	
Total Labour Days	**6**	**12**	**4**	**4**	**4**	**4**	**34**
Total Labour Cost @ $20/day	**120**	**240**	**80**	**80**	**80**	**80**	**$680**
Total Cost							**$8,209**
Gross Margin per hectare							**$16,746**
Return per Labour Inputs							**$492.54**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Breadfruit - yield (kg/ha)	Price ($/kg)		
	0.65	0.75	0.85
20,000	13,000	15,000	17,000
30,000	19,500	22,500	25,500
40,000	26,000	30,000	34,000

Gross Margin Budget for CAPSICUM *(Capsicum grossum)*

1 ASSUMPTIONS			
Spacing (m)	1 x 0.5	Planting density (pl/ha)	20,000
Yield Range (kgs)	8,000 - 12,000	Average price ($/kg)	$7.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	10,000	kg	7.00	70,000
Total Income				**$70,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Planting Materials				
Seed (300g)	0.3	kg	12.00	$3.60
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	10	t	75.00	$750.00
Fungicide				
Benlate	15	100g	5.91	$88.65
Insecticide				
Rogor	3	ℓ	32.75	$98.25
Malathion	3	5ℓ	150.00	$450.00
Transportation	10,000	kg	0.15	$1,500.00
Total Variable Costs				**$4,208.58**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	20	20.00	$400.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	20	20.00	$400.00
Spraying	"	12	20.00	$240.00
Harvesting	"	30	20.00	$600.00
Total Labour Cost @ $20/day		**92**		**$1,840.00**
Total Cost				**$6,048.58**
Gross Margin per hectare				**$63,951.43**
Return per Labour Inputs				**$695.12**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Capsicum - yield (kg/ha)	Price ($/kg)		
	6.00	7.00	8.00
8,000	48,000	56,000	64,000
10,000	60,000	70,000	80,000
12,000	72,000	84,000	96,000

Gross Margin Budget for CARROT *(Daucus carota)*

1 ASSUMPTIONS			
Spacing (m)	0.2 x 0.3	Planting density (pl/ha)	166,000
Yield Range (kgs)	10,000 - 15,000	Average price ($/kg)	$3.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	12,500	kg	3.00	37,500
Total Income				**$37,500**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Planting Materials				
Seed (4kg)	4	kg	40.00	$160.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	10	t	75.00	$750.00
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Fungicide				
Sundomil	1	0.5kg	18.64	$18.64
Insecticide				
Rogor	2	ℓ	32.75	$65.50
Transportation	12,500	kg	0.10	$1,250.00
Total Variable Costs				**$3,543.79**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	30	20.00	$600.00
Fertiliser application	"	10	20.00	$200.00
Spraying	"	20	20.00	$400.00
Weeding	"	30	20.00	$600.00
Harvesting/bagging/transport	"	45	20.00	$900.00
Total Labour Cost @ $20/day		**135**		**$2,700.00**
Total Cost				**$6,243.79**
Gross Margin per hectare				**$31,256.22**
Return per Labour Inputs				**$231.53**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Carrot - yield (kg/ha)	Price ($/kg)		
	2.50	3.00	3.50
10,000	25,000	30,000	35,000
12,500	31,250	37,500	43,750
15,000	37,500	45,000	52,500

Gross Margin Budget for CASSAVA *(Manihot esculenta)*

1 ASSUMPTIONS			
Spacing (m)	1 x 0.5	Planting density (pl/ha)	6,800
Yield Range (kgs)	15,000 - 25,000	* Average price ($/kg)	$0.80

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	20,000	kg	0.80	16,000
Total Income				**$16,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Ridging	1	ha	42.00	$42.00
Planting Materials				
Cuttings	6,800	cutting	0.10	$680.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Transportation	20,000	kg	0.02	$400.00
Total Variable Costs				**$2,421.65**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Preparing planting material	days	8	20.00	$160.00
Planting	"	12	20.00	$240.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	20	20.00	$400.00
Spraying	"	20	20.00	$400.00
Harvesting	"	40	20.00	$800.00
Total Labour Cost @ $20/day		**110**		**$2,200.00**
Total Cost				**$4,621.65**
Gross Margin per hectare				**$11,378.36**
Return per Labour Inputs				**$103.44**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Cassava - yield (kg/ha)	Price ($/kg)		
	0.70	0.80	0.90
15,000	10,500	12,000	13,500
20,000	14,000	16,000	18,000
25,000	17,500	20,000	22,500

* **Export price 2012 - Farm gate price $0.90 - $1.00**

Gross Margin Budget for CAULIFLOWER *(Brassica oleracea botrytis)*

1 ASSUMPTIONS			
Spacing (m)	0.75 x 0.4	Planting density (pl/ha)	33,000
Yield Range (kgs)	9,000 - 11,000	Average price ($/kg)	$3.30

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	9,000	kg	3.30	29,700
Total Income				**$29,700**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Planting Materials				
Seed (300g)	0.3	kg	75.00	$22.50
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	5	t	75.00	$375.00
Fungicide				
Sundomil	5	0.5kg	18.64	$93.20
Insecticide				
Steward	2.5	ℓ	348.63	$871.58
Transportation	9,000	kg	0.15	$1,350.00
Total Variable Costs				**$3,910.35**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	20	20.00	$400.00
Fertiliser application	"	10	20.00	$200.00
Spraying	"	15	20.00	$300.00
Weeding	"	20	20.00	$400.00
Harvesting	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**85**		**$1,700.00**
Total Cost				**$5,610.35**
Gross Margin per hectare				**$24,089.65**
Return per Labour Inputs				**$283.41**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Cauliflower - yield (kg/ha)	Price ($/kg)		
	3.00	3.30	3.60
9,000	27,000	29,700	32,400
10,000	30,000	33,000	36,000
11,000	33,000	36,300	39,600

Gross Margin Budget for CHILLIES *(Capsicum annuum)*

1 ASSUMPTIONS			
Spacing (m)	1 x 0.3	Planting density (pl/ha)	33,000
Yield Range (kgs)	4,000 - 5,000	Average price ($/kg)	$9.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales (dry seed)	4,500	kg	9.00	40,500
Total Income				**$40,500**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed (300g)	0.3	kg	75.00	$22.50
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	10	t	75.00	$750.00
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Fungicide				
Sundomil	5	0.5kg	18.64	$93.20
Insecticide				
Rogor	2	ℓ	32.75	$65.50
Sunthene	50	100g	5.66	$283.00
Transportation	4,500	kg	0.15	$675.00
Total Variable Costs				**$3,268.85**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	20	20.00	$400.00
Fertiliser application	"	10	20.00	$200.00
Spraying	"	20	20.00	$400.00
Weeding	"	20	20.00	$400.00
Harvesting	"	30	20.00	$600.00
Drying	"	10	20.00	$200.00
Bagging	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**130**		**$2,600.00**
Total Cost				**$5,868.85**
Gross Margin per hectare				**$34,631.16**
Return per Labour Inputs				**$266.39**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Chillies - yield (kg/ha)	Price ($/kg)		
	8.00	9.00	10.00
4,000	32,000	36,000	40,000
4,500	36,000	40,500	45,000
5,000	40,000	45,000	50,000

Gross Margin Budget for CHINESE CABBAGE *(Brassica chinensis)*

1 ASSUMPTIONS			
Spacing (m)	0.5 x 0.3	Planting density (pl/ha)	66,000
Yield Range(bundles)	9,000 - 12,000	Average price ($/bundle)	$1.20

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	10,500	bundle	1.20	12,600
Total Income				**$12,600**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Furrowing/ridging	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed (300g)	0.3	kg	75.00	$22.50
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	5	t	75.00	$375.00
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Insecticide				
Rogor	2.5	ℓ	32.75	$81.88
Diazinon	2.5	ℓ	57.34	$143.35
Transportation	10,000	kg	0.15	$1,500.00
Total Variable Costs				**$3,622.37**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	20	20.00	$400.00
Fertiliser application	"	10	20.00	$200.00
Spraying	"	10	20.00	$200.00
Weeding	"	30	20.00	$600.00
Harvesting	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**90**		**$1,800.00**
Total Cost				**$5,422.37**
Gross Margin per hectare				**$7,177.63**
Return per Labour Inputs				**$79.75**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Chinese Cabbage - yield (bundles/ha)	Price ($/bundle)		
	0.90	1.20	1.50
9,000	8,100	10,800	13,500
10,500	9,450	12,600	15,750
12,000	10,800	14,400	18,000

Gross Margin Budget for CITRUS *(Citrifolia sinensis)*

1 ASSUMPTIONS			
Spacing (m)	6 x 7	Planting density (pl/ha)	238
Yield Range (kgs)	20,000 - 30,000	Average price ($/kg)	$2.20

2 INCOME ($) *Years*	1	2-3	4	5	6	7	8	Total ($)
Sales (kg/ha)	0	0	10,000	15,000	20,000	25,000	25,000	
Price ($/kg)	0	0	2.20	2.20	2.20	2.20	2.20	
Total Income	**$0**	**$0**	**$22,000**	**$33,000**	**$44,000**	**$55,000**	**$55,000**	**$209,000**

3 DIRECT COSTS ($)								
Land Preparation								
Ploughing	224	0	0	0	0	0	0	$224
Harrowing	84	0	0	0	0	0	0	$84
Digging holes (238)	476	0	0	0	0	0	0	$476
Planting Materials								
Grafted plants (@ $1)	238	0	0	0	0	0	0	$238
Fertiliser								
NPK (16:16:16)	1,800	0	0	0	0	0	0	$1,800
NPK (13:13:21)	281	281	469	469	469	469	469	$3,187
Urea	135	135	135	135	135	135	135	$1,082
Herbicide								
Agazone	102	102	102	102	102	102	102	$813
Fungicide								
Kocide	492	492	655	655	655	655	655	$4,752
Transportation								
@ 10¢/kg	0	0	1,000	1,500	2,000	2,500	2,500	$9,500
Total Variable Costs								**$22,155**

4 LABOUR INPUTS (person days)								
Description								
Slashing	0	3	3	3	3	3	3	
Planting	5	0	0	0	0	0	0	
Fertiliser application	4	3	3	3	3	3	3	
Spraying	15	15	20	20	25	25	25	
Pruning	0	0	0	3	3	3	3	
Harvesting	0	0	3	5	6	7	7	
Bagging	0	0	5	7	9	11	11	
Total Days	**24**	**42**	**34**	**41**	**49**	**52**	**52**	**294**
Total Labour Cost @ $20/day	**$480**	**$840**	**$680**	**$820**	**$980**	**$1,040**	**$1,040**	**$5,880**
Total Cost								**$28,035**
Gross Margin per hectare								**$180,965**
Return per Labour Inputs								**$615.53**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Citrus - yield (kg/ha)	Price ($/kg)		
	1.80	2.20	2.60
20,000	36,000	44,000	52,000
25,000	45,000	55,000	65,000
30,000	54,000	66,000	78,000

