



**Food and Agriculture Organization  
of the United Nations**

# **Assessing the Viability of Collection Centres for Fruit and Vegetables in Fiji: A Value Chain Approach**

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## **Abstract**

This study assesses the viability of collection centres to provide specific services in the Fijian context. The study uses a value chain approach to identifying current constraints to the delivery of a consistent supply of high quality produce as well as a comparison of the costs and revenues of a possible collection centre model with the current marketing methods. It finds that the viability of collection centres will among other factors depend upon the choice of their location, with many areas being potentially unsuitable due to a lack of support from producers or buyers. In such areas it may be more beneficial to adapt the existing infrastructure and network to cater to the needs of the sector. Further analysis into the appropriate design of collection centres would be required to ensure their viability in areas more suited to the services that they could offer.

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## **Disclaimer**

The views expressed in this working paper are those of the author and do not necessarily reflect those of the Food and Agriculture Organization of the United Nations.

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## EXECUTIVE SUMMARY

Agriculture in Fiji is characterised by a sector unable to meet the demands of the market and suffering from stagnant growth as the economy grows increasingly import-dependent. The domestic supply of fruits and vegetables is often insufficient, inconsistent and/or not up to standards to meet the demand of operators, leading to the import of significant volumes of produce that could be sourced locally.

Insufficient planning along the value chain has led to a supply-demand mismatch. Small-holder farmers face difficulties in accessing markets and in acquiring market information. Farmers rarely operate as farmer groups and endure high production costs due to the lack of scale economies. Expensive transport options prevent delivery to the market at a competitive price. Many of the farms are widely dispersed or have bad road conditions making it difficult for buyers to source directly from farmers. Accessibility has prohibited post audit support activities from the Ministry. Extension staff have been unable to efficiently provide training, follow-up advice and support.

The consequence of the inability to find viable markets has been post-harvest waste. There are insufficient packhouses and storage facilities in rural areas, dramatically reducing the shelf life and quality of the produce. Likewise, farmers are unable to provide security and are at risk from theft, particularly of high-value goods.

The high degree of information asymmetry, combined with the large number of both producers and buyers operating in rural areas, has resulted in a highly competitive arena. Few contracts are established as both are willing to search for more price competitive options, and little trust exists as previous contracts have been broken by both parties.

In addressing constraints in the sector and in developing a strategic plan, a process of participatory stakeholder diagnosis on the constraints to the fruit and vegetable sector development has been initiated under the *All ACP Agricultural Commodities Programme (AAACP)* in Fiji with the overall objective of improving incomes and livelihoods for producers of agricultural commodities and reducing income vulnerability at both producer and macro levels.

In addressing the needs of both producers and buyers, participants in a workshop convened under the AAACP by the International Trade Centre recognised that the creation of an effective collection and grading system that allows a supply cascade could potentially generate higher returns throughout the supply chain. The centres would be an important component in improving the links between the buyers and the growers, and could provide a range of services according to the needs of both groups.

The purpose of this study is to contribute to the design and to examine the viability of establishing collection centres in Fiji. The study therefore uses a value chain approach to understand the needs and constraints facing different stakeholders in order to assesses the feasibility of establishing a collection and grading system of fruits and vegetables crops for processing, distribution and selling that can improve the commercial links between producers and buyers in the domestic market, and makes recommendations that incorporate lessons learnt from previous initiatives.

The study uses questionnaire-based surveys for both producers and buyers as well as a financial analysis to examine the viability of collection centres in a localised context. Surveys are used as they assess the needs of the participants in the area and therefore key factors influencing the use of a collection centre that may not be obtained through cost-benefit analysis. They allow an examination of external factors that may influence a project and provide a better understanding of the participants' context, terminology and processes. The quantitative analysis used in the study provides an indication of the net benefits or losses that would be realised through the application of collection centres when compared to existing means of operation. Through a direct comparison, it is possible to determine whether the gains in efficiency outweigh the costs of the centre.

The study focuses on the Sigatoka Valley due to its importance in horticultural production and market accessibility. An evaluation of the existing packing sheds of Yawayawa and Lokia provides useful insights into similar ventures and lessons to be learnt from past experiences which are incorporated into the analysis and the recommendations.

In evaluating the needs of producers, the survey identifies that the vast majority of farmers in the Sigatoka Valley are smallholder, semi-commercial enterprises. Market demand is the dominant force in all farm endeavours and the sole reason for growing a particular product. Few farmers have immediate access to equipment, such as tractors and vehicles, and must rely on sharing or renting from others in the area. Agro-inputs are not easily accessible and the high cost results in their limited application. Difficulties in accessing agro-inputs and finance has encouraged a number of farmers to join farmer groups due to opportunities available through the Ministry's own programmes that are restricted to those operating in groups. Unfortunately, few farmer groups have lasted more than five years, prompting the need for further examination and a review of their use.

The needs of buyers very much depends on their characteristics. The survey identifies a number of different types of buyers operating in the value chain, each with different characteristics and features. The different buyers of agricultural produce are identified as follows:

- Type 1 middlemen or Business Operators/Service Providers;
- Type 2 middlemen or Farmers Supplementing Incomes;
- Type 3 middlemen or Market Vendors/Farmers with Market Stalls;
- Type 4 middlemen or Importers;
- Exporters; and
- Hotels and the tourism industry.

The main buyers of produce operating in the Sigatoka Valley tend to be type 1 middlemen and exporters, who are larger in size and with greater emphasis on quality, as well as type 2 and type 3 middlemen, who operate on a smaller scale but have a strong social importance in the local community.

