



THE GUIDE:

MAKING A

BUSINESS WITH

BREADFRUIT

Module 6 is where you use the information from the previous modules to decide if you want to proceed with a breadfruit agribusiness and what form it will take, for example do you want to be involved in any additional value-adding activities along the breadfruit product value chain. This business plan focuses on breadfruit orchards because of the data available from the Pacific Breadfruit Project (PBP) 1 . If you are interested in looking at processing as a business opportunity some financial information is provided in Module 4 and there will be a few references to processing in this Module also.

November 2019



Acknowledgments

The development of this guide was led by Dr Mary Taylor, and Mary was lead author on the modules, along with Dr Richard Beyer (Module 4) and Dr Andrew McGregor (Module 6).

Members of the PARDI2 team, including Dr. Lex Thomson, as well as Kyle Stice (PIFON), and Kaitu Erasitu (Natures Way Cooperative) also provided inputs and/or assisted with editing.

We kindly acknowledge the use of breadfruit information from Craig Elevitch and Dr Diane Ragone (National Tropical Botanical Garden, Hawai'i).

We are sincerely grateful to everyone who supported the development of this compendium.

About Us

This guide was prepared under the Pacific Agribusiness Research in Development 2 (PARDI2) project. PARDI2 has generously allowed The Breadfruit People to use the guide and its contents.

The PARDI2 Project is funded by the Australian Centre for International Agricultural Research (ACIAR) and facilitated by a consortium of implementation partners, the project seeks to promote sustainable livelihood outcomes for Pacific Islands households through research and innovation, catalysing and informing a more vibrant, diverse and viable agribusiness sector.

The PARDI2 project spans 2017-2021, placing a geographical focus on Fiji, Tonga and Vanuatu. For more information, please visit www.pardi.pacificfarmers.com



1.0 Some key terms you will need to understand to prepare your plan

Cash flow: The difference between the flow of money over time from selling your breadfruit and the amount of money spent on having the required quantity and quality of breadfruit ready for sale. A reasonable time frame to consider the cash flow for a breadfruit orchard would be about 10 years.

The “farm-gate” price: The price received for your breadfruit sold at the farm – rather than further along the value chain.

Fixed costs: Fixed costs, for example the cost of land rental, are the same, regardless of how much breadfruit you sell.

Variable costs: Variable costs, for example, the cost of labour, vary with the amount of breadfruit produced.

Opportunity cost: The money that could be earned from the resources used to produce breadfruit, if those resources were used to produce something else. For example, what you could earn from the same labour if it was used to produce an alternative crop (say sugar cane), or if you used your time to be a wage earner employed elsewhere.

The gross margin from a farm enterprise: gross income (quantity of produce sold multiplied by the price received minus the variable cost of production).

The market: The consumers who buy the end-product.

Marketing: The process of getting the product to the consumer along the value chain.

The value chain: The different links that take the product from the farm to the consumer, adding costs and value at each step.

Risk: What could go wrong? For example, the crop could be destroyed by a cyclone.

2.0 A financial model of a small orchard growing breadfruit for fresh export: an example

A financial model for a one-acre (0.4 ha) orchard in western Viti Levu, Fiji, growing breadfruit for fresh export is presented below. A financial model is only as good as the quality of the



data used. In this example, the data used is from the better-performing orchards established under the ACIAR Pacific Breadfruit Project (PBP)¹.