Gross Margin Budget for COCONUT HYBRID *(Cocos nucifera)*

1 ASSUMPTIONS			
Spacing (m)	7 x 7	Planting density (pl/ha)	200
Yield Range (kgs)	5,500 - 6,500 (2-3 tonnes/ha)	Average price ($/kg)	$0.40

2 INCOME ($)	*Years*	1-3	4-10	11-15	16-44	45-60	Total ($) 60 years
Sales (kg/ha/p.a.)		0	1,410	2,820	6,360	1,410	
Price ($/kg)		0	0.40	0.40	0.40	0.40	
Total Income (p.a.)		**$0**	**$564**	**$1,128**	**$2,544**	**$564**	**$92,388**

3 DIRECT COSTS ($)						
Land Preparation						
Digging holes (200)	400.00	0	0	0	0	$400.00
Planting Materials						
Seed nuts (@ 20¢)	40	0	0	0	0	$40.00
Fertilisers						
Ammonium Sulphate	280.00	560.00	560.00	560.00	280.00	$28,280.00
Triple Superphosphate	1,008.40	0	0	0	0	$3,025.20
Herbicide						
Agazone	101.57	101.57	101.57	101.57	101.57	$6,094.20
Fungicide						
Sundomil	93.20	93.20	0	0	0	$932.00
Transportation						
@ 5¢/kg	0	75.00	150.00	300.00	75.00	$11,175.00
Total Variable Costs						**$49,946.40**

4 LABOUR INPUTS (person days)						
Description						
Planting/replanting	15	0	0	0	0	
Maintenance	7	3	0	0	0	
Weeding	4	4	4	4	4	
Spraying	5	5	3	3	3	
Harvesting	0	3	9	20	3	
Total Days	**93**	**105**	**80**	**783**	**160**	**1,221**
Total Labour Cost @ $20/day	**$1,860**	**$2,100**	**$1,600**	**$15,660**	**$3,200**	**$24,420**
Total Cost						**$74,366.40**
Gross Margin per hectare						**$18,021.60**
Return per Labour Inputs						**$14.76**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Coconut - yield (kg/ha) (Years 16-44)	Price ($/kg)		
	0.35	0.40	0.45
5,500	1,925	2,200	2,475
6,000	2,100	2,400	2,700
6,500	2,275	2,600	2,925

Gross Margin Budget for COFFEE *(Coffea Arabica)*

1 ASSUMPTIONS			
Spacing (m)	2 x 1.6	Planting density (pl/ha)	3,000
Yield Range (kgs)	3,750 - 5,000	Average price ($/kg)	$0.60

2 INCOME ($)	*Years*	1-2	3	4	5-7	8-10	Total ($) 10 years
Sales (kg/ha/p.a.)		0	2,500	3,750	5,000	5,000	
Price ($/kg)		0	0.60	0.60	0.60	0.60	
Total Income (p.a.)		**$0**	**$1,500**	**$2,250**	**$3,000**	**$3,000**	**$21,750**

3 DIRECT COSTS ($)						
Land Preparation						
Ploughing	224.00	0	0	0	0	$448.00
Harrowing	84.00	0	0	0	0	$168.00
Planting Materials						
Grafted cuttings (@50¢)	1,500.00	0	0	0	0	$1,500.00
Fertilisers						
NPK (13:13:21)	468.70	468.70	468.70	468.70	468.70	$4,687.00
Triple Superphosphate	50.42	0	0	0	0	$100.84
Herbicide						
Agazone	101.57	101.57	101.57	101.57	101.57	$1,015.70
Fungicide						
Benlate (100g @ $5.91)	29.55	29.55	29.55	29.55	59.10	$384.15
Transportation						
@ 10¢/kg	0	250.00	375.00	500.00	500.00	$3,625.00
Total Variable Costs						**$11,928.69**

4 LABOUR INPUTS (person days)						
Description						
Digging holes and planting	31	0	0	0	0	
Mulching	2	2	2	2	2	
Fertilising	5	5	7	7	7	
Weeding	17	17	17	9	9	
Pruning	0	10	20	20	20	
Spraying	4	4	5	5	5	
Harvesting	0	40	60	80	80	
Total Days	**118**	**78**	**111**	**369**	**369**	**1,045**
Total Labour Cost @ $20/day	**$2,360**	**$1,560**	**$2,220**	**$7,380**	**$7,380**	**$20,900**
Total Cost						**$32,828.69**
Gross Margin per hectare						**-$11,078.69**
Return per Labour Inputs						**-$10.60**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Coffee - yield (kg/ha)	Price ($/kg)		
	0.55	0.60	0.65
3,750	2,063	2,250	2,438
4,375	2,406	2,625	2,844
5,000	2,750	3,000	3,250

Gross Margin Budget for COWPEA *(Vigna uguicalata)*

1 ASSUMPTIONS			
Spacing (m)	0.65 x 0.2	Planting density (pl/ha)	77,000
Yield Range (kgs)	1,650 - 1,950 (dry seed)	Average price ($/kg)	$4.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales (dry seed)	1,800	kg	4.00	7,200
Total Income				**$7,200**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed (25kg)	25	kg	7.00	$175.00
Fertilisers				
Blend A+B	5	40kg bag	65.00	$325.00
Bio Brew	0.3	20ℓ	200.00	$60.00
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Fungicide				
Benlate	5	100g	5.91	$29.55
Transportation	1,800	kg	0.20	$360.00
Total Variable Costs				**$1,755.12**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	25	20.00	$500.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	20	20.00	$400.00
Spraying	"	8	20.00	$160.00
Windwing	"	10	20.00	$200.00
Drying	"	10	20.00	$200.00
Bagging	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**103**		**$2,060.00**
Total Cost				**$3,815.12**
Gross Margin per hectare				**$3,384.88**
Return per Labour Inputs				**$32.86**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Cowpea - yield (kg/ha)	Price ($/kg)		
	3.50	4.00	4.50
1,650	5,775	6,600	7,425
1,800	6,300	7,200	8,100
1,950	6,825	7,800	8,775

Gross Margin Budget for CUCUMBER *(Cucumis sativas)*

1 ASSUMPTIONS			
Spacing (m)	1 x 0.3	Planting density (pl/ha)	33,000
Yield Range (kgs)	10,000 - 13,000	Average price ($/kg)	$1.60

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	11,500	kg	1.60	18,400
Total Income				**$18,400**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed	2	kg	15.00	$30.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	5	t	75.00	$375.00
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Fungicide				
Benlate	5	100g	5.91	$29.55
Kocide	4	0.5kg	32.77	$131.08
Insecticide				
Rogor	2	ℓ	32.75	$65.50
Transportation	11,500	kg	0.15	$1,725.00
Total Variable Costs				**$3,855.78**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	25	20.00	$500.00
Fertiliser application	"	15	20.00	$300.00
Weeding	"	20	20.00	$400.00
Spraying	"	10	20.00	$200.00
Harvesting	"	80	20.00	$1,600.00
Bagging	"	10	20.00	$200.00
Total Labour Cost @ $20/day		**160**		**$3,200.00**
Total Cost				**$7,055.78**
Gross Margin per hectare				**$11,344.23**
Return per Labour Inputs				**$70.90**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Cucumber - yield (kg/ha)	Price ($/kg)		
	1.40	1.60	2.00
10,000	14,000	16,000	20,000
11,500	16,100	18,400	23,000
13,000	18,200	20,800	26,000

Gross Margin Budget for DALO *(Colocasia esculenta)*

1 ASSUMPTIONS			
Spacing (m)	I x 1 (traditional)	Planting density (pl/ha)	10,000
Yield Range (kgs)	12,000 - 20,000	* Average price ($/kg)	$1.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	16,000	kg	1.00	16,000
Total Income				**$16,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Ridging	1	ha	42.00	$42.00
Planting Materials				
Suckers	10,000	sucker	0.15	$1,500.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Triple Superphosphate	0.6	40kg bag	100.84	$60.50
Urea	5	40kg bag	90.15	$450.75
Poultry Manure	10	t	75.00	$750.00
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Transportation	10,000	kg	0.05	$500.00
Total Variable Costs				**$4,377.52**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Preparing planting material	days	7	20.00	$140.00
Planting	"	25	20.00	$500.00
Fertiliser application	"	30.0	20.00	$600.00
Spraying	"	15	20.00	$300.00
Harvesting	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**97**		**$1,940.00**
Total Cost				**$6,317.52**
Gross Margin per hectare				**$9,682.48**
Return per Labour Inputs				**$99.82**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Dalo - yield (kg/ha)	Price ($/kg)		
	0.85	1.00	1.15
12,000	10,200	12,000	13,800
16,000	13,600	16,000	18,400
20,000	17,000	20,000	23,000

* **Export price 2012 - Farm gate price $1.00 - $1.20**

Gross Margin Budget for DALO-NI-TANA *(Xanthosoma saggitifolium)*

1 ASSUMPTIONS			
Spacing (m)	1 x 1	Planting density (pl/ha)	10,000
Yield Range (kgs)	15,000 - 20,000	Average price ($/kg)	$1.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	17,500	kg	1.00	17,500
Total Income				**$17,500**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Ridging	1	ha	42.00	$42.00
Planting Materials				
Suckers	10,000	sucker	0.15	$1,500.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Triple Superphosphate	0.6	40kg bag	100.84	$60.50
Urea	5	40kg bag	90.15	$450.75
Poultry Manure	10	t	75.00	$750.00
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Transportation	17,500	kg	0.05	$875.00
Total Variable Costs				**$4,752.52**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Preparing planting material	days	7	20.00	$140.00
Planting	"	25	20.00	$500.00
Fertiliser application	"	30	20.00	$600.00
Spraying	"	15	20.00	$300.00
Harvesting	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**97**		**$1,940.00**
Total Cost				**$6,692.52**
Gross Margin per hectare				**$10,807.48**
Return per Labour Inputs				**$111.42**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Dalo-ni-Tana - yield (kg/ha)	Price ($/kg)		
	0.80	1.00	1.20
15,000	12,000	15,000	18,000
17,500	14,000	17,500	21,000
20,000	16,000	20,000	24,000

Gross Margin Budget for EGGPLANT *(Solanum melongena)*

1 ASSUMPTIONS			
Spacing (m)	1 x 0.3	Planting density (pl/ha)	30,000
Yield Range (kgs)	20,000 - 25,000	* Average price ($/kg)	$1.30

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	22,500	kg	1.30	29,250
Total Income				**$29,250**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed	0.3	kg	300.00	$90.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	3	40kg bag	90.15	$270.45
Poultry Manure	10	t	75.00	$750.00
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Fungicide				
Kocide	4	0.5kg	32.77	$131.08
Insecticide				
Malathion	2.5	5ℓ	150.00	$375.00
Sunclorprid	2	ℓ	34.17	$68.34
Transportation	18,000	kg	0.10	$1,800.00
Total Variable Costs				**$4,759.14**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	20	20.00	$400.00
Fertiliser application	"	15	20.00	$300.00
Weeding	"	30	20.00	$600.00
Spraying	"	15	20.00	$300.00
Harvesting	"	35	20.00	$700.00
Total Labour Cost @ $20/day		**115**		**$2,300.00**
Total Cost				**$7,059.14**
Gross Margin per hectare				**$22,190.86**
Return per Labour Inputs				**$192.96**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Eggplant - yield (kg/ha)	Price ($/kg)		
	1.00	1.30	1.60
20,000	20,000	26,000	32,000
22,500	22,500	29,250	36,000
25,000	25,000	32,500	40,000