None of the groups are interested in using contracts with farmers, and many have poor past experiences. With an importance placed on flexibility, many middlemen would not consider contracts as beneficial. Price competitiveness is key and buyers are willing to search for better

value in order to improve their own market share. Road conditions and infrastructure are the most significant factors preventing buyers from sourcing produce.

Buyers have better access to finance than producers, but still face difficulties. Excluding hotels, very few buyers have insurance policies, partially due to limited options available and the high premiums. Many do not consider insurance as a necessary expenditure.

In evaluating the viability of collection centres, the analysis shows that, under certain restrictive assumptions, collection centres are viable and with greater returns than the current system. Options are calculated for both a more expensive and a cheaper collection centre, and shown to both have net present values and discounted cumulative cash flows greater than the current means of operating and marketing in the Sigatoka Valley.

An important feature of the analysis is the critical assumption that collection centres are more efficient in reducing waste and that buyers prefer to source produce from the centres. The analysis shows that if only 50% of produce is sourced from the centres, the centres are not fiscally viable.

Using the past experiences of the Yawayawa and Lokia packing sheds, suggests that collection centres are better located in areas with a high prevalence of exporters and type 1 middlemen. That is, in areas close to urban centres and international ports of access with strong infrastructures. In locations where infrastructure is weak, and where other types of buyer are more prevalent, collection centres are unlikely to get the support from buyers, and consequently from producers. Even in areas where collection centres may have support from local agents, if producers remain willing to sell to any buyer at the farm gate, thereby circumventing the use of the collection centres, the centres will face increasing difficulties to remaining fiscally viable.

The development of collection centres in many areas of Fiji may only serve as a second-best solution as a provider of agro-inputs, information and technical advice. These are important elements but it may be better to adapt the existing infrastructure and network to cater to the needs of the sector. Improving infrastructure, the dissemination of information, access to finance and agro-inputs, and technical training should be prioritised activities. Further analysis of the relative merits of a fully designed and costed system of collection points *vis à vis* adaptations to the existing infrastructure is therefore warranted.

## 1. INTRODUCTION AND RATIONALE

As part of the EU funded *All ACP Agricultural Commodities Programme (AAACP)*, Fiji has undertaken several steps towards addressing constraints in the Fruit and Vegetables sector and in developing a strategic plan. The overall objective of the programme is to improve incomes and livelihoods for producers of agricultural commodities and to reduce income vulnerability at both producer and macro levels. The specific objective is to build the capacity of stakeholders all along the commodity value chain, including national policy makers but also producer organisations, to conceive and implement sustainable commodity strategies.

Following a consultation and briefing mission in Fiji in August 2008, a fruits and vegetables sector strategy development workshop was held in Nadi, Fiji, from 18<sup>th</sup> to 20<sup>th</sup> November 2008. Approximately 150 stakeholders attended the workshop, representing input suppliers, small and commercial farmers, middlemen and importers, processors and exporters, NGOs, supermarkets, restaurants and hotels, the Ministry of Primary Industries, the Agriculture Marketing Authority (AMA), the Ministry of Tourism, Fiji Trade and Investment Promotion Bureau, the National Centre for Small and Micro Enterprise Development, and regional/international bodies such as SPC and the Taiwan Technical Mission.

Overall, the discussions highlighted that a strong and diversified demand for fruits and vegetables from both the domestic and external markets is not met because of supply constraints relating to low quality produce, the limited capacity of farmer organizations, non-transparent market information, limited farmer-buyer (including hotels) links, and limited access to agricultural and processing equipment, extension services and finance.

Stakeholders identified key areas that need to be addressed, from the perspectives of both producers and buyers. The producers highlighted the following issues as their main requirements:

- Better price and market information;
- Improved forecasting of quantity, quality and price requirements by buyers;
- Better market access and promotion of Fiji produce;
- Improved links with middlemen as this group can provide marketing opportunities, sourcing agro-inputs and training;
- Improved training on farm business management, grading, and post-harvest handling and treatment;
- Technical assistance in developing farmer groups;
- Better access to finance, including addressing collateral problems that prohibit sourcing loans from financial institutions;
- Assistance in establishing contracts with buyers, whether as farmer groups or as individual, that could be potentially used as a form of collateral;
- Addressing the issue of land lease expirations;
- Developing the domestic processing industry (drying, pulping, juicing, freezing, etc); and
- Increased use of local produce and recipes in the tourism industry.

The buyers identified the following issues as their main requirements:

- Better year-round consistency in supply and quality;

- Improved links with middlemen who provide delivery of a range of produce on short notice, occasionally provide credit, and have adequate cooling and storage facilities. Middlemen also provide transport, communication, quality assurances and other services to the buyers that cannot at present be provided by farmers or farmer groups;
- Develop the domestic processing industry to diversify supplies, absorb excess supply and help stabilise price fluctuations;
- Introduce temperature controlled storage and to consolidate supply;
- Introduce produce varieties that suit tourist demands and diversify exports, as these are primarily geared towards Pacific Islanders living abroad; and
- Introduce farmer planning to cater for tourist demands during the dry season and for export demands during off-season.

### **1.1 Rationale for Collection Centres**

Both groups of participants recognised that the agricultural sector in Fiji is unable to meet the demands of the market and is suffering from stagnant growth as the economy grows increasingly import-dependent. The domestic supply of fruits and vegetables is often insufficient, inconsistent and/or not up to standards to meet the demand of operators, leading to the import of significant volumes of produce that could be sourced locally.