A financial model for a one acre orchard in western Viti Levu Fiji growing breadfruit for fresh export to New Zealand (FJD)										
Year	1	2	3	4	5	6	7	8	9	10
number of trees @ 9m x 9m	50	50	50	50	50	50	50	50	50	50
marketable yield per tree (no of fruit/ tree)	0	20	80	160	200	250	300	300	300	300
marketable yield per tree (kg) - 80% of the fruit marketable in year 2 increasing to 95% in year 5	0	25	87	170	210	263	316	316	316	316
total marketable production (kg)	0	1,250	4,325	8,500	10,500	13,158	15,800	15,800	15,800	15,800
Sales (\$) @ \$0.80/ kg fam gate	0	1,000	3,460	6,800	8,400	10,526	12,640	12,640	12,640	12,640
Cash expenditure (\$)										
seedlings 50 @5 each	250									
harvesting and pruning equipment										
stick picker (@\$50 each)			50			50			50	
pruning saw (@\$50each)			50			50			50	
pruning lopper (@\$100 each)			100			100			100	
ladder (@\$200 each)			200							
plastic field bins (@\$30 each)		60	90		90		90		90	
sub-total	0	60	490	0	90	200	90	0	290	0
Fertiliser										
NPK (1:3:13:21) 200gm/tree/month 120 kgs/annum @ \$1.28/kg	154	154	154	154	154	154	154	154	154	154
Urea 200g/tree/month 120kgs/annum @ \$1.10/kg	132	132	132	132	132	132	132	132	132	132
sub-total	286	286	286	286	286	286	286	286	286	286
Total non labour cash expenditure	536	346	776	286	376	486	376	286	576	286
Gross margin(\$), excluding labor (sales less cash expenditure)	- 536	654	2,684	6,514	8,024	10,041	12,264	12,354	12,064	12,354
Labour inputs (person days)										
clearing	8									
cutting, lining and digging holes	3									
planting	1									
weeding	6	5	4	3	3	3	3	3	3	3
pruning				1			1			1
bait spraying application		10	10	10	10	10	10	10	10	10
fertiliser application	12	12	12	12	12	12	12	12	12	12
harvesting, sap control and packing		3	10	20	20	20	20	20	20	20
total labour input	30	30	36	46	45	45	46	45	45	46
Average annual labour input	41									
If labour is hired										
Cost of hired labour (@ \$30/day)	900	900	1080	1380	1350	1350	1380	1350	1350	1380
Gross margin (\$/acre) if labour is hired	- 1,436	4	2,469	6,834	8,774	11,322	14,044	14,164	13,874	14,134
Average annual gross margin per acre	\$ 8,419									
Average annual gross margin per tree	\$ 168									
If household is utilised										
Returns per day of household labour	-18	22	75	142	178	223	267	275	268	269
Average annual return per day of household labour	\$ 185									

The key findings of the one-acre breadfruit orchard model are:

- The estimated average annual gross margin per acre over a 10-year period is FJD 8,419. This compares to the average gross margin for growing an acre of sugar cane for three (3) years (a plant crop followed by two ratoons) is approx. FJD 2,950; yielding an average annual gross margin per acre FJD 980².

¹ Tora L, McGregor A and Erasito K "A financial and economic analysis of developing breadfruit orchards in Fiji" International Horticulture Conference, Brisbane 2014. See <https://tinyurl.com/yxuybfez>

² (Tora, McGregor and Erasito 2014).



- The estimated average annual return per day of household labour utilised is FJD 185. For sugar cane the estimated average return per day of household labour over the three years is approx. FJD 50 per day³.
- To these returns the income earned from intercropping would need to be added. With a spacing of 9m x 9m between the trees there will be ample room for the planting of crops such as cassava and pineapples in the first few years. By incorporating cassava as an intercrop for example, it is estimated that a farm household can earn an average of FJD 1,545 per annum from a breadfruit orchard in the first 5-years⁴. This translates to some FJD 40 per day of household labour.

The key variables impacting on the returns from the breadfruit orchard

- **Yield:** The average annual production per tree and the year that fruiting commences are key variables in determining the returns from the orchard. The early financial models prepared by the PBP assumed lower yields and fruiting commencing much later (year 5). It is better to err on the conservative side when projecting yields. At that time, there was little or no experience in growing breadfruit as an orchard crop in the Pacific Islands and it was necessary to rely on the limited data available from the Caribbean. However, the PBP found that if appropriate fruit tree horticultural practices were adopted for breadfruit, significantly higher yields could be realized, and fruiting can commence as early as year 2.
- Also, it was found if the recommended horticultural practices were not followed, particularly on poor soil, even lower yields than had been forecast were obtained. Below we simulate what happens to returns if fruiting commences in year 4, and yields are half what we projected in the financial model above. The average gross margin per acre falls to FJD 2,168 (26% of the level in the model) and average return per day of household labour falls to FJD 67 (36%). Even though these returns remain positive they are not significantly different from sugar cane – which has less risk and provides some income from the first year.