* **Export price 2012 - Farm gate price $1.00 - $1.30**

Gross Margin Budget for ENGLISH CABBAGE *(Brassica oleracea)*

1 ASSUMPTIONS			
Spacing (m)	0.75 x 0.5	Planting density (pl/ha)	26,000
Yield Range (kgs)	15,000 - 20,000	Average price ($/kg)	$1.50

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	17,500	kg	1.50	26,250
Total Income				**$26,250**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Furrowing/ridging	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed	15	20g pkt	0.50	$7.50
Fertilisers				
NPK (13:13:21)	3	40kg bag	93.74	$281.22
Urea	2	40kg bag	90.15	$180.30
Poultry Manure	5	t	75.00	$375.00
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Fungicide				
Sundomil	4	0.5kg	18.64	$74.56
Insecticide				
Steward	2	ℓ	348.63	$697.26
Transportation	20,000	kg	0.10	$2,000.00
Total Variable Costs				**$4,421.41**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	20	20.00	$400.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	20	20.00	$400.00
Spraying	"	10	20.00	$200.00
Harvesting	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**80**		**$1,600.00**
Total Cost				**$6,021.41**
Gross Margin per hectare				**$20,228.59**
Return per Labour Inputs				**$252.86**

5 GROSS MARGIN SENSITIVITY ANALYSIS

English Cabbage - yield (kg/ha)	Price ($/kg)		
	1.00	1.50	2.00
15,000	15,000	22,500	30,000
17,500	17,500	26,250	35,000
20,000	20,000	30,000	40,000

Gross Margin Budget for FRENCH BEAN *(Phaseolus vulgaris)*

1 ASSUMPTIONS			
Spacing (m)	0.5 x 0.2	Planting density (pl/ha)	30,000
Yield Range (kgs)	7,000 - 10,000	Average price ($/kg)	$2.50

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	8,500	kg	2.50	21,250
Total Income				**$21,250**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Planting Materials				
Seed	45	kg	15.00	$675.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	10	t	75.00	$750.00
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Fungicide				
Benlate	5	100g	5.91	$29.55
Insecticide				
Rogor	2	ℓ	32.75	$65.50
Transportation	8,500	kg	0.10	$850.00
Total Variable Costs				**$3,789.70**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	30	20.00	$600.00
Fertiliser application	"	15	20.00	$300.00
Weeding	"	30	20.00	$600.00
Spraying	"	15	20.00	$300.00
Harvesting	"	60	20.00	$1,200.00
Total Labour Cost @ $20/day		**150**		**$3,000.00**
Total Cost				**$6,789.70**
Gross Margin per hectare				**$14,460.31**
Return per Labour Inputs				**$96.40**

5 GROSS MARGIN SENSITIVITY ANALYSIS

French Bean - yield (kg/ha)	Price ($/kg)		
	2.00	2.50	3.00
7,000	14,000	17,500	21,000
8,500	17,000	21,250	25,500
10,000	20,000	25,000	30,000

Gross Margin Budget for GARLIC *(Allium sativum)*

1 ASSUMPTIONS			
Spacing (m)	0.75 x 0.2	Planting density (pl/ha)	30,000
Yield Range (kgs)	2,000 - 3,000	Average price ($/kg)	$10.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	2,500	kg	10.00	25,000
Total Income				**$25,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Furrowing/ridging	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Corms	150	kg	10.00	$1,500.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	12	t	75.00	$900.00
Herbicide				
Atrazine	10	ℓ	19.32	$193.20
Insecticide				
Sunclorprid	3	ℓ	34.17	$102.51
Rogor	4	ℓ	32.75	$131.00
Transportation	2,500	kg	0.15	$375.00
Total Variable Costs				**$4,599.79**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	20	20.00	$400.00
Fertiliser application	"	15	20.00	$300.00
Spraying	"	15	20.00	$300.00
Harvesting	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**70**		**$1,400.00**
Total Cost				**$5,999.79**
Gross Margin per hectare				**$19,000.22**
Return per Labour Inputs				**$271.43**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Garlic - yield (kg/ha)	Price ($/kg)		
	8.00	10.00	12.00
2,000	16,000	20,000	24,000
2,500	20,000	25,000	30,000
3,000	24,000	30,000	36,000

Gross Margin for IMMATURE GINGER *(Zingiber officinale)*

1 ASSUMPTIONS			
Spacing (m)	0.6 x 0.15	Planting density (pl/ha)	100,000
Yield Range (kgs)	20,000 - 25,000	Average price ($/kg)	$2.50

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	22,500	kg	2.50	56,250
Total Income				**$56,250**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Ridging	1	ha	42.00	$42.00
Planting Materials				
Rhizome	7,500	kg	1.50	$11,250.00
Fertilisers				
NPK (13:13:21)	25	40kg bag	93.74	$2,343.50
Urea	7.5	40kg bag	90.15	$676.13
Poultry Manure	10	t	75.00	$750.00
Herbicide				
Atrazine	5	ℓ	19.32	$96.60
Fungicide				
* Sundomil	1	0.5kg	18.64	$18.64
Insecticide				
* Diazinon	2	ℓ	57.34	$114.68
Transportation	22,500	kg	0.05	$1,125.00
* Dipping rhizomes				
Total Variable Costs				**$16,920.55**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Preparing planting materials	days	60	20.00	$1,200.00
Planting	"	60	20.00	$1,200.00
1st hilling	"	15	20.00	$300.00
2nd hilling	"	15	20.00	$300.00
Harvesting/washing	"	60	20.00	$1,200.00
Total Labour Cost @ $20/day		**210**		**$4,200.00**
Total Cost				**$21,120.55**
Gross Margin per hectare				**$35,129.46**
Return per Labour Inputs				**$167.28**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Immature Ginger - yield (kg/ha)	Price ($/kg)		
	2.00	2.50	3.00
20,000	40,000	50,000	60,000
22,500	45,000	56,250	67,500
25,000	50,000	62,500	75,000

Gross Margin for MATURE GINGER *(Zingiber officinale)*

1 ASSUMPTIONS			
Spacing (m)	0.9 x 0.2	Planting density (pl/ha)	100,000
Yield Range (kgs)	25,000 - 30,000	* Average price ($/kg)	$2.40

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	27,500	kg	2.40	66,000
Total Income				**$66,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Ridging	1	ha	42.00	$42.00
Planting Materials				
Rhizome	5,000	kg	1.50	$7,500.00
Fertilisers				
NPK (13:13:21)	25	40kg bag	93.74	$2,343.50
Urea	7.5	40kg bag	90.15	$676.13
Poultry Manure	10	t	75.00	$750.00
Herbicide				
Atrazine	5	ℓ	19.32	$96.60
Fungicide				
[1] Sundomil	1	0.5kg	18.64	$18.64
Insecticide				
[1] Diazinon	2	ℓ	57.34	$114.68
Transportation	27,500	kg	0.05	$1,375.00
[1] Dipping rhizomes				
Total Variable Costs				**$13,420.55**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Preparing planting materials	days	60	20.00	$1,200.00
Planting	"	60	20.00	$1,200.00
1st hilling	"	15	20.00	$300.00
2nd hilling	"	15	20.00	$300.00
Harvesting/washing	"	60	20.00	$1,200.00
Total Labour Cost @ $20/day		**210**		**$4,200.00**
Total Cost				**$17,620.55**
Gross Margin per hectare				**$48,379.46**
Return per Labour Inputs				**$230.38**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Mature Ginger - yield (kg/ha)	Price ($/kg)		
	2.00	2.40	2.80
25,000	50,000	60,000	70,000
27,500	55,000	66,000	77,000
30,000	60,000	72,000	84,000

* **Export price 2012 - Farm gate price $2.00 - $3.00**

Gross Margin Budget for GOURD *(Family Cucurbitaceae)*

1 ASSUMPTIONS			
Spacing (m)	1 x 0.3	Planting density (pl/ha)	33,000
Yield Range (kgs)	10,000 - 12,000	Average price ($/kg)	$1.90

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	11,000	kg	1.90	20,900
Total Income				**$20,900**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Ridging	1	ha	42.00	$42.00
Planting Materials				
Seed	6	kg	15.00	$90.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	5	t	75.00	$375.00
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Insecticide				
Malathion	2	5ℓ	150.00	$300.00
Rogor	5	ℓ	32.75	$163.75
Transportation	10,000	kg	0.10	$1,000.00
Total Variable Costs				**$3,390.40**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	13	20.00	$260.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	15	20.00	$300.00
Spraying	"	15	20.00	$300.00
Harvesting	"	18	20.00	$360.00
Processing/packing	"	7	20.00	$140.00
Total Labour Cost @ $20/day		**78**		**$1,560.00**
Total Cost				**$4,950.40**
Gross Margin per hectare				**$15,949.61**
Return per Labour Inputs				**$204.48**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Gourd - yield (kg/ha)	Price ($/kg)		
	1.70	1.90	2.10
10,000	17,000	19,000	21,000
11,000	18,700	20,900	23,100
12,000	20,400	22,800	25,200

Gross Margin Budget for KAWAI *(Dioscorea esculenta)*

1 ASSUMPTIONS			
Spacing (m)	1 x 1	Planting density (pl/ha)	10,000
Yield Range (kgs)	8,000 - 10,000 (traditional)	Average price ($/kg)	$1.50

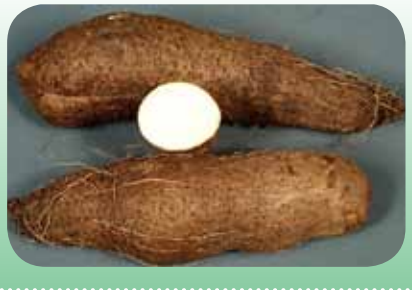
2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	9,000	kg	1.50	13,500
Total Income				**$13,500**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Ripping	1	ha	120.00	$120.00
Planting Materials				
Tuber	4,000	kg	2.00	$8,000.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	5	40kg bag	90.15	$450.75
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Atrazine	10	ℓ	19.32	$193.20
Fungicide				
Benlate	5	100g	5.91	$29.55
Transportation	9,000	kg	0.10	$900.00
Total Variable Costs				**$10,767.77**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Preparing planting material	days	7	20.00	$140.00
Digging holes	"	40	20.00	$800.00
Planting	"	25	20.00	$500.00
Weeding	"	40	20.00	$800.00
Spraying	"	20	20.00	$400.00
Harvesting	"	50	20.00	$1,000.00
Total Labour Cost @ $20/day		**182**		**$3,640.00**
Total Cost				**$14,407.77**
Gross Margin per hectare				**-$907.77**
Return per Labour Inputs				**-$4.99**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Kawai - yield (kg/ha)	Price ($/kg)		
	1.25	1.50	1.75
8,000	10,000	12,000	14,000
9,000	11,250	13,500	15,750
10,000	12,500	15,000	17,500