Insufficient planning between the market and the producers has led to a supply-demand mismatch. Small-holder farmers face difficulties in accessing markets and in acquiring market information. Farmers rarely operate as farmer groups and endure high production costs due to the lack of scale economies. Expensive transport options prevent delivery to the market at a competitive price. Unfortunately, many of the farms are too widely dispersed or have bad road conditions for buyers to source direct. Accessibility has also prohibited post audit support activities from the Ministry. Extension staff have been unable to efficiently provide training, follow-up advice and support.

The consequence of the inability to find viable markets has been post-harvest waste. There are insufficient packhouses and storage facilities in rural areas, dramatically reducing the shelf life and quality of the produce. Likewise, farmers are unable to provide security and are at risk from theft, particularly of high-value goods.

In a situation of a high degree of information asymmetry, combined with the large number of both producers and buyers operating in rural areas, few contracts are established as both are willing to search for more price competitive options, and little trust exists as previous contracts have been broken by both parties.

In addressing the needs of both producers and buyers, workshop participants suggested that the creation of an effective collection and grading system that allows a supply cascade could potentially generate higher returns throughout the supply chain. It was argued that the centres could be an important component in improving the links between the buyers and the growers.

In supporting producers, it was suggested that a collection centre could serve as a key provider of services:

- As an information provider, it could directly contribute to improved knowledge of the needs of the market allowing better planning throughout the value chain.
- Market price and demand information could be easily disseminated to producers using the facility and allow for more accurate forecasting.
- The centres could provide vital technical assistance and training in a number of areas, including farming techniques, post-harvest handling and business management.
- The centres have the potential to help establish contracts with producers, which could be used as collateral in sourcing finance and insurance from financial institutions.
- Through the development of a grading system, producers would likely benefit from greater access to a range of markets; from export and tourism industries which demand the highest quality to the processing industry which can utilise lower quality produce. Finding a market for produce is recognised as the most important benefit to producers.

For buyers, it was argued that a collection centre has the potential to:

- Improve consistency in both supply and quality through better planning, grading, the use of temperature controlled storage, and the technical training of producers in areas such as post-harvest handling according to buyer specifications.
- Through the facility, better information can be provided of the needs of buyers, such as quality standards and market demands.
- Buyers could further benefit from reduced transport costs due to the reduced need to travel widely in search of price competitiveness, often in areas with poor road infrastructure.

#### *Requirements of a Collection as Identified by the AAACP workshop*

Following from the perceived constraints faced by agents along the value chain, the AAACP workshop in November 2008, suggested the implementation of collection centres in rural areas. Participants at the workshop identified these centres as having the potential to act as a marketing facility, as a provider of extension services and as an information centre. The centres would be an important component in improving the links between the buyers and the growers. Participants argued that the centres should provide for product warehousing able to segregate varieties, grades and pick dates, as well as cooler facilities. They should be able to source direct from the farmers and to deliver to the markets. As an information provider, they should directly contribute to improved knowledge of the needs of the market and to better planning throughout the value chain. This section thus attempts to evaluate the financial benefits of setting up collection centres in the Sigatoka Valley according to the needs of producers and buyers.

In addressing these requirements, collection centres could possess the following characteristics:

- They should serve between 20 and 30 farms.
- Provide information in a range of areas and to educate farmers.
- Provide training to farmers in grading and post-harvest management training.
- They should contain simple washing, grading, cool hygienic storage, selling and phone connection facilities
- They should introduce appropriate packaging technology into the area and train Processors and Collection Point managers.
- They should encourage the grouping of farmers to expand volumes of similar varieties and improve quality.

- They should keep accurate farmer records to be used as collateral for small loans
- They should eventually evolve from simple collection point to a distribution and selling agency and training platform.
- They should provide services to the community, including the distribution of inputs, seeds, training of farmers, improve effectiveness of extension services, market information.

## **1.2 Objectives of the Study**

The purpose of this study is to contribute to an assessment of the viability of establishing collection centres in Fiji as providers of the services listed above. The study will therefore assess the feasibility of establishing a collection and grading system of fruits and vegetables crops for processing, distribution and selling that can improve the commercial links between producers and buyers in the domestic market, and to make recommendations on changes to rectify limitations of past interventions.

Specific objectives are to:

- (i) determine more precisely, the requirements of such a system;
- (ii) assess the performance and pinpoint the lessons learnt from the existing packing sheds supported by a previous FAO project;
- (iii) to determine whether the use of similarly structured collection centres as collection and grading points is viable; and
- (iv) to recommend changes to the previous intervention to improve the sustainability/viability of the system.

## **1.3 Research Methodology: Surveys**

The first phase of the study focuses on the use of questionnaire-based surveys of producers and buyers of agricultural produce, supplemented through interviews and background research.

Surveys were used as an integral part of the feasibility study as they address the needs of the participants in the area and highlight key factors influencing the use of collection centres that are not reflected through cost-benefit analysis. They allow past experiences to be reflected and can uncover information otherwise unknown. This is particularly pertinent in areas where the level of education may be low and the importance of peer teaching and local surroundings more prevalent. Surveys allow an examination of external factors that may influence a project and provide a better understanding of the participants' context, terminology and processes. The combination of these three elements make an interface more intuitive as the familiarity of users is already built in.

Unfortunately, surveys are time consuming and costly and liable to interviewer bias and error. Interviewers may have different methodologies to conducting surveys and record information differently, particularly when the information provided is only an approximation and informal. Likewise, participants may warm to certain interviewers but not others, thereby affecting the amount of information they are willing to provide.