³ Ibid

⁴ Ibid



	1	2	3	4	5	6	7	8	9	10
Returns per day of household labour	-18	-13	-30	-11	63	84	109	120	114	118
Average annual gross margin per acre	\$ 2,168									
Average annual gross margin per tree	\$ 43									
Average annual return per day of household labour	\$ 67									

- Farm gate price:** The prices used in the model are based on the actual price paid by exporters. The main orchards have also been able to sell significant quantities on the local market at a comparable price. However, with a substantial increase in orchard breadfruit production and therefore the availability of fresh breadfruit, the price on the local market may be expected to fall (in the absence of new processing facilities and export markets).
- Labour inputs:** These are relatively low – but are based on actual labour inputs from the leading breadfruit orchards. Allowing for intercropping, the labour inputs attributed to breadfruit will fall somewhat, because some labour activities are shared between enterprises (e.g. weeding).

2.1 The cost and returns from the other actors in the fresh breadfruit value chain

If you are going to establish a breadfruit orchard for growing fresh breadfruit for export, it is important for you to have an understanding of the other actors or participants in the breadfruit export value chain. You will need to establish a direct relationship with some of these actors, such as your breadfruit seedling supplier, the exporter (who will be buying your fruit) and in Fiji with Nature’s Way Cooperative (who will be providing the quarantine treatment prior to export).

It is good that you understand the services these other actors provide and what their costs are. This will enable you to better appreciate the prices they receive. A key main actor is the exporter who will buy your breadfruit and ship it to the importer in New Zealand (or other export markets to be developed). The table below outlines the services provided, the costs involved and the reward the exporter receives for this contribution. The exporter’s gross margin for getting your breadfruit to New Zealand is FJD 1.78 per kg exported (or about 38% of the total cost of getting the breadfruit to New Zealand).



Returns from exporting 1 tonnes of fresh breadfruit to New Zealand				
	\$/kg purchased	\$/kg exported	\$/carton exported	\$/tonne exported
Costs				
fob costs				
Breadfruit purchased (1.1 tonnes @ \$0.80/kg)	0.80	0.88	10.45	880.00
Purchase of baitspray for grower (1 litre/tonne required @ \$50/litre)	0.05	0.06	0.65	55
Checking breadfruit at the farm (1 person for 3 hrs)	0.10	0.11	1.31	110
Cartage to the pack house	0.05	0.05	0.6	55
depreciation allowance on the plastic crates	0.09	0.10	1.20	100.00
grading and sorting at the packhouse	0.05	0.05	0.594	50
Transport to Natures Way Cooperative for HTFA treatment (\$50)		0.05	0.594	
HTFA treatment and packing (@72c/kg plus phytosanitary cert \$123.23)		0.84	10.02	843.23
Carton (waxed with divider \$4/carton 12 kg gross weight)		0.34	4	336.70
telecommunications (\$10)		0.01	0.12	10
Electricity (\$500 spread over 20 tonnes)		0.03	0.297	25
pack house rental (\$150/month for 3 months spread over 20 tonnes)		0.01	0.09	7.5
Fix labour costs (\$1000/month over 3 months spread over 20 tonnes)		0.05	0.59	50
Total fob cost		2.57	30.52	2,522
Freight to New Zealand				
LD3 container (1,430 kgs shared with other products)		2.00	23.76	2,000
New Zealand fees (documentation and inspection) @\$NZ60		0.09	1.01	85
Total freight cost to NZ		2.09	24.77	2,085
Total costs (cif)		4.65	55.29	4,608
Revenue				
New Zealand landed price \$NZ 4.5/kg (1NZD = 1.43FJD)		6.435	76.45	6,435
Exporter Gross Margin		1.78	21.16	1,827
Exporter Margin as a % of total costs		38.3%		



3.0 The Plan for your breadfruit orchard business

The purpose of the business plan is to help you decide if you want to proceed with this venture and, if so, give you the best chances of succeeding. As the saying goes ***“failure to plan is planning to fail”***. Your business plan may also help to secure financial and technical assistance that may be available from your Ministry of Agriculture or organizations such as PIFON. A business plan will also be necessary if you wish to try and access a loan from a financial institution to commence your orchard. However, securing a loan from a commercial bank for an agricultural enterprise in the Pacific Islands is likely to be difficult regardless of the expected financial viability of your proposal. This option should only be pursued if loan finance is absolutely necessary to implement your business plan.