Gross Margin Budget for KUMALA *(Ipomoea batatas)*

1 ASSUMPTIONS			
Spacing (m)	1 x 0.5 (Mechanised)	Planting density (pl/ha)	20,000
Yield Range (kgs)	15,000 - 20,000	Average price ($/kg)	$1.50

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	17,500	kg	1.50	26,250
Total Income				**$26,250**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Ridging	1	ha	42.00	$42.00
Planting Materials				
Tuber cutting	20,000	kg	0.10	$2,000.00
Fertilisers				
NPK (13:13:21)	2.5	40kg bag	93.74	$234.35
Urea	2.5	40kg bag	90.15	$225.38
Herbicide				
Agazone	1	10ℓ	101.57	$101.57
Insecticide				
Malathion	2	5ℓ	150.00	$300.00
Transportation	15,000	kg	0.05	$750.00
Total Variable Costs				**$4,157.30**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Preparing planting material	days	6	20.00	$120.00
Planting	"	18	20.00	$360.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	30	20.00	$600.00
Mounting	"	13	20.00	$260.00
Spraying	"	8	20.00	$160.00
Harvesting	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**105**		**$2,100.00**
Total Cost				**$6,257.30**
Gross Margin per hectare				**$19,992.71**
Return per Labour Inputs				**$190.41**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Kumala - yield (kg/ha)	Price ($/kg)		
	1.10	1.50	1.90
15,000	16,500	22,500	28,500
17,500	19,250	26,250	33,250
20,000	22,000	30,000	38,000

Gross Margin Budget for KURA *(Noni), Morinda citrifolia)*

1 ASSUMPTIONS			
Spacing (m)	4 x 4	Planting density (pl/ha)	625
Yield Range (kgs)	32,000 - 48,000 (opt. management)	Average price ($/kg)	$1.00

2 INCOME ($)	*Years*	1	2-4	5	6	7	8	Total ($)
Sales (kg/ha)		0	0	10,000	20,000	30,000	40,000	
Price ($/kg)		0	0	1.00	1.00	1.00	1.00	
Total Income		**$0**	**$0**	**$10,000**	**$20,000**	**$30,000**	**$40,000**	**$100,000**

3 DIRECT COSTS ($)							
Land Preparation							
Ploughing	336.00	0	0	0	0	0	$336.00
Harrowing	168.00	0	0	0	0	0	$168.00
Digging holes (625)	1,250.00	0	0	0	0	0	$1,250.00
Planting Materials							
Seedlings (625 @ 50¢)	312.50	0	0	0	0	0	$312.50
Fertilisers							
NPK (13:13:21)	187.48	187.48	187.48	374.96	374.96	374.96	$2,062.28
Urea	180.30	180.30	180.30	360.60	360.60	360.60	$1,983.30
Transportation							
@ 10¢/kg	0	0	1,000	2,000	3,000	4,000	$10,000.00
Total Variable Costs							**$16,112.08**

4 LABOUR INPUTS (person days)							
Description							
Planting	3	0	0	0	0	0	
Fertiliser application	3	3	3	5	5	5	
Slashing	0	15	15	15	15	15	
Pruning	0	0	3	3	3	3	
Harvesting	0	0	3	6	9	12	
Total Labour Days	**6**	**54**	**24**	**29**	**32**	**35**	**180**
Total Labour Cost @ $20/day	**120**	**1,080**	**480**	**580**	**640**	**700**	**$3,600**
Total Cost							**$19,712**
Gross Margin per hectare							**$80,288**
Return per Labour Inputs							**$446.04**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Kura (Noni) - yield (kg/ha)	Price ($/kg)		
	0.90	1.00	1.10
32,000	28,800	32,000	35,200
40,000	36,000	40,000	44,000
48,000	43,200	48,000	52,800

Gross Margin Budget for LETTUCE *(Lactuca sativa)*

1 ASSUMPTIONS			
Spacing (m)	0.75 x 0.30	Planting density (pl/ha)	44,000
Yield Range (kgs)	8,000 - 10,000	Average price ($/kg)	$4.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	9,000	kg	4.00	36,000
Total Income				**$36,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Planting Materials				
Seed	0.3	kg	250.00	$75.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	5	t	75.00	$375.00
Fungicide				
Benlate	5	100g	5.91	$29.55
Sundomil	4	0.5kg	18.64	$74.56
Kocide	5	0.5kg	32.77	$163.85
Transportation	8,500	kg	0.05	$425.00
Total Variable Costs				**$2,341.04**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	25	20.00	$500.00
Fertiliser application	"	15	20.00	$300.00
Weeding	"	35	20.00	$700.00
Spraying	"	10	20.00	$200.00
Harvesting	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**105**		**$2,100.00**
Total Cost				**$4,441.04**
Gross Margin per hectare				**$31,558.97**
Return per Labour Inputs				**$300.56**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Lettuce - yield (kg/ha)	Price ($/kg)		
	3.00	4.00	5.00
8,000	24,000	32,000	40,000
9,000	27,000	36,000	45,000
10,000	30,000	40,000	50,000

Gross Margin Budget for LONG BEAN *(Vigna sesquipedalis)*

1 ASSUMPTIONS			
Spacing (m)	1 x 0.3	Planting density (pl/ha)	33,000
Yield Range (kgs)	7,000 - 10,000	Average price ($/kg)	$2.50

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	8,500	kg	2.50	21,250
Total Income				**$21,250**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed	7	kg	15.00	$105.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	10	t	75.00	$750.00
Herbicide				
Atrazine	10	ℓ	19.32	$193.20
Fungicide				
Benlate	10	100g	5.91	$59.10
Kocide	6	0.5kg	32.77	$196.62
Insecticide				
Sunthene	10	100g	5.66	$56.60
Transportation	8,500	kg	0.10	$850.00
Total Variable Costs				**$3,488.60**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	25	20.00	$500.00
Fertiliser application	"	15	20.00	$300.00
Spraying	"	15	20.00	$300.00
Weeding	"	20	20.00	$400.00
Staking	"	15	20.00	$300.00
Harvesting	"	50	20.00	$1,000.00
Total Labour Cost @ $20/day		**140**		**$2,800.00**
Total Cost				**$6,288.60**
Gross Margin per hectare				**$14,961.41**
Return per Labour Inputs				**$106.87**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Long Bean - yield (kg/ha)	Price ($/kg)		
	2.00	2.50	3.00
7,000	14,000	17,500	21,000
8,500	17,000	21,250	25,500
10,000	20,000	25,000	30,000

Gross Margin Budget for MAIZE *(Zea mays. L)*

1 ASSUMPTIONS			
Spacing (m)	0.75 x 0.3	Planting density (pl/ha)	70,000
Yield Range (kgs)	2,000 - 3,000 (dry seed)	Average price ($/kg)	$3.50

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	2,500	kg	3.50	8,750
Total Income				**$8,750**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed	18	kg	5.00	$90.00
Fertilisers				
NPK (13:13:21)	7.5	40kg bag	93.74	$703.05
Urea	4	40kg bag	90.15	$360.60
Poultry Manure	10	t	75.00	$750.00
Herbicide				
Atrazine	10	ℓ	19.32	$193.20
Insecticide				
Sunthene	10	100g	5.66	$56.60
Transportation	2,500	kg	0.10	$250.00
Total Variable Costs				**$3,107.45**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	25	20.00	$500.00
Fertiliser application	"	15	20.00	$300.00
Weeding	"	30	20.00	$600.00
Harvesting	"	25	20.00	$500.00
Windwing	"	10	20.00	$200.00
Drying	"	10	20.00	$200.00
Total Labour Cost @ $20/day		**115**		**$2,300.00**
Total Cost				**$5,407.45**
Gross Margin per hectare				**$3,342.55**
Return per Labour Inputs				**$29.07**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Maize - yield (kg/ha)	Price ($/kg)		
	3.00	3.50	4.00
2,000	6,000	7,000	8,000
2,500	7,500	8,750	10,000
3,000	9,000	10,500	12,000

Gross Margin Budget for MANGO *(Mangifera indica)*

1 ASSUMPTIONS			
Spacing (m)	9 x 9	Planting density (pl/ha)	125
Yield Range (kgs)	8,750 - 18,750 (@ Year 12)	Average price ($/kg)	$1.60

2 INCOME ($)	*Years*	1	2-3	4	5-7	8-11	12-15	Total ($) 15 Years
Sales (kg/ha)		0	0	4,500	9,000	13,500	18,750	
Price ($/kg)		0	0	1.60	1.60	1.60	1.60	
Total Income (p.a.)		**$0**	**$0**	**$7,200**	**$14,400**	**$21,600**	**$30,000**	**$256,800**

3 DIRECT COSTS ($)							
Land Preparation							
Ploughing	224.00	0	0	0	0	0	$224.00
Harrowing	84.00	0	0	0	0	0	$84.00
Digging holes (125)	250.00	0	0	0	0	0	$250.00
Planting Materials							
Seedlings (125 @ $2.00)	250.00	0	0	0	0	0	$250.00
Fertilisers							
NPK (13:13:21)	93.74	93.74	374.96	468.70	562.44	562.44	$6,561.80
Herbicide							
Agazone	101.57	101.57	101.57	101.57	101.57	101.57	$1,523.55
Fungicide							
Sunthene	56.60	113.20	169.80	169.80	169.80	169.80	$2,320.60
Transportation							
@ 10¢/kg	0	0	450.00	900.00	1,350.00	1,875.00	$16,050.00
Total Variable Costs							**$27,263.95**

4 LABOUR INPUTS (person days)							
Description							
Planting	5	1	0	0	0	0	
Fertiliser application	6	4	4	4	4	4	
Weeding	0	16	16	16	16	16	
Pruning	0	0	3	6	6	6	
Harvesting	0	0	6	9	12	15	
Total Labour Days	**11**	**42**	**29**	**105**	**152**	**164**	**1,655**
Total Labour Cost @ $20/day	**220**	**840**	**580**	**2,100**	**3,040**	**3,280**	**$26,801.50**
Total Cost							**$54,065.45**
Gross Margin per hectare							**$202,734.55**
Return per Labour Inputs							**$122.50**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Mango - yield (kg/ha)	Price ($/kg)		
	1.40	1.60	1.80
8,750	12,250	14,000	15,750
10,000	14,000	16,000	18,000
18,750	26,250	30,000	33,750