To reduce bias and error, a small team of three individuals was used to conduct the survey. All were subject to a one-day field training/testing exercise. Surveyors would be introduced to the producers by the Extension locality officer prior to survey as these officers already have a working relationship with the participants. To avoid possible bias, the locality officer would not stay for the survey.

Separate surveys were conducted with producers and buyers, though a high element of overlap exists. This allowed for a full representation of the value chain while specifically addressing the needs, issues and constraints of each group. Both surveys were subjected to field testing prior to implementation to ensure that the full value chain was appropriately analysed and that the feasibility of collection centres could be evaluated within the local environment.

The producer survey consisted of several components: enterprise and organisation, marketing, farmer groups, and collection centres. A copy of the survey questionnaire is available in the Annex.

Questions relating to enterprise and organisation focus on land tenure, crops grown and method of farming, reasons for growing particular crops, farm equipment in use, constraints in supply, and access to agro-inputs and finance. The information collected allows for an analysis of the farm itself, and allows an evaluation of collection centres according to the needs of the local environment. Areas with a high concentration of small, subsistence farmers, for example, are likely to have different requirements of such a facility compared to areas with a greater concentration of larger, commercially-orientated farms.

The section on market channels focuses on market transactions, post-harvest handling, contracts and linkages with buyers, and access to information. The evaluation of market transactions includes details of marketing constraints, the type of buyer and the type of transaction. This allows the local marketing environment to be better appraised, and therefore the effectiveness of collection centres in improving access to markets to farmers. Likewise, the existing use of contracts and linkages with buyers. Post-harvest handling helps to ascertain whether producers are currently able to meet the requirements of buyers when compared to buyer surveys. An evaluation of both provides a measure of the necessity to promote post-harvest handling within the sector and to provide training to farmers in appropriate methods. An examination of the availability of information allows the study to assess the extent of information asymmetry in the sector and thus the need for collection centres in providing information and training to farmers.

Farmer groups are an arrangement by which farmers, particularly small-holder farmers, can reduce costs of production through shared resources and improve market prospects through more consistent supply. Several questions are formulated to allow an evaluation of the current use of farmers groups, as well as their success or failure. Increased use and the promotion of farmer groups was identified as an activity for implementation in the first workshop of the ACP programme. It was also identified as a possible activity in collection centres. This study therefore allows an evaluation of current experience and local views of farmer groups.

The section of questions on collection centres is comprised of two parts. The first is an assessment of the current packing sheds in the Sigatoka Valley: their use, success, and support from producers

and buyers. The second focuses on specific aspects of developing a collection centre in the local area: activities to be included as determined by producers and evaluating support from the local community.

The buyer survey likewise consists of several areas: produce procurement, finance and insurance, and collection centres. A copy of the survey questionnaire is available in the Annex.

Produce procurement addresses a number of issues, including product demand and supply, frequency of purchase, methods of payment and contracts with producers, services provided to farmers, constraints, grading, and the end market. Product demand and supply provides insight into the ability of local producers to supply the market. A comparison of the buyer and producer surveys allows an analysis of the extent of demand-supply mismatch within the sector. The frequency of purchase, methods of payment, details regarding contracts, and grading all reflect buyer requirements and current methods of conducting business. They provide an indication of the ability of the farming community to cater to the demands of buyers. Recommendations can be made from the analysis, which can be incorporated into an analysis of the activities of collection centres. The use of contracts and the services provided to farmers help reflect the inter-personal relationship between buyers and producers, as well as providing an indication of the level of importance of buyers in the societal structure. If buyers are found to have strong links with producers and provide a range of additional services it reduces the need for collection centres. Indeed, collection centres could have a negative impact in affecting the relationship between buyers and producers.

In terms of finance and insurance, the survey identifies the ability of buyers to access external sources of finance and the use of insurance schemes, as well as an evaluation of the extent of their awareness. In the first AAACP workshop, an activity mentioned for inclusion in collection centres was the provision of information relating to accessing finance. Improving access to insurance was stated as an activity for inclusion in the AAACP Sector Strategy Document. The survey, therefore, helps to evaluate the current use and need, the constraints faced, and the potential of both in the sector.

As with the producer survey, the section related to collection centres was in two parts. The first being an assessment of the current use and awareness of the packing sheds in the Sigatoka Valley, and whether they have benefited the buyer community. The second concentrates on the feasibility and potential of developing collection centres, including aspects of importance, as determined by buyers.

#### **1.4 Choice of Location**

The study focuses on the Sigatoka Valley as a potential site for collection centres. First, the highest number of commercial fruit and vegetables farmers are based in the Sigatoka Valley, producing a wide range of horticultural products, attracting a large number of buyers. The Sigatoka Valley itself consists of five main areas, each with their own characteristics and features:

- The Upper Valley: This is located approximately 70km north of Sigatoka. It produces some fruits and vegetables, but mainly focuses on the production of root crops. Farmers are predominantly native Fijians. Subsistence agriculture predominates production systems.
- The Mid Valley: Vegetables are the main produce although papaya production is becoming increasingly evident.
- The Lower Valley: This covers the area around the Sigatoka Research Station at Nacocolevu through to Sigatoka town. The area has good road networks and accessibility, favouring the area among middlemen and exporters. A wide variety of produce is available, with vegetables and papaya most apparent. A packing shed was previously set up by the FAO in 2002 at Yawayawa, complete with cooler facilities.
- The East Bank: Although geographically close to Sigatoka Research Station and separated by the Sigatoka river from the Lower Valley, the area is much more isolated. Road networks are poor, with middlemen more dispersed, and the area is prone to flooding. There are no public transportation options in the area. Vegetables are the dominant crop. A packing shed was previously set up by the FAO in 2002 at Lokia, complete with cooler facilities.
- The Cane Coast: This is a thin stretch between the coast and the main highway just south of Sigatoka and stretches to the north. Good road access allows good market access. Though sugar is most dominant crop, vegetables are taking increasing weight.