Writing the business plan is about answering some specific questions, and then writing the answers down in a structured organized way. Your Business Plan does not have to be complicated, but it does need to be a clear explanation of what you intend to do and when.

3.1 The information you need to assemble to write your Business Plan

To prepare your business plan you will need to assemble relevant information regarding the concept and its background – this information has been presented to you in the preceding modules and there are also documents you can access to add further information if you feel it is necessary. You also need to undertake a SWOT analysis. You would need to gather the same information if you were considering processing as an agribusiness. The information you require is discussed briefly below:

(a) The concept

This section introduces your idea and puts forward suggestions as to why you think it is a good idea, what you have been able to do so far and what assistance and advice you have received. Some examples of the reasons why you might think your breadfruit orchard is a good idea might include:

“I have some good land that is available and experience in growing fruit trees.”

“I recently participated in a “farmer to farmer exchange” organised by PIFON at the Tutu Rural Training Centre on Taveuni. Seeing the breadfruit orchard, they had established and what they were doing with small scale processing was an eye opener for me.”



"My family have been sugar cane farmers for generations. However, we no longer find the growing of sugarcane worth the effort. I see the growing of breadfruit in an orchard intercropped with pineapples as better use of our land and time".

"I am interested in growing breadfruit because of the diversity of products that I can get from breadfruit – it means I am not relying on one market and I can also reduce wastage. If other markets don't materialize as planned, I will always be able to sell on my local municipal market".

"Breadfruit is a crop with huge potential for domestic consumption. It can help with import substitution. I hear the price of imported grain can be expected to increase in the future because of climate change and breadfruit is likely to be less affected by climate change".

"Breadfruit can help in the fight against non-communicable disease (NCDs) through improved nutrition. I want to do my bit to help my community address this major problem".

In presenting your idea and explaining why you think it is a good idea it is also useful to talk about: what you have already discovered about the market and marketing; and the resources and experience you have so that you can take advantage of market opportunities. For example:

"A recent market study I have read, shows that demand for breadfruit and breadfruit products far exceeds the readily available supply and this is expected to be increasingly so in the medium term".

"I know of some reliable buyers who keen to buy breadfruit and they seem to be offering a good price"

"I have available 5 acres of my own land which would be suitable for growing breadfruit. I have experience in growing fruit trees and won't have difficulty in adopting the required package of practices for a productive breadfruit orchard"

(b) Background

The background should include as the following information:

Information on you and your farming business experience: Are you a registered business entity? What is your business and farming experience? What relevant training you have received? What specifically is your experience with breadfruit and other fruit tree crops? Are other members of your family involved in your farming business etc.?



Information on the land you propose to utilise to develop your breadfruit orchard (ownership /lease details, location, assets on the land, previous and current usage, soil type and results of soil tests, what is the access to the land etc.).

Information on labour in your area – its availability, cost and skill level.

(c) SWOT analysis

What is a SWOT analysis? A SWOT analysis provides an organized structure for you to use to evaluate your business idea. To do this, you list in four squares the **S**trengths, **W**eaknesses, **O**pportunities and **T**hreats (SWOT) to your business. You will use these answers to help you decide if and how your plan should proceed. You can use the **S**trengths and **O**pportunities that you listed as reasons **WHY** you want to start a breadfruit orchard business as well as highlighting the importance of price and profit as drivers for your business. However, perhaps more **importantly**, you need to identify the **W**eaknesses Risks and **T**hreats the business could expect to face, and if and how these can be addressed. Below is a list of the type of questions you need to consider in undertaking the SWOT analysis:

Questions	Answers
<p>1. What experience do you have in growing breadfruit and other fruit tree crops? Do you have any experience with the management of and working on an orchard? Do you have experience in working with agroforestry and intercropping?</p> <p><i>Clearly the more experience you have in these areas the greater your strength for establishing and maintaining a viable breadfruit orchard. If you do not have much experience then it is a weakness, but one you can mitigate through training, bringing in expertise etc. Is this training and experience available and what will it cost you? If you are in Fiji, have you been able to make contact with Nature's Way Cooperative and Pacific Island Farmer Organization Network (PIFON)? They may be able to provide you with training and expertise through their breadfruit development programs.</i></p>	