Gross Margin Budget for MUNG *(Vigna radiata)*

1 ASSUMPTIONS			
Spacing (m)	0.65 x 0.2	Planting density (pl/ha)	77,000
Yield Range (kgs)	1,000 - 1,600 (dry seed)	Average price ($/kg)	$5.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales (dry seed)	1,300	kg	5.00	6,500
Total Income				**$6,500**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed	22	kg	2.50	$55.00
Fertilisers				
Blend A+B	5	40kg bag	65.00	$325.00
Bio Brew	0.3	20ℓ	200.00	$60.00
Fungicide				
Benlate	5	100g	5.91	$29.55
Insecticide				
Sunthene	10	100g	5.66	$56.60
Rogor	2	ℓ	32.75	$65.50
Transportation	1,300	kg	0.20	$260.00
Total Variable Costs				**$1,555.65**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	25	20.00	$500.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	20	20.00	$400.00
Spraying	"	8	20.00	$160.00
Harvesting	"	30	20.00	$600.00
Windwing	"	10	20.00	$200.00
Drying	"	10	20.00	$200.00
Bagging	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**133**		**$2,660.00**
Total Cost				**$4,215.65**
Gross Margin per hectare				**$2,284.35**
Return per Labour Inputs				**$17.18**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Mung - yield (kg/ha)	Price ($/kg)		
	4.50	5.00	5.50
1,000	4,500	5,000	5,500
1,300	5,850	6,500	7,150
1,600	7,200	8,000	8,800

Gross Margin Budget for OKRA *(Abelmoschus esculentas)*

1 ASSUMPTIONS			
Spacing (m)	1 x 0.3	Planting density (pl/ha)	33,000
Yield Range (kgs)	12,000 - 16,000	Average price ($/kg)	$3.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	14,000	kg	3.00	42,000
Total Income				**$42,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed	8	kg	150.00	$1,200.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	10	t	75.00	$750.00
Fungicide				
Benlate	5	100g	5.91	$29.55
Kocide	8	0.5kg	32.77	$262.16
Insecticide				
Sunthene	10	100g	5.66	$56.60
Malathion	1	5ℓ	150.00	$150.00
Rogor	2	ℓ	32.75	$65.50
Transportation	14,000	kg	0.10	$1,400.00
Total Variable Costs				**$5,311.89**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	20	20.00	$400.00
Fertiliser application	"	15	20.00	$300.00
Weeding	"	20	20.00	$400.00
Spraying	"	15	20.00	$300.00
Harvesting	"	80	20.00	$1,600.00
Bagging	"	10	20.00	$200.00
Total Labour Cost @ $20/day		**160**		**$3,200.00**
Total Cost				**$8,511.89**
Gross Margin per hectare				**$33,488.12**
Return per Labour Inputs				**$209.30**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Okra - yield (kg/ha)	Price ($/kg)		
	2.75	3.00	3.25
12,000	33,000	36,000	39,000
14,000	38,500	42,000	45,500
16,000	44,000	48,000	52,000

Gross Margin Budget for PAPAYA *(Carica papaya)*

1 ASSUMPTIONS			
Spacing (m)	3 x 2	Planting density (pl/ha)	1,700
Yield Range (kgs)	60,000 - 80,000 (@ Year 2)	*Average price ($/kg)	$2.30

2 INCOME ($)	*Years*	1	2	3	Total ($)
Sales (kg)		7,500	40,000	35,000	
Price ($/kg)		2.30	2.30	2.30	
Total Income		**$17,250**	**$92,000**	**$80,500**	**$189,750**

3 DIRECT COSTS ($)				
Land Preparation				
Ploughing	336.00	0	0	$336.00
Harrowing	168.00	0	0	$168.00
Ridging	42.00	0	0	$42.00
Planting Materials				
Seedlings (1,700 (@ $1)	1,700.00	0	0	$1,700.00
Fertilisers				
NPK (13:13:21)	937.40	3,655.86	3,655.86	$8,249.12
Borax	309.18	309.18	309.18	$927.54
Herbicide				
Agazone	101.57	101.57	101.57	$304.71
Fungicide				
Benlate	59.10	59.10	59.10	$177.30
Sundomil	372.80	372.80	372.80	$1,118.40
Kocide	196.62	196.62	196.62	$589.86
Insecticide				
Malathion	450.00	450.00	450.00	$1,350.00
Transportation				
@ 10¢/kg	750.00	7,000.00	5,500.00	$13,250.00
Total Variable Costs				**$28,212.93**

4 LABOUR INPUTS (person days)				
Description				
Planting	25	0	0	
Fertiliser application	10	7	7	
Weeding	13	13	9	
Spraying	15	15	15	
Harvesting	8	120	90	
Total Days	**71**	**155**	**121**	**347**
Total Labour Cost @ $20/day	**142**	**310**	**242**	**$13,880.00**
Total Cost				**$42,092.93**
Gross Margin per hectare				**$147,657.07**
Return per Labour Inputs				**$425.52**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Papaya - yield (kg/ha)	Price ($/kg)		
	2.00	2.30	2.60
60,000	120,000	138,000	156,000
70,000	140,000	161,000	182,000
80,000	160,000	184,000	208,000

* **Export price 2012 - Farm gate price $1.00 - $1.20**

Gross Margin Budget for PEANUT *(Arachis hypogaea)*

1 ASSUMPTIONS			
Spacing (m)	0.65 x 0.2	Planting density (pl/ha)	80,000
Yield Range (kgs)	1,500 - 2,800	Average price ($/kg)	$6.50

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	2,150	kg	6.50	13,975
Total Income				**$13,975**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed	135	kg	12.00	$1,620.00
Fertilisers				
Ammonium Sulphate	3	40kg bag	80.00	$240.00
Muriate of Potash	2.5	40kg bag	80.00	$200.00
Single Superphosphate	10	40kg bag	46.59	$465.90
Bio Brew	0.3	20ℓ	200.00	$60.00
Fungicide				
Benlate	10	100g	5.91	$59.10
Sundomil	8	0.5kg	18.64	$149.12
Insecticide				
Rogor	2	ℓ	32.75	$65.50
Transportation	2,150	kg	0.20	$430.00
Total Variable Costs				**$3,993.62**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	20	20.00	$400.00
Fertiliser application	"	15	20.00	$300.00
Weeding	"	30	20.00	$600.00
Spraying	"	15	20.00	$300.00
Harvesting	"	25	20.00	$500.00
Drying/bagging	"	15	20.00	$300.00
Total Labour Cost @ $20/day		**120**		**$2,400.00**
Total Cost				**$6,393.62**
Gross Margin per hectare				**$7,581.38**
Return per Labour Inputs				**$63.18**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Peanut - yield (kg/ha)	Price ($/kg)		
	5.00	6.50	7.00
1,500	7,500	9,750	10,500
2,150	10,750	13,975	15,050
2,800	14,000	18,200	19,600

Gross Margin Budget for PIGEON PEA *(Cajanus cajan)*

1 ASSUMPTIONS			
Spacing (m)	0.65 x 0.2	Planting density (pl/ha)	77,000
Yield Range (kgs)	2,000 - 4,000 (dry seed)	Average price ($/kg)	$7.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales (dry seed)	3,000	kg	7.00	21,000
Total Income				**$21,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed	25	kg	7.00	$175.00
Fertilisers				
Blend A+B	5	40kg bag	65.00	$325.00
Bio Brew	0.3	20ℓ	200.00	$60.00
Fungicide				
Benlate	5	100g	5.91	$29.55
Insecticide				
Sunthene	10	100g	5.66	$56.60
Transportation	3,000	kg	0.20	$600.00
Total Variable Costs				**$1,950.15**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	20	20.00	$400.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	15	20.00	$300.00
Harvesting	"	25	20.00	$500.00
Windwing	"	10	20.00	$200.00
Drying	"	10	20.00	$200.00
Bagging	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**110**		**$2,200.00**
Total Cost				**$4,150.15**
Gross Margin per hectare				**$16,849.85**
Return per Labour Inputs				**$153.18**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Pigeon Pea - yield (kg/ha)	Price ($/kg)		
	6.00	7.00	8.00
2,000	12,000	14,000	16,000
3,000	18,000	21,000	24,000
4,000	24,000	28,000	32,000

Gross Margin Budget for PINEAPPLE *(Ananas comosus)*

1 ASSUMPTIONS			
Spacing (m)	0.6 x 1.2 x 0.3	Planting density (pl/ha)	37,000
Yield Range (kgs)	13,000 - 17,000 (@ Year 3)	Average price ($/kg)	$2.00

2 INCOME ($)	*Years*	1	2	3	4	5	Total ($)
Sales (kg/ha/p.a.)		0	7,500	8,000	8,000	7,500	31,000
Price ($/kg)		0	2.00	2.00	2.00	2.00	
Total Income		**$0**	**$15,000**	**$16,000**	**$16,000**	**$15,000**	**$62,000**

3 DIRECT COSTS ($)						
Land Preparation						
Ploughing	336.00	0	0	0	0	$336.00
Harrowing	168.00	0	0	0	0	$168.00
Furrowing/ridging	120.00	0	0	0	0	$120.00
Planting Materials						
Suckers (37,000 @ 50¢)	18,500.00	0	0	0	0	$18,500.00
Fertilisers						
Triple Superphosphate	605.04	0	0	0	0	$605.04
Urea	270.45	0	0	0	0	$270.45
NPK (13:13:21)	843.66	1,265.49	1,265.49	1,265.49	1,265.49	$5,905.62
Herbicide						
Diuron 900 DF	687.72	687.72	687.72	687.72	687.72	$3,438.60
Fungicide						
* Sundomil	186.40	186.40	186.40	186.40	186.40	$932.00
Insecticide						
Malathion	450.00	450.00	450.00	450.00	450.00	$2,250.00
Transportation						
@ 15¢/kg	0	1,125.00	2,250.00	1,687.50	1,125.00	$6,187.50
* Dip planting material						
Total Variable Costs						**$38,713.21**

4 LABOUR INPUTS (person days)						
Description						
Planting	25	0	0	0	0	25
Maintenance	70	50	50	50	50	270
Weeding	8	8	8	8	0	32
Spraying	10	10	10	10	10	50
Harvesting	0	15	30	30	30	105
Total Days	**113**	**83**	**98**	**98**	**90**	**482**
Total Labour Cost @ $20/day	**2,260**	**1,660**	**1,960**	**1,960**	**1,800**	**$9,640**
Total Cost						**$48,353.21**
Gross Margin per hectare						**$13,646.79**
Return per Labour Inputs						**$28.31**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Pineapple - yield (kg/ha)	Price ($/kg)		
	1.70	2.00	2.30
13,000	22,100	26,000	29,900
15,000	25,500	30,000	34,500
17,000	28,900	34,000	39,100

Gross Margin Budget for PLANTAIN *(Musa balbisiana)*

1 ASSUMPTIONS			
Spacing (m)	3 x 2	Planting density (pl/ha)	1,700
Yield Range (kgs)	15,500 - 18,500	Average price ($/kg)	$1.50

2 INCOME ($)	*Years*	1	2	3	4	5	6	Total ($)
Sales (kg/ha)		18,326	18,000	17,500	17,000	16,500	16,000	
Price ($/kg)		1.50	1.50	1.50	1.50	1.50	1.50	
Total Income		**$27,489**	**$27,000**	**$26,250**	**$25,500**	**$24,750**	**$24,000**	**$154,989**