Second, Sigatoka is the most favourable location in Fiji in terms of market accessibility. With good road networks, the area can be easily reached by middlemen supplying the cities. The wide range of available products has resulted in the area being a popular source of produce by middlemen from all over Viti Levu, from Suva to Lautoka. It's proximity to the tourism industry along the coral coast and the west of Fiji allows access into the large tourist market for fresh fruits and vegetables, although many of the hotels still prefer imported produce due to reliability of quality and supply. For Fiji's exporters, Sigatoka lies just one hour away from Nadi's quarantine facilities and international airport, reducing the time between harvest and export.

Third, Sigatoka has dominated Ministry support in recent years due to its wide range of products and its accessibility. Funds have been pumped into the infrastructure and the area has received the greatest proportion of Extension technical support. The Taiwan Technical Mission (TTM) is located close to the Sigatoka Research Station and provides much needed technical support. Both TTM and the research station are important sources of seeds and seedlings for farmers in the area.

Finally, in improving market support and developing commercial agriculture, the Sigatoka Valley was selected for the creation of two cooperative-run packing sheds. They were installed in 2002 as trials for introducing packing sheds more widely in rural areas with the aim of increasing farmer groups and the marketability of produce.

For these reasons, the Sigatoka Valley was the focal area for conducting surveys of producers. The concentration of farmers, wide range of produce, market accessibility, and its attraction to local buyers are all important factors in the feasibility of setting up Collection Centres in Fiji. In addition, the packing sheds provide valuable insight into past endeavours and lessons to be learnt.

There are also certain limitations to Sigatoka being the focus of an investigation to implementing collection centres throughout Fiji. Farmers tend to be less concentrated in other areas and the incidence of subsistence farming is higher, directly affecting the financial benefits of a collection centre. There may also be fewer buyers in other areas, hence reducing the scope for finding viable markets. Costs of construction would also dramatically increase for collection centres located on one of the other islands, including Vanua Levu, Fiji's second biggest island. Costs of transportation between islands is significant, and many exportable commodities are not price competitive once transported to Viti Levu, which has Fiji's only certified ports for export located in Nadi. In addition, most of Fiji's tourism industry is located in Viti Levu, reducing the ability of other islands to market to the tourism sector.

### **1.5 Research Methodology: Cost-benefit analysis**

The second phase of the study focused on a comparison of Net Present Value and Discounted Cumulative Cash Flows, to illustrate the financial gains or losses to the sector through the implementation of collection centres.

A number of assumptions have to be made of the potential improvements in efficiency that arise from the use of collection centres in comparison to existing means of operation, which can then be translated into quantitative financial costs and benefits. Gross margins are calculated for a range of products and applied over the area covered by a collection centre to establish gross revenue. Costs of installation and running a collection centre were researched to calculate gross expenditure.

The analysis provides an indication of the net benefits or losses that would be realised through the application of collection centres when compared to existing methods operations under a certain set of assumptions. Through a direct comparison, it is possible to determine whether the gains in efficiency outweigh the costs of the centre. The analysis is nevertheless limited by the assumptions made, and it is important to note that revenue and expenditure will vary according to such factors as use of appropriate farming practices, location, and services provided by the collection centre, as well as whether the centres are self financing or supported by government.

### **1.6 Report Structure**

The remainder of the study is structured as follows:

#### *A/ Background information*

Section 2 provides background information of the agricultural sector in Fiji: its contribution to GDP, farm structure and land tenure, physical infrastructure and transport, and investment in agriculture. These elements are all important in providing base information to the nature of agriculture in Fiji. Section 3 describes the various market opportunities for local producers; from the domestic municipal markets to tourism, exports and processing and value adding. The section identifies some of the constraints faced in each market as well as any identifiable trends. These market opportunities reflect current links and sector planning along the supply chain.

Section 4 provides details of the packing sheds of Yawayawa and Lokia. Both are examples of past initiatives aimed at improving marketing channels, sector planning and the links between

producers and buyers. Examination of the packing sheds allows lessons to be learnt for the potential implementation of other initiatives implemented in Fiji.

#### *B/ Producer and Buyer Survey*

Section 5 details the methodology used in the questionnaire-based surveys, both for producers and for buyers. These surveys provide the mechanism by which collection centres can be evaluated within a local context.

Section 6 describes the key findings from the producer survey. The findings identify the needs and constraints faced by producers while Section 7 describes the key findings from the buyer survey. The findings in these sections help to analyse the potential impact and success of activities implemented and to make recommendations accordingly.

Section 8 addresses common issues between both producers and buyers, as identified from the two sets of questionnaires. This will allow later sections to make an assessment of activities that could generate increased integration between the two groups and greater strategic planning in the sector.

#### *C/ Cost Benefit Analysis*

Section 9 details the methodology used in the cost-benefit analysis and Section 10 uses the analysis to assess the economic viability of collection centres.