<p>2. Do you have assured access to sufficient agronomically-suitable land for at least 10 years (preferably 20 years)? How much will this access to land cost you?</p> <p><i>Breadfruit is a long-term crop and this time period will be necessary to justify your investment (money and time) in planting and developing a breadfruit orchard. If access is limited then this could be perceived as a weakness.</i></p>	
<p>3. Is your land (site and soil) well-suited to the cultivation of breadfruit and complementary crops?</p> <p><i>If you are already growing breadfruit and other crops (that would grow well with breadfruit) in an agroforestry/orchard intercropping system on your land, then that is seen as a strength. If not, then you will have to know and explain how you will check that the land is suitable and make any modifications necessary.</i></p>	
<p>4. Is your site vulnerable to drought, strong winds/cyclones, floods and/or salt inundation?</p> <p><i>If your site is prone to any of these weather and climate variables, then that is a threat which you will have to address, for example, establish a windbreak for protection against strong winds. Are you aware of the soil conservation measures (contour planting, drain and drop structures etc.), that can be adopted and what such measures will cost? You will need to consult the Pacific Breadfruit Manual (which is currently being finalized)</i></p>	
<p>5. Do you have access to planting material of the preferred variety or a diverse array of varieties which will provide fruit over an extended period? Do these varieties meet the specified size requirements for export – if that is what you are interested in doing? Will you be able to access good planting material of crops that you plan to intercrop with breadfruit in your orchard?</p>	



<p><i>Ready access to quality planting material will be seen as a strength. If you don't have this access then you will have to assess and document how you are going to address this, possibly through establishing a nursery. Establishing a nursery could then be considered as an opportunity because you could sell planting material to other growers.</i></p>	
<p>6. What is your labour supply situation – both within your household and available for hire? How much time do you have available to devote to your breadfruit orchard?</p> <p><i>Ready access to productive labour will be an important strength. A modest orchard (1 acre) can generally be looked after by a farmer with extended family support – this would be considered as strength. Labour shortage can be a serious weakness that will need to be addressed. If necessary, what is the scope for mechanisation and what will it cost? This could be considered either as a strength or a weakness</i></p>	
<p>7. Are you already growing crops for export and do you have a good relationship with an exporter? Is this exporter already buying breadfruit? Does this exporter export both fresh and frozen breadfruit? Do exporters already operate in your area and are they regarded as reliable?</p> <p><i>Your assessment of the strength of the value chain could either be considered as a strength or a weakness.</i></p>	
<p>8. Will you have alternative markets for your breadfruit if for some reason the fresh export market is closed for an extended period? Does your proposed local buyer also freeze breadfruit for export? How much can you sell on the local market and what price can you expect to receive? Is there anyone who would buy your breadfruit for processing and at what price? Would you be able to undertake some small-scale processing?</p> <p><i>There are potential strengths, weaknesses and opportunities here</i></p>	
<p>9. Do you have other business skills that you can put forward as a strength or as an opportunity, for example, knowledge of</p>	



<p>and experience in marketing, record-keeping, and an understanding of pest, disease management and maintaining soil fertility?</p> <p><i>List potential strengths and weakness here</i></p>	
<p>10. How many other farmers grow and sell breadfruit nearby? Have you been able to discuss their operations with them and inspect what they do?</p> <p><i>Can you work with them? If there are several farmers and low demand for breadfruit, then these growers are a threat (competitors), but if you can work together with them, and increase demand from buyers, then this is an opportunity.</i></p>	
<p>11. How strong is the market for your crops and crop products? What is the basis of your market assessment?</p> <p><i>The more buyers and the more diverse the range of crops/products you can offer the greater the strength of your business and the greater likelihood of more opportunities.</i></p>	
<p>12. What would be your plan for managing damaged or second-grade fruit –composted; part processed into chips, breadfruit pieces or dough; or stock feed for chickens, pigs and other livestock?</p> <p><i>Having a plan in place for how to manage damaged or second-grade fruit can be put forward as strength and/or an opportunity if you are considering exploring any of these options.</i></p>	
<p>13. What support for the development of your new breadfruit orchard is being offered by the Ministry of Agriculture and other agencies? This could present an important opportunity.</p>	



You would have to put together a similar list of questions if you are considering processing as an agribusiness and some of the questions posed at the end of the module 4 are relevant. For example, 'have you identified a market for your processed product and the arrangements for marketing the product?' and 'can you incorporate other staple food crops into your processing business?'