3 DIRECT COSTS ($)							
Land Preparation							
Ploughing	224.00	0	0	0	0	0	$224.00
Harrowing	84.00	0	0	0	0	0	$84.00
Planting Materials							
Suckers (1,700 @ $0.15)	255.00	0	0	0	0	0	$255.00
Fertilisers							
NPK (13:13:21)	468.70	703.05	703.05	703.05	703.05	703.05	$3,983.95
Herbicide							
Agazone	101.57	101.57	101.57	101.57	101.57	101.57	$609.42
Fungicide							
Punch	275.64	275.64	275.64	275.64	275.64	275.64	$1,653.84
Insecticide							
Rogor	163.75	163.75	163.75	163.75	163.75	163.75	$982.50
Transportation							
@ 10¢/kg	1,833	1,800	1,750	1,700	1,650	1,600	$10,332.60
Total Variable Costs							**$18,125.31**

4 LABOUR INPUTS (person days)							
Description							
Prepare planting materials	12	0	0	0	0	0	
Planting/replanting	25	0	0	0	0	0	
Fertiliser application	5	5	3	3	3	3	
Spraying	3	3	3	3	3	3	
Weeding	12	12	12	8	8	8	
Propping	7	7	7	7	7	7	
Harvesting	30	30	25	20	15	15	
Total Labour Days	**94**	**57**	**50**	**41**	**36**	**36**	**314**
Total Labour Cost @ $20/day	**1,880**	**1,140**	**1,000**	**820**	**720**	**720**	**$6,280**
Total Cost							**$24,405**
Gross Margin per hectare							**$130,584**
Return per Labour Inputs							**$415.87**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Plantain - yield (kg/ha)	Price ($/kg)		
	1.40	1.50	1.60
15,500	21,700	23,250	24,800
17,000	23,800	25,500	27,200
18,500	25,900	27,750	29,600

Gross Margin Budget for POTATO *(Solanum tuberosum)*

1 ASSUMPTIONS			
Spacing (m)	0.75 x 0.3	Planting density (pl/ha)	44,000
Yield Range (kgs)	12000 - 15,000	Average price ($/kg)	$1.25

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	13,500	kg	1.25	16,875
Total Income				**$16,875**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Planting Materials				
Seed	1,500	kg	0.50	$750.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	10	t	75.00	$750.00
Fungicide				
Sundomil	9	0.5kg	18.64	$167.76
Insecticide				
Diazinon	20	ℓ	57.34	$1,146.80
Transportation	13,500	kg	0.10	$1,350.00
Total Variable Costs				**$5,362.64**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	20	20.00	$400.00
Fertiliser application	"	15	20.00	$300.00
Weeding	"	30	20.00	$600.00
Spraying	"	15	20.00	$300.00
Hilling potatoes	"	12	20.00	$240.00
Harvesting/bagging	"	25	20.00	$500.00
Total Labour Cost @ $20/day		**117**		**$2,340.00**
Total Cost				**$7,702.64**
Gross Margin per hectare				**$9,172.37**
Return per Labour Inputs				**$78.40**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Potato - yield (kg/ha)	Price ($/kg)		
	1.00	1.25	1.50
12,000	12,000	15,000	18,000
13,500	13,500	16,875	20,250
15,000	15,000	18,750	22,500

Gross Margin Budget for PUMPKIN *(Cucurbita maxima)*

1 ASSUMPTIONS			
Spacing (m)	1.8 x 1.8	Planting density (pl/ha)	3,000
Yield Range (kgs)	10,000 - 15,000	Average price ($/kg)	$1.80

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	12,500	kg	1.80	22,500
Total Income				**$22,500**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Ridging	1	ha	42.00	$42.00
Planting Materials				
Seed	2	kg	200.00	$400.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	12	t	75.00	$900.00
Fungicide				
Sundomil	5	0.5kg	18.64	$93.20
Punch	10	250ml	68.91	$689.10
Insecticide				
Malathion	0.5	5ℓ	150.00	$75.00
Rogor	2.5	ℓ	32.75	$81.88
Transportation	10,000	kg	0.15	$1,500.00
Total Variable Costs				**$5,099.25**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	15	20.00	$300.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	10	20.00	$200.00
Spraying	"	15	20.00	$300.00
Harvesting	"	15	20.00	$300.00
Processing/packing	"	5	20.00	$100.00
Total Labour Cost @ $20/day		**70**		**$1,400.00**
Total Cost				**$6,499.25**
Gross Margin per hectare				**$16,000.75**
Return per Labour Inputs				**$228.58**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Pumpkin - yield (kg/ha)	Price ($/kg)		
	1.60	1.80	2.00
10,000	16,000	18,000	20,000
12,500	20,000	22,500	25,000
15,000	24,000	27,000	30,000

Gross Margin Budget for RICE - Dryland *(Oryza sativa)*

1 ASSUMPTIONS			
Spacing (m)	0.25 x 0.15	Planting density (pl/ha)	70,000
Yield Range (kgs)	3,000 - 5,000	Average price ($/kg)	$1.50

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	4,000	kg	1.50	6,000
Total Income				**$6,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
1st Ploughing	3	ha	112.00	$336.00
1st Harrowing	2	ha	84.00	$168.00
2nd Ploughing	2	ha	112.00	$224.00
2nd Harrowing	1	ha	84.00	$84.00
Levelling	1	ha	50.00	$50.00
Furrowing	1	ha	120.00	$120.00
Planting Materials				
Seed (broadcast)	90	kg	0.57	$51.30
Fertilisers				
NPK (13:13:21)	0.5	40kg bag	93.74	$46.87
Muriate of Potash	2	40kg bag	80.00	$160.00
Urea	2.5	40kg bag	90.15	$225.38
Herbicide				
Atrazine	2	ℓ	19.32	$38.64
Fungicide				
Punch	10	250ml	68.91	$689.10
Insecticide				
Malathion	0.2	5ℓ	150.00	$30.00
Transportation	4,000	kg	0.05	$200.00
Total Variable Costs				**$2,423.29**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting (broadcast)	days	5	20.00	$100.00
Fertiliser application	"	5	20.00	$100.00
Spraying	"	5	20.00	$100.00
Harvesting/threshing	"	12	20.00	$240.00
Total Labour Cost @ $20/day		**27**		**$540.00**
Total Cost				**$2,963.29**
Gross Margin per hectare				**$3,036.72**
Return per Labour Inputs				**$112.47**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Rice (Dryland) - yield (kg/ha)	Price ($/kg)		
	1.45	1.50	1.65
3,000	4,350	4,500	4,950
4,000	5,800	6,000	6,600
5,000	7,250	7,500	8,250



Gross Margin Budget for RICE – Wetland *(Oryza sativa)*

1 ASSUMPTIONS			
Spacing (m)	0.3 x 0.25	Planting density (pl/ha)	50,000
Yield Range (kgs)	3,500 - 4,500	Average price ($/kg)	$1.50

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	4,000	kg	1.50	6,000
Total Income				**$6,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
1st Ploughing	3	ha	112.00	$336.00
1st Harrowing	2	ha	84.00	$168.00
2nd Ploughing	2	ha	112.00	$224.00
2nd Harrowing	1	ha	84.00	$84.00
Levelling	1	ha	50.00	$50.00
Planting Materials				
Seed (broadcast)	90	kg	0.57	$51.30
Fertilisers				
Triple Superphosphate	0.5	40kg bag	100.84	$50.42
Muriate of Potash	2	40kg bag	80.00	$160.00
Urea	2.5	40kg bag	90.15	$225.38
Fungicide				
Punch	4	250ml	68.91	$275.64
Insecticide				
Malathion	0.2	5ℓ	150.00	$30.00
Sunthene	10	100g	5.66	$56.60
Transportation	4,000	kg	0.05	$200.00
Total Variable Costs				**$1,911.34**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	5	20.00	$100.00
Fertiliser application	"	5	20.00	$100.00
Manual weeding	"	3	20.00	$60.00
Spraying	"	5	20.00	$100.00
Harvesting	"	12	20.00	$240.00
Total Labour Cost @ $20/day		**30**		**$600.00**
Total Cost				**$2,511.34**
Gross Margin per hectare				**$3,488.67**
Return per Labour Inputs				**$116.29**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Rice (Wetland) - yield (kg/ha)	Price ($/kg)		
	1.35	1.50	1.65
3,500	4,725	5,250	5,775
4,000	5,400	6,000	6,600
4,500	6,075	6,750	7,425

Gross Margin Budget for ROCKMELON *(Cucumis melon)*

1 ASSUMPTIONS			
Spacing (m)	2 x 1	Planting density (pl/ha)	5,000
Yield Range (kgs)	8,000 - 12,000	Average price ($/kg)	$2.40

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	10,000	kg	2.40	24,000
Total Income				**$24,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Planting Materials				
Seed	2	kg	120.00	$240.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	10	t	75.00	$750.00
Fungicide				
Sundomil	10	0.5kg	18.64	$186.40
Kocide	6	0.5kg	32.77	$196.62
Punch	4	250ml	68.91	$275.64
Insecticide				
Rogor	2.5	ℓ	32.75	$81.88
Malathion	0.5	5ℓ	150.00	$75.00
Transportation	10,000	kg	0.20	$2,000.00
Total Variable Costs				**$5,123.61**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	15	20.00	$300.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	20	20.00	$400.00
Spraying	"	15	20.00	$300.00
Harvesting/bagging	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**80**		**$1,600.00**
Total Cost				**$6,723.61**
Gross Margin per hectare				**$17,276.39**
Return per Labour Inputs				**$215.95**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Rockmelon - yield (kg/ha)	Price ($/kg)		
	1.80	2.40	3.00
8,000	14,400	19,200	24,000
10,000	18,000	24,000	30,000
12,000	21,600	28,800	36,000

Gross Margin Budget for SOURSOP *(Annona muricata)*

1 ASSUMPTIONS			
Spacing (m)	4.5 x 4.5	Planting density (pl/ha)	300
Yield Range (kgs)	9,000 - 11,000	Average price ($/kg)	$1.70

2 INCOME ($)	*Years*	1	2-3	4	5-7	8-12	Total ($) 12 years
Sales (kg/ha)		0	0	6,000	8,000	10,000	
Price ($/kg)		0	0	1.70	1.70	1.70	
Total Income (p.a.)		**$0**	**$0**	**$10,200**	**$13,600**	**$17,000**	**$136,000**

3 DIRECT COSTS ($)						
Land Preparation						
Ploughing	224.00	0	0	0	0	$224.00
Harrowing	84.00	0	0	0	0	$84.00
Digging holes (300)	600.00	0	0	0	0	$600.00
Planting Materials						
Grafted plants (300 @ $2)	600.00	0	0	0	0	$600.00
Fertilisers						
NPK (13:13:21)	703.05	1,406.10	1,406.10	1,406.10	1,406.10	$16,170.15
Herbicide						
Agazone	101.57	101.57	101.57	101.57	101.57	$1,218.84
Transportation						
@ 10¢/kg	0	0	600.00	800.00	1,000.00	$8,000.00
Total Variable Costs						**$26,896.99**