#### *D/ Synthesis and recommendations*

Section 11 integrates both the questionnaire-based surveys and the quantitative analysis to assess the viability of collection centres in a local context. The section evaluates collection centres according to the needs of both producers and buyers and the attempts to gauge support from each. The section uses the experience of the Yawayawa and Lokia packing sheds to discuss lessons learnt before making an assessment of the viability of collection centres in the Sigatoka Valley.

Section 12 provides alternative solutions to the needs and constraints faced of both producers and buyers. Section 13 discusses the main findings from the study before drawing conclusions.

## **2. AGRICULTURE IN THE FIJIAN ECONOMY**

### **2.1 Contribution to GDP**

The agricultural sector remains the single most important source of employment in Fiji, although its contribution to GDP has continued to decline. Over the 1997-2007 period, the contribution has fallen from 14% to 11% of GDP (see Annex Table 1). Much of this may be accredited to the sectoral shifts in the economy with increasing urbanisation and with tourism taking a much more significant role.

The comparatively low productivity of the agricultural sector as a whole reflects many factors, including the dominance of subsistence over commercial farming, low mechanisation, inadequate inputs, poor husbandry and other farming practices, inadequate infrastructure, marketing deficiencies, and high production costs due to the lack of scale economies and expensive farm inputs. Problems are further aggravated by political instability and adverse weather patterns, not to mention the increasing price for crude oil which directly translates into increased costs of production and a further reduction in competitiveness.

The historical importance of sugar is also in part responsible for the overall lack of development of the agricultural sector. The sector has been relatively neglected until relatively recently, with no clear government strategy, little focus on the development from subsistence to commercial, and almost no initiative taken to address the demands of the market.

Papaya, dalo, cassava, and ginger are the most important non-sugar commodities contributing to GDP. Papaya exports have increased by 60% since 2003, now valued at more than F\$2 million, and the commodity has dominated government attention and agricultural policy in recent years. Dalo and cassava production and exports have likewise increased, marketed to Pacific islanders living in Australia, New Zealand and the USA. Production has been sustained through their importance as sources of traditional staple crops. Ginger exports suffered a decline with the loss of the Japanese market due to competition from China, but have remained relatively stable over the past five years. However, there are few other commodities that are grown on a commercial scale and even fewer for which Bilateral Quarantine Agreements have been developed with other countries, to allow their export.

### **2.2 Farm Structure and Land Tenure**

Agriculture in Fiji is dominated by small farms. There are a large number of farms below 1ha in size, used purely for subsistence, and a very small number of farms over 100ha, used predominantly for grazing, old coconut estates and forestry. Exclusion of these extremes still shows more than half of the remaining farms as being less than 5ha in size and only 19% being described as medium-sized or larger.

Access to land is often described as the biggest impediment to the development of a sustainable agricultural sector with access to capital. Land tenure in Fiji may be broadly categorised into groups: Native Land (over 80%), Crown Land and Freehold land (each less than 10%). Native land cannot be converted to freehold tenure and the government is reluctant to acquire native land

for Crown land purposes except for essential public services such as road networks and basic infrastructure.

Under the Agricultural Landlord and Tenant Act (ALTA), most farms on Native land act on 30-year leases. Since 1997, a total of 7669 leases have expired. Between 2008 and 2017, an additional 4004 will expire (see Annex Table 2). After consultations between the tenants, the landowners and the Native Land Trust Board (NLTB), most of these leases have not and will not be renewed; often returning to the local *mataqali* (clan)<sup>1</sup>. All consultations require that the views of all representatives of the *mataqali* be considered. In an increasingly mobile society, finding and getting agreement from all representatives is an oft-cited cause for the protracted nature of the negotiations.

Uncertainly as to the renewal of leases has directly impacted investment in agriculture. Farmers are unwilling to make investments which cannot be recuperated. Likewise, financial institutions are unlikely to give loans to farmers who may be forced to relocate. The end effect of this is a reduction in the productive efficiency of the land as fertilisers are used more sparingly, soil conservation techniques ignored, irrigation deemed less important, and so on. Farming focuses on achieving short-term output with minimal input cost, with limited regard for future production.

In many cases, returned land lies idle. In other cases, Extension services have claimed that the land can be up to 40% less productive in the years following than it was under its previous occupants. This is partially attributable to a reduction in the productive efficiency of the soil, but also to a lack of farm training and awareness of new tenants. New tenants from the local *mataqali* frequently lack the technical knowledge and financial means to invest to turn the land into a commercial enterprise.

Access to prime agricultural land is fiercely fought over by both native Fijians and Indo-Fijians. Freehold land can be bought or leased by anyone; its high price reflecting its scarcity. Native Reserve Land can be leased to Fijians acting as trustees on behalf of the owners; an arrangement that has been used for tourism and forestry ventures.

Even though land may be available to the *mataqali*, it is not often used for commercial purposes but rather for subsistence and for producing a few cash crops without financial rental payments. Some chiefs are unwilling for villages to personalise land for themselves, and prefer profits to be shared by the community. Increased cash cropping and monetization of the rural economy has put traditional allocation systems under pressure and made disputes more common.

### **2.3 Physical Infrastructure and Transport**

Infrastructure plays a necessary role in the relationship between producers and buyers, and is crucial in accessing markets. It has an important role in the implementation of any project, and will directly affect the feasibility of collection centres. Areas with poor accessibility may struggle to entice buyers while areas with good infrastructure may find that their presence is unnecessary. As

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<sup>1</sup> Between 1991 and 1999, cultivated land area decreased by 13.4%; the main reason cited being the non-renewal of ALTA leases.

argued by McGregor and Gonemaituba (2002), public investment in key infrastructure can lead to a major marketing response, while if core elements of marketing infrastructure are missing investment in facilities such as collection centres is unlikely to result in the sustained marketing of produce. Components of key infrastructural requirements include roads, jetties and wharfs, airfields, telecommunications, electricity and water supply.