An appropriate summary template for presenting the findings of your SWOT analysis would be:

SWOT ANALYSIS	
In each box, you need to list all the things about your business that are relevant for each box.	
A. STRENGTHS	B. WEAKNESSES
C. OPPORTUNITIES	D. THREATS

In the final Business Plan template exercise, you can expand on the answers to the questions above.

4.0 Your written Business Plan

Now that you have gathered all the information required and completed the SWOT analysis you can now decide whether or not you wish to proceed with your breadfruit business venture or not. If you do decide to proceed, you will then need to write up your business plan. As the saying goes ***"not to plan is to plan to fail"***.

An appropriate table contents for your written Business Plan would be:

- Outline of proposal
- Why it is a good idea
- Details of the proposed orchard
- Goals and timetable for achieving your goals
- Risks and challenges you might face to achieve the goal (cyclones, competition, pests and diseases, etc.) and what you can do to reduce these risks.



- Business risk analysis.
- Financials
- Supporting Annexes

Examples of the content needed under each of these headings is discussed briefly below

4.1 Outline of the proposal

Some examples of what your proposal could be are:

- “To develop 1-acre breadfruit orchard focussing on supplying fresh breadfruit for export. The breadfruit will be intercropped with pineapples and cassava”.
- “To develop a 1-acre breadfruit orchard focussing on supplying fresh breadfruit for the local market with surplus fruit being utilised by a small breadfruit chip processing enterprise that will be established”.

4.2 Why is this is a good idea?

Some of reasons you can put forward in this section include: prices received for breadfruit– now and expected in the future; markets and market linkages already established; your agriculture training, experience and skills; technical and other assistance available; and, the resources that are available to you (land, land labour etc.)

4.3 The details of the proposed orchard

This should include such things as:

- Breadfruit varieties to be planted and why and including from where the planting material will be sourced.
- Tree spacing to be adopted
- Proposed intercrops and cropping calendar
- Soil conservation measures to be adopted – such as contour planting, drains, drop structures etc.
- Irrigation system to be adopted and timetable for implementation



- Marketing arrangements
- Details of any proposed value adding activities

The previous modules will assist you in putting together the required information required on proposed orchard: Module 2 (technical requirements to establish a breadfruit orchard); Module 3 (technical requirements to maintain a breadfruit orchard); Module 4 (processing and value adding opportunities); and Module 5 (market and marketing requirements)

4.4 Goals and the timetable for their achievement

Some relevant examples would include.

- Planting timetable
- Yield and fruiting targets.
- Extending the fruiting season targets – for how long? During which months do you expect fruiting to occur?
- The volumes to be sold to various markets – fresh export, frozen export, local fresh, local processed etc.
- The income to be earned from the orchard and the returns from the farm household's effort in developing and maintaining the orchard

In setting targets, you need to be realistic. Remember, it is always better to err on the side of being conservative – particularly if you are not sure about such things as yields and prices.

4.5 Risks and challenges

When you address the risks and challenges facing a business, it means you have thought about what can go wrong. You need to prevent things going wrong if possible. However, often things going wrong are outside your control (e.g. a major cyclone). For these unavoidable risks you need to try and assess the likely impact and consider what you plan to do to minimise or reduce the impact (adaptation).

Some risks and challenges to consider might include:

- Climate and weather events



- Financial institutions not willing to provide start-up capital credit as you had expected.
- Labour is not available at the time required to harvest your breadfruit
- Weaknesses in the breadfruit market value chain – access to a particular export market does not become available in the time frame expected (e.g. the US fresh breadfruit market).
- Having a market available for any second-grade fruit
- The business being dependent on just one product or one buyer.

Module 3 discusses risks and challenges and proposes strategies for reducing the impact of risks.

4.6 Business risk analysis

You can use the answers from the SWOT analysis to write responses about your strong points and the business risks, and how you will address the risks. The objective here is to show that you know what the weaknesses and threats (risks) to your business are, and that you explain how you will reduce these in your plan (e.g. establishing a windbreak for a site prone to strong winds, or having a plan to manage damaged or second-grade fruit, either composted; part processed into chips or flour; or stock feed for chickens and pigs).