4 LABOUR INPUTS (person days)						
Description						
Slashing	0	8	8	8	8	280
Planting	1	0	0	0	0	1
Spraying	0	2	3	3	3	11
Pruning	0	0	0	3	3	6
Harvesting	0	0	3	6	9	18
Total Days	**1**	**20**	**14**	**60**	**115**	**316**
Total Labour Cost @ $20/day	**20**	**400**	**280**	**1,200**	**2,300**	**$4,200**
Total Cost						**$31,097**
Gross Margin per hectare						**$104,903**
Return per Labour Inputs						**$331.97**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Soursop - yield (kg/ha)	Price ($/kg)		
	1.40	1.70	2.00
9,000	12,600	15,300	18,000
10,000	14,000	17,000	20,000
11,000	15,400	18,700	22,000

Gross Margin Budget for SPRING ONION *(Allium cepa)*

1 ASSUMPTIONS			
Spacing (m)	0.50 x 0.08	Planting density (pl/ha)	250,000
Yield Range (kgs)	10,000 - 12,000	Average price ($/kg)	$5.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	11,000	kg	5.00	55,000
Total Income				**$55,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Planting Materials				
Seed	4	kg	50.00	$200.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	5	t	75.00	$375.00
Fungicide				
Benlate	5	100g	5.91	$29.55
Kocide	5	0.5kg	32.77	$163.85
Transportation	11,000	kg	0.10	$1,100.00
Total Variable Costs				**$3,066.48**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	10	20.00	$200.00
Fertiliser application	"	15	20.00	$300.00
Spraying	"	10	20.00	$200.00
Weeding	"	15	20.00	$300.00
Harvesting/packing	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**70**		**$1,400.00**
Total Cost				**$4,466.48**
Gross Margin per hectare				**$50,533.53**
Return per Labour Inputs				**$721.91**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Spring Onion - yield (kg/ha)	Price ($/kg)		
	4.00	5.00	6.00
10,000	40,000	50,000	60,000
11,000	44,000	55,000	66,000
12,000	48,000	60,000	72,000

Gross Margin Budget for SUGARCANE *(Saccharum officinarum)*

1 ASSUMPTIONS			
Spacing (m)	1.2 x 1.5	Planting density (pl/ha)	5,550
Yield Range (t)	65 - 75 tonnes	Average price ($/t)	$65.00

2 INCOME ($)	*Years*	1	2	3	4	
Yield (t/ha)		75	65	65	65	**270**
Price ($/t)		65.00	65.00	65.00	65.00	
Total Income (p.a.)		**$4,875**	**$4,225**	**$4,225**	**$4,225**	**$17,550**

3 DIRECT COSTS ($)					
Land Preparation					
Ploughing	240.00	0	0	0	$240.00
Harrowing	140.00	0	0	0	$140.00
Furrowing/ridging	150.00	0	0	0	$150.00
Inter-row cultivation	160.00	0	160.00	0	$320.00
Planting Materials					
Seed cane (6 tonnes @ $60)	360.00	0	0	0	$360.00
Fertilisers					
* NPK blend (@ $60/50kg bag)	960.00	780.00	780.00	780.00	$3,300.00
Herbicide					
Pre-emergence					
Velpar K4	174.80	0	0	0	$174.80
Amine	80.00	0	0	0	$80.00
Post-emergence					
Diuron DF	148.64	148.64	148.64	148.64	$594.56
Glyphosate	26.46	26.46	26.46	26.46	$105.84
Transportation					
@ $14/t	1,050.00	910.00	910.00	910.00	$3,780.00
Total Variable Costs					**$9,245.20**

4 LABOUR INPUTS (person days)					
Description					
Planting	12	0	0	0	
Fertiliser application	3	3	3	3	
Spraying	5	5	5	5	
Manual weeding	12	12	12	12	
Harvesting (manual @ $15/t)	5	4.5	4.5	4.5	
Total Days	**37**	**24.5**	**24.5**	**24.5**	**110.50**
Total Labour Cost @ $20/day	**$740**	**$490**	**$490**	**$490**	**$2,210**
Total Cost					**$11,455.20**
Gross Margin per hectare					**$6,094.80**
Return per Labour Inputs					**$55.16**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Sugarcane - yield (t/ha)	Price ($/t)		
	60.00	65.00	70.00
65	3,900	4,225	4,550
70	4,200	4,550	4,900
75	4,500	4,875	5,250

*** A Growers' Fund subsidises fertiliser, i.e. $31.50/50kg bag**

Gross Margin Budget for SWEET CORN *(Zea mays. saccharata)*

1 ASSUMPTIONS			
Spacing (m)	0.75 x 0.30	Planting density (pl/ha)	70,000
Yield Range (kgs)	3,000 - 3,500 (green)	Average price ($/kg)	$3.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	3,250	kg	3.00	9,750
Total Income				**$9,750**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Planting Materials				
Seed	18	kg	5.00	$90.00
Fertilisers				
NPK (13:13:21)	7.5	40kg bag	93.74	$703.05
Urea	5	40kg bag	90.15	$450.75
Poultry Manure	10	t	75.00	$750.00
Herbicide				
Atrazine	10	ℓ	19.32	$193.20
Fungicide				
Sundomil	10	0.5kg	18.64	$186.40
Kocide	10	0.5kg	32.77	$327.70
Transportation	3,250	kg	0.15	$487.50
Total Variable Costs				**$3,812.60**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	25	20.00	$500.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	20	20.00	$400.00
Harvesting	"	25	20.00	$500.00
Total Labour Cost @ $20/day		**80**		**$1,600.00**
Total Cost				**$5,412.60**
Gross Margin per hectare				**$4,337.40**
Return per Labour Inputs				**$54.22**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Sweet Corn - yield (kg/ha)	Price ($/kg)		
	2.50	3.00	3.50
3,000	7,500	9,000	10,500
3,250	8,125	9,750	11,375
3,500	8,750	10,500	12,250

Gross Margin Budget for TOMATO *(Lycopersicon esculentum)*

1 ASSUMPTIONS			
Spacing (m)	1.5 x 0.3	Planting density (pl/ha)	22,000
Yield Range (kgs)	8,000 - 12,000	Average price ($/kg)	$2.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	10,000	kg	2.00	20,000
Total Income				**$20,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Ridging	1	ha	42.00	$42.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed	0.3	kg	12.00	$3.60
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	12	t	75.00	$900.00
Fungicide				
Benlate	15	100g	5.91	$88.65
Sundomil	15	0.5kg	18.64	$279.60
Insecticide				
Malathion	1	5ℓ	150.00	$150.00
Transportation	10,000	kg	0.05	$500.00
Total Variable Costs				**$3,361.93**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	25	20.00	$500.00
Fertiliser application	"	10	20.00	$200.00
Staking	"	20	20.00	$400.00
Weeding	"	30	20.00	$600.00
Spraying	"	15	20.00	$300.00
Harvesting/packing	"	80	20.00	$1,600.00
Total Labour Cost @ $20/day		**180**		**$3,600.00**
Total Cost				**$6,961.93**
Gross Margin per hectare				**$13,038.08**
Return per Labour Inputs				**$72.43**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Tomato - yield (kg/ha)	Price ($/kg)		
	1.50	2.00	2.50
8,000	12,000	16,000	20,000
10,000	15,000	20,000	25,000
12,000	18,000	24,000	30,000

Gross Margin Budget for URD *(Vigna mungo)*

1 ASSUMPTIONS			
Spacing (m)	0.45 x 0.2	Planting density (pl/ha)	111,000
Yield Range (kgs)	1,200 - 1,800 (dry)	Average price ($/kg)	$5.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	1,500	kg	5.00	7,500
Total Income				**$7,500**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed	17	kg	5.00	$85.00
Fertilisers				
Blend A+B	5	40kg bag	65.00	$325.00
Bio Brew	0.3	20ℓ	200.00	$60.00
Fungicide				
Benlate	5	100g	5.91	$29.55
Insecticide				
Sunthene	10	100g	5.66	$56.60
Rogor	2	ℓ	32.75	$65.50
Transportation	1,500	kg	0.25	$375.00
Total Variable Costs				**$1,700.65**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	25	20.00	$500.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	20	20.00	$400.00
Spraying	"	12	20.00	$240.00
Harvesting	"	30	20.00	$600.00
Windwing	"	10	20.00	$200.00
Drying	"	10	20.00	$200.00
Bagging	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**137**		**$2,740.00**
Total Cost				**$4,440.65**
Gross Margin per hectare				**$3,059.35**
Return per Labour Inputs				**$22.33**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Urd - yield (kg/ha)	Price ($/kg)		
	4.00	5.00	6.00
1,200	4,800	6,000	7,200
1,500	6,000	7,500	9,000
1,800	7,200	9,000	10,800

Gross Margin Budget for VANILLA *(Vanilla fragrans)*

1 ASSUMPTIONS			
Spacing (m)	1.5 x 2.5	Planting density (pl/ha)	2,600
Yield Range (kgs)	700 - 900 (green bean) @ Year 6	Average price ($/kg)	$12.00

2 INCOME ($)	*Years*	1	2	3	4	5	6	Total ($)
Sales (kg/ha)		0	0	200	400	600	800	
Price ($/kg)		0	0	12.00	12.00	12.00	12.00	
Total Income		**$0**	**$0**	**$2,400**	**$4,800**	**$7,200**	**$9,600**	**$24,000**

3 DIRECT COSTS ($)							
Land Preparation	400.00	0	0	0	0	0	$400.00
Planting Materials							
Stems (2,600 @ $1)	2,600.00	0	0	0	0	0	$2,600.00
Support/shade trees (80 @ 50¢)	40.00	0	0	0	0	0	$40.00
Fertilisers							
Urea	135.23	135.23	135.23	135.23	135.23	135.23	$811.35
NPK (13:13:21)	450.75	450.75	450.75	450.75	450.75	450.75	$2,704.50
Insecticide							
Diazinon (5ℓ @ $57.34)	229.36	229.36	229.36	229.36	229.36	229.36	$1,376.16
Transportation							
@ 10¢/kg	0	0	20	40	60	80	$200.00
Total Variable Costs							$8,132.01

4 LABOUR INPUTS (person days)							
Description							
Land preparation/planting	50	0	0	0	0	0	
Support tree establishment	15	0	0	0	0	0	
Vanilla establishment	0	20	0	0	0	0	
Weeding	10	10	10	10	10	10	
Mulching	25	25	25	25	25	25	
Replanting vanilla	0	3	3	0	0	0	
Looping	0	5	7	7	7	7	
Pruning support trees	3	7	7	7	7	7	
Flower induction	0	0	10	12	15	15	
Pollination	0	0	12	24	24	30	
Harvesting	0	0	0	10	35	45	
Total Labour Days	**103**	**70**	**74**	**95**	**123**	**139**	**604**
Total Labour Cost @ $20/day							**$12,080**
Total Cost							**$20,212**
Gross Margin per hectare							**$3,788**
Return per Labour Inputs							**$6.27**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Vanilla - yield (kg/ha)	Price ($/kg)		
	11.00	12.00	13.00
700	7,700	8,400	9,100
800	8,800	9,600	10,400
900	9,900	10,800	11,700