### Accessibility

Roads represent the most fundamental infrastructural requirement and allow accessibility to areas that would otherwise be neglected. In Fiji, the main highway around Viti Levu has given rise to the growth of industry and the agricultural sector has been most productive where there exists good access. The interior remains largely untapped, and communities in these areas are characterised more by subsistence lifestyles than as commercial entities. Sigatoka, one of the largest areas of agricultural production can be easily divided according to the accessibility by road: the lower and mid-valley easily accessible and with greater productivity; the East Bank and the Upper Valley with poor road access and with a high incidence of subsistence farming.

Jetties and wharfs are equally as important to those in the islands, as they are necessary to access the main island. However, with the high cost of fuel and an inability to take advantage of scale economies, these islands have continued to remain subsistence orientated. Even for farmers on Vanua Levu, Fiji's second biggest island, the cost of transport to Viti Levu is significant enough to prevent price competitiveness. In 2008, the price of a 10-wheeler truck, sufficient to transport roughly 10 tonnes of taro, cost F\$1,100 one way. A number of agricultural commercial endeavours have failed to remain competitive with the high cost of transport between the islands. For those in the outer islands, where marine transport is less frequent and more expensive, there is little chance of development.

In accessing export markets, it is necessary to have airports and/or ports. Both the international airport and port are located on Viti Levu. Savusavu has been officially declared a Port of Entry, but does not have international standard port facilities to attract export shipping. As such, Vanua Levu must first ship produce to Viti Levu before it can be export, significantly reducing price competitiveness. This may well affect the feasibility of establishing a collection centre in Vanua Levu.

Even with access to international shipping facilities, Fiji is unable to take full advantage of its export potential. The quantity of exports is not currently sufficient to achieve economies of scale, and Fiji is separated from its nearest markets by some 4,700km of ocean. None of the other Pacific Island Countries export sufficient amounts by which to encourage more regular shipping lines into the region.

Air freight is very costly and not a realistic option for large scale commercial production. Freight is used on the same craft that transport passengers, which is not cost effective for most of Fiji's agricultural exports<sup>2</sup>. As most of the air transport is for tourism purposes, there exists a certain degree of reliance on the tourism industry for the use of air freight.

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<sup>2</sup> An exception is in products such as herbs and spices, which are light in weight and classified as high-value niche commodities.

## Telecommunication Networks

Telecommunications are necessary for the dissemination of information, identified as a key activity of collection centres. Telecommunication costs are high, and rural areas and the outer islands still have difficulty in communicating with marketing/industrial areas.

## Electricity and Water Supply

All marketing operations require a stable supply of electricity and water. Commercial businesses using facilities such as cooling chambers require access to the main electricity grid if they are to be cost effective, rather than relying on diesel generators. Many rural areas, particularly the outer islands, rely on the use of diesel generators. Likewise, for irrigation purposes and cleaning a source of water is necessary.

## **2.4 Investment in Agriculture**

Fiji's investment performance over the past decades has been less than desirable. From 1970 to 1985, Fiji's investment as a ratio of GDP was consistently above 20%. In 1986, investment fell to 16% due to lower public and private sector investment, and has exhibited a descending trend since. Since 2001, investment in Fiji has remained low at approximately 13% of GDP.

A study by the Reserve Bank of Fiji (RBF) in December 1999 attempted to identify possible impediments to investment. Though slightly dated, the information is still relevant. Respondents were asked to rank what they perceived were impediments to investment. The top ten impediments in descending order were as follows:

1. Government policy uncertainty;
2. Red tape and bureaucracy;
3. General economic climate;
4. Government regulations;
5. Finding skilled labour;
6. Political situation;
7. Land issue;
8. Law and order;
9. Lack of infrastructure; and
10. Utility costs, like water and electricity.

A survey conducted by FTIB in 2003 had similar findings. The first 5 impediments according to the survey were:

1. Policy Inconsistency/Corruption;
2. Security Concerns;
3. Skilled and Technical Labour;
4. Infrastructure and Utilities; and
5. Transport.

In the agricultural sector, the lack of domestic investment by producers is partially explained by the expiry of land leases and the majority of farms being small, family based enterprises that have

limited capital and little access to financial institutions. However, even well established exporters and commercial operators suffer from poor access to finance.

Records show significant declines in bank lending in agriculture. According to the Reserve Bank of Fiji, in 1994 commercial bank lending for sugarcane growing was F\$82.5 million. In 2006 it was just F\$2.8 million, and current reports are that it has virtually ceased. Commercial bank lending for 'Other' agriculture was F\$37.9 million in 1994 (3.5% of total commercial bank lending); but by 2006 it had declined to only F\$19.8 million (0.8% of total commercial bank lending). Fiji Development Bank lending to the agricultural sector (including sugar) has also declined substantially. In 1992 it was F\$67.9million (of a total of F\$246 million), but in 2006 it was F\$37.6 million (of a total of F\$424 million).

Foreign investment in agriculture is similarly insignificant, exhibiting no stable pattern. Foreign investment has rarely exceeded F\$1 million annually since 2000 (see Annex Tables 3 and 4). This is partially attributable to political uncertainty and strong incentive packages on offer in other Pacific Island Countries.