Our strengths and how this will help our business

Key risks to our business and how we plan to address these.



4.7 Financial projections

The core financial table that you need to present in the Plan is a model for estimating the financial returns you expect to achieve from your breadfruit orchard. The example is presented above is for a 1-acre breadfruit orchard located in western Viti Levu that is targeting the New Zealand fresh breadfruit market. This model would of course need to be modified for your circumstances, for example: the size of the orchard; the inter-crops you are proposing; the market you are targeting; any value adding you are envisioning, etc. The key outputs of the model that you, and those you are seeking assistance from, will be interested in are:

- The cash flow – when do you expect this to be positive and when will the orchard be self-funding
- The expected average annual return (revenue less costs), from the area of land devoted to the orchard (you would probably want to look at this over a 5-year and a 10-year period).
- Perhaps more importantly for a small holder farmer is the average annual return to their effort of the labour supplied by the farm household. You will be particularly interested in the time frame for the orchard to become a remunerative business for you and your farm household. You will want to compare this with alternative opportunities available to you.

Like any model, quality of the output (cash flow etc.) is as good as the quality (accuracy) of the information used (yield, prices, input quantities). Some of the key variables that will impact on the reliability of your predictions of the financial model for your breadfruit orchard are:

- **Projected yield and when fruiting is expected to commence.** This can be somewhat difficult to predict for a traditional food crop like breadfruit and as discussed previously in this module earlier projections put forward by the Pacific Breadfruit Project (PBP) significantly underestimated yield and the time it would take for fruiting to commence. But now that we have collected actual data from the PBP, you can be a lot more confident about making projections – provided you follow the recommended orchard package practice. A good rule to remember is when in



doubt, it is better to be conservative and under-estimate rather than overestimate yields.

- **The “farm gate” price received for the breadfruit products sold.** Ideally, if possible, this should be based on the actual prices farmers receive. Be careful to take account of seasonality. Also don’t be misled by the prices you hear that are being paid for breadfruit in overseas market. All the “actors” in value chain make a contribution for which they need to be adequately rewarded, which is why it is important to have a good understanding of the value chain.
- **The labour inputs required.** An important consideration is the returns that you and other members of your family working on the farm are able to earn from breadfruit enterprise. Thus, it’s important to be able to accurately predict the amount of effort (labour input) required for your proposed business. Farm management manuals in the Pacific Islands can be inaccurate in estimating labour input requirements and tend to under-estimate these. This leads to misleading over-estimations of gross margins.

You might intend to also become involved in other activities along the breadfruit product value chain, such as, taking your breadfruit to the local municipal market for sale, or establishing a small-scale value adding activity like manufacturing breadfruit chips. If so, you should also include a financial model in your business plan for these activities to the extent that you can.

You will need to use your financial model to undertake simulations to measure the impact of adverse events that might occur in the future. This will help you to objectively evaluate risk. For example, in the model presented above for 1-acre orchard in Fiji, the impact of cyclones was simulated. In this particular simulation it was assumed that 50% of the fruit was lost in year 3; 9% was lost in year 5; and, 50% in year 8. A good average return was still obtained over the 10-year period – indicating that breadfruit was still viable in the face of cyclones. A similar simulation could be undertaken for the loss of export market access for a period and having to sell all the breadfruit on the local market for a reduced price. The results of the appropriate simulations should be presented in the Financials section of the Plan – with the details supporting tables presented in a supporting annex.

It is imperative that once you commence the implementation of your Breadfruit Orchard Plan that you keep good records of what actually occurred, (yields, labour and other inputs used, input prices, selling prices etc.) compared with the predicted financials in your model.



Such record keeping is a necessary discipline that is required for monitoring and evaluation. It is also needed to be able to make any changes and adjustments that are necessary. Pacific Island farmers generally do not have a reputation for record keeping. You need to be an exception to ensure your agribusiness succeeds.

4. 8. Supporting annexes

You can use annexes with more detailed information in support of the various sections in your Business Plan. Some possible annexes might include:

- The detailed tables of financial projection simulations
- Relevant photographs, farm maps, location maps
- Soil analysis reports
- Letters of support from the local agriculture officers.
- Land title and lease agreements
- Buyer contract agreements