Gross Margin Budget for WATERMELON *(Cirtullus lanatus)*

1 ASSUMPTIONS			
Spacing (m)	3 x 1	Planting density (pl/ha)	3,300
Yield Range (kgs)	15,000 - 20,000	Average price ($/kg)	$2.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	17,500	kg	2.00	35,000
Total Income				**$35,000**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Planting Materials				
Seed	2.5	kg	120.00	$300.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	10	t	75.00	$750.00
Fungicide				
Sundomil	10	0.5kg	18.64	$186.40
Kocide	6	0.5kg	32.77	$196.62
Punch	4	250ml	68.91	$275.64
Insecticide				
Rogor	2.5	ℓ	32.75	$81.88
Malathion	0.5	5ℓ	150.00	$75.00
Transportation	12,000	kg	0.20	$2,400.00
Total Variable Costs				**$5,583.61**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	13	20.00	$260.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	20	20.00	$400.00
Spraying	"	15	20.00	$300.00
Harvesting	"	20	20.00	$400.00
Total Labour Cost @ $20/day		**78**		**$1,560.00**
Total Cost				**$7,143.61**
Gross Margin per hectare				**$27,856.39**
Return per Labour Inputs				**$357.13**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Watermelon - yield (kg/ha)	Price ($/kg)		
	1.50	2.00	2.50
15,000	22,500	30,000	37,500
17,500	26,250	35,000	43,750
20,000	30,000	40,000	50,000

Gross Margin Budget for WINGED BEAN *(Psophocarpus tetragonolobus)*

1 ASSUMPTIONS			
Spacing (m)	3 x 2	Planting density (pl/ha)	1,650
Yield Range (kgs)	7,000 - 10,000	Average price ($/kg)	$3.00

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	8,500	kg	3.00	25,500
Total Income				**$25,500**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Inter-row cultivation	1	ha	80.00	$80.00
Planting Materials				
Seed	15	kg	80.00	$1,200.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	5	t	75.00	$375.00
Fungicide				
Benlate	10	100g	5.91	$59.10
Insecticide				
Rogor	4	ℓ	32.75	$131.00
Transportation	8,500	kg	0.15	$1,275.00
Total Variable Costs				**$4,438.18**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	20	20.00	$400.00
Fertiliser application	"	15	20.00	$300.00
Weeding	"	20	20.00	$400.00
Spraying	"	15	20.00	$300.00
Staking	"	15	20.00	$300.00
Harvesting	"	40	20.00	$800.00
Total Labour Cost @ $20/day		**125**		**$2,500.00**
Total Cost				**$6,938.18**
Gross Margin per hectare				**$18,561.83**
Return per Labour Inputs				**$148.49**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Winged Bean - yield (kg/ha)	Price ($/kg)		
	2.50	3.00	3.50
7,000	17,500	21,000	24,500
8,500	21,250	25,500	29,750
10,000	25,000	30,000	35,000

Gross Margin Budget for YAM *(Dioscorea alata)*

1 ASSUMPTIONS			
Spacing (m)	1 x 0.6	Planting density (pl/ha)	16,500
Yield Range (kgs)	12,000 - 14,000	Average price ($/kg)	$1.50

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	13,000	kg	1.50	19,500
Total Income				**$19,500**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	120.00	$120.00
Planting Materials				
Corm	1,750	kg	2.00	$3,500.00
Fertilisers				
Triple Superphosphate	5	40kg bag	100.84	$504.20
Urea	5	40kg bag	90.15	$450.75
Muriate of Potash	5	40kg bag	80.00	$400.00
Transportation	13,000	kg	0.10	$1,300.00
Total Variable Costs				**$6,778.95**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Preparing planting materials	days	7	20.00	$140.00
Digging holes	"	40	20.00	$800.00
Planting	"	25	20.00	$500.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	30	20.00	$600.00
Spraying	"	10	20.00	$200.00
Staking	"	10	20.00	$200.00
Harvesting	"	50	20.00	$1,000.00
Total Labour Cost @ $20/day		**182**		**$3,640.00**
Total Cost				**$10,418.95**
Gross Margin per hectare				**$9,081.05**
Return per Labour Inputs				**$49.90**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Yam - yield (kg/ha)	1.25	1.50	1.75
12,000	15,000	18,000	21,000
13,000	16,250	19,500	22,750
14,000	17,500	21,000	24,500

Gross Margin Budget for YAQONA *(Piper methysticum)*

1	ASSUMPTIONS						
	Spacing (m)	2 x 2			Planting density (pl/ha)		2,500
	Yield Range (kgs)	2,500 - 3,500			Average price ($/kg)		$36.00

2	INCOME ($)	*Years*	1	2	3	4	5	Total ($)
	Sales (kg/ha) - dried		0	0	0	0	3,000	
	Price ($/kg)		0	0	0	0	36.00	
	Total Income		**$0**	**$0**	**$0**	**$0**	**$108,000**	**$108,000**

3	DIRECT COSTS ($)						
	Land Preparation	120	0	0	0	0	$120.00
	Planting Materials						
	4 cuttings/mound (10,000 @ $1)	10,000.00	0	0	0	0	$10,000.00
	Fertilisers						
	N/A						
	Herbicide						
	Agazone	101.57	101.57	101.57	101.57	101.57	$507.85
	Transportation						
	@ 35¢/kg	0	0	0	0	1,050.00	$1,050.00
	Total Variable Costs						**$11,677.85**

4	LABOUR INPUTS (person days)						
	Description						
	Land preparation/planting	30	0	0	0	0	30
	Maintenance	20	40	40	30	30	160
	Weeding	13	13	13	10	10	59
	Spraying	8	8	8	8	8	40
	Harvesting	0	0	0	0	40	40
	Washing	0	0	0	0	20	20
	Drying/sorting	0	0	0	0	15	15
	Total Days	**71**	**61**	**61**	**48**	**123**	**364**
	Total Labour Cost @ $20/day	**1,420**	**1,220**	**1,220**	**960**	**2,460**	**$7,280**
	Total Cost						**$18,957.85**
	Gross Margin per hectare						**$89,042.15**
	Return per Labour Inputs						**$244.62**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Yaqona - yield (kg/ha)	Price ($/kg		
	34.00	36.00	38.00
2,500	85,000	90,000	95,000
3,000	102,000	108,000	114,000
3,500	119,000	126,000	133,000

Gross Margin Budget for ZUCCHINI *(Cucurbita pepo)*

1 ASSUMPTIONS			
Spacing (m)	1 x 0.3	Planting density (pl/ha)	33,000
Yield Range (kgs)	8,000 - 10,000	Average price ($/kg)	$3.50

2 INCOME ($)	Quantity	Unit	Unit Price	Total
Sales	9,000	kg	3.50	31,500
Total Income				**$31,500**

3 DIRECT COSTS ($)	Quantity	Unit	Unit Price	Total
Land Preparation				
Ploughing	3	ha	112.00	$336.00
Harrowing	2	ha	84.00	$168.00
Rotovating	1	ha	42.00	$42.00
Planting Materials				
Seed	3	kg	210.00	$630.00
Fertilisers				
NPK (13:13:21)	5	40kg bag	93.74	$468.70
Urea	2.5	40kg bag	90.15	$225.38
Poultry Manure	12	t	75.00	$900.00
Fungicide				
Sundomil	20	0.5kg	18.64	$372.80
Kocide	8	0.5kg	32.77	$262.16
Punch	5	250ml	68.91	$344.55
Insecticide				
Malathion	1	5ℓ	150.00	$150.00
Rogor	2.5	ℓ	32.75	$81.88
Transportation	8,000	kg	0.15	$1,200.00
Total Variable Costs				**$5,181.46**

4 LABOUR INPUTS (person days)	Unit	Quantity	Price $/Unit	Total ($)
Description				
Planting	days	30	20.00	$600.00
Fertiliser application	"	10	20.00	$200.00
Weeding	"	30	20.00	$600.00
Spraying	"	15	20.00	$300.00
Harvesting	"	33	20.00	$660.00
Bagging	"	8	20.00	$160.00
Total Labour Cost @ $20/day		**126**		**$2,520.00**
Total Cost				**$7,701.46**
Gross Margin per hectare				**$23,798.54**
Return per Labour Inputs				**$188.88**

5 GROSS MARGIN SENSITIVITY ANALYSIS

Zucchini - yield (kg/ha)	Price ($/kg)		
	3.00	3.50	4.00
8,000	24,000	28,000	32,000
9,000	27,000	31,500	36,000
10,000	30,000	35,000	40,000

References

ACIAR (2008) — The Potential for Tropical Fruit Production in Tonga : A Feasibility and Constraints Analysis. 86p.

Fiji MPI (2010) — Farm Management Budget Manual. 390p.

Fiji MPI (2012) — The Farmer's Guide. 150p.

Samoa MAF (2009) — Farm Management Manual for Samoa. 132p.

Appendix 1: Farm Input Prices

Indicative Mechanised Land Preparation Costs (per hectare)

Ploughing	@	$112.00
Harrowing	@	$84.00
Ridging	@	$42.00
Furrowing/ridging	@	$120.00
Inter-row cultivation	@	$80.00
Rotovating	@	$120.00
Ripping	@	$120.00
Digging holes	@	$2.00
Levelling	@	$50.00
Furrowing	@	$120.00

Retail Prices for Fertiliser and Spray Products
VAT inclusive price list (effective from 27.10.2012)

Herbicides		
Agazone	10 litres @	$101.57
Amine 2.4-D 720	1 litre @	$32.00
Atrazine	1 litre @	$19.32
Diuron DF	1 kg @	$37.16
Diuron 900 DF	10 litres @	$343.86
Glyphosate 360	5 litres @	$44.10
Velpar K4	1 kg @	$43.70
Insecticides		
Diazinon	1 litre @	$57.34
Malathion	5 litres @	$150.00
Rogor	1 litre @	$32.75
Steward	1 litre @	$348.63
Sunclorprid	1 litre @	$34.17
Sunthene	100 gms @	$5.66
Fungicides		
Benlate	100 gms @	$5.91
Kocide	0.5 kg @	$32.77
Punch	250 mls @	$68.91
Sundomil	0.5 kg @	$18.64
Fertiliser		
Ammonium Sulphate	40 kg @	$80.00
Blend A+B	40 kg @	$65.00
Bio Brew	20 litres @	$200.00
Borax	25 kg @	$206.12
Muriate of Potash	40 kg @	$80.00
NPK (13:13:21)	40 kg @	$93.74
NPK (16:16:16)	40 kg @	$90.00
Poultry manure	1 tonne @	$75.00
Single Superphosphate	40 kg @	$46.59
Triple Superphosphate	40 kg @	$100.84
Urea	40 kg @	$90.15
General Products		
Misting oil	1 litre @	$15.00
Spreader oil	1 litre @	$10.00
Labour	per day @	$20.00