### 3. MARKET OPTIONS FOR FRUITS AND VEGETABLES

Several outlets and market opportunities exist for fruits and vegetables, largely dependent on the quality. Export and tourism industries require consistent supply of high quality produce, while the local domestic market is better suited to lower quality at cheaper prices. The lowest grades can be used in processing and manufacturing.

#### 3.1 Domestic Urban Markets

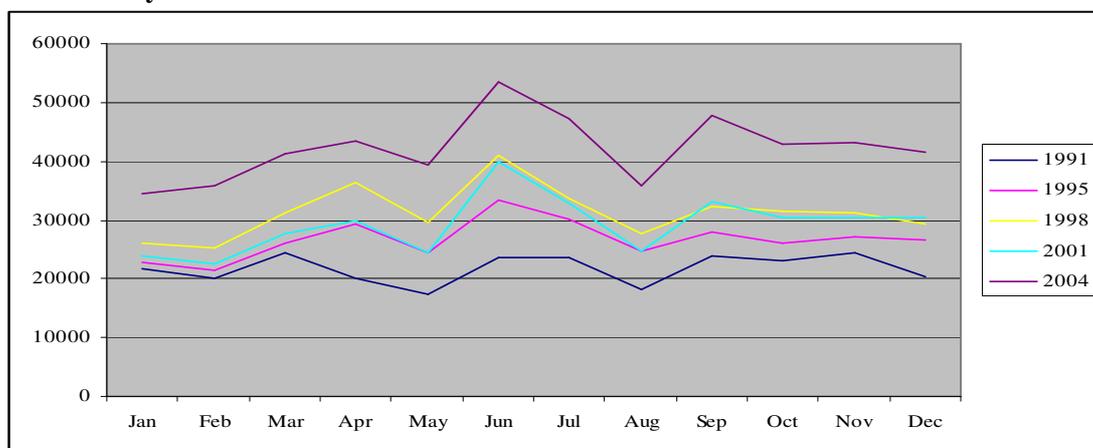
There exists an extensive network of outlets for farm produce throughout the urban areas and a steady improvement in the retailing of agricultural produce. With an increasing urban population partially the result of rural-urban migration, there is a viable and sustainable local demand for the marketing of fresh fruits and vegetables.

Anecdotal evidence suggests that the consumption of fruits and vegetables depends greatly on local availability and, therefore, seasonality. The vast majority of urban consumers prefer to buy local fruits and vegetables rather than the more expensive imports. Rural consumers tend to rely much more on subsistence agriculture for their daily food intake, using what is available on the farm or from the nearby vicinity. Domestic markets are able to use a range of different quality produce, with prices allocated accordingly.

#### 3.2 Tourism

The tourism industry represents the first means by which foreign consumers can sample local produce. Over 500,000 tourists visit Fiji each year with an average length of stay of 8.7 days. McGregor (2006) calculated that if the average tourist consumes three papaya, two mangoes and one pineapple during a stay, the tourist market amounts to some 750 tonnes of papaya, 400 tonnes of mango and 400 tonnes of pineapple annually. The tourism industry peaks during the months of June and July, as seen below. This period coincides with school holidays in New Zealand and the Eastern states in Australia, and continues to remain high into the Christmas season.

Figure 1: Monthly Tourist Arrivals



Source: Fiji Island Bureau of Statistics – Key Statistics

The tourism industry demands high quality produce and is currently responsible for a large amount of imported fruits and vegetables, due to the lack of consistent supply and quality from local producers. Berno (2006) estimated that F\$30 (US\$18) million annually is spent on importing food products for the tourism sector that could be grown in Fiji, despite the fact that 47% of hotel purchases were from local providers. This figure represents a large market opportunity available to local producers able to provide to the specifications of the tourism sector.

Veit (2007) found that a number of factors limit the ability of the local producers to market produce to hotels. These were:

- Inability to provide a wide range of products;
- Inability to provide same-day delivery to hotel premises;
- Inability to provide 30-days credit; and
- Use of inappropriate packing materials;

However, the major factor identified by hoteliers as favouring imported produce was that local producers were unable to provide a consistent supply of high quality produce.

Importers purchase products in their highest grades, receive them in packages far better suited in terms of capacity and type than those employed locally, and own appropriate storage and transport facilities. This latter factor allows them to supply their customers frequently, to meet unexpected clients' demands and to deliver directly to their premises. In order for the domestic industry to attract the custom of mid-range and high-end establishments it may be necessary to invest in more efficient practices, better storage facilities, and better transportation facilities.

Veit (2007) goes further in differentiating between the size of hotel and demand requirements. The study found that smaller establishments, notably backpackers, favoured the use of local produce due to tight budget restrictions. Most of these do not require delivery to the hotel premises and instead favour frequent visits to local municipal markets. Menus are much better geared to the seasonal nature of fresh produce in Fiji, compared to larger hotels where menus very much reflect taste preferences overseas. An example is the increased use of traditional root crops, such as dalo and cassava, compared to imported potatoes.

Despite the linkages that exist between agriculture and tourism, few of the issues have ever been adequately addressed. There is evidence of a significant amount of distrust between the two sectors, and cooperation has been weak. The tourism sector has criticised the agriculture sector for its inability to address tourist taste preferences and for its failure in the supply of high quality produce throughout the year. The agriculture sector has, in turn, disapproved of the tourism sectors' reluctance to adapt menus to take seasonality into account and for its lack of promotion of Fiji produce.

### **3.3 Exports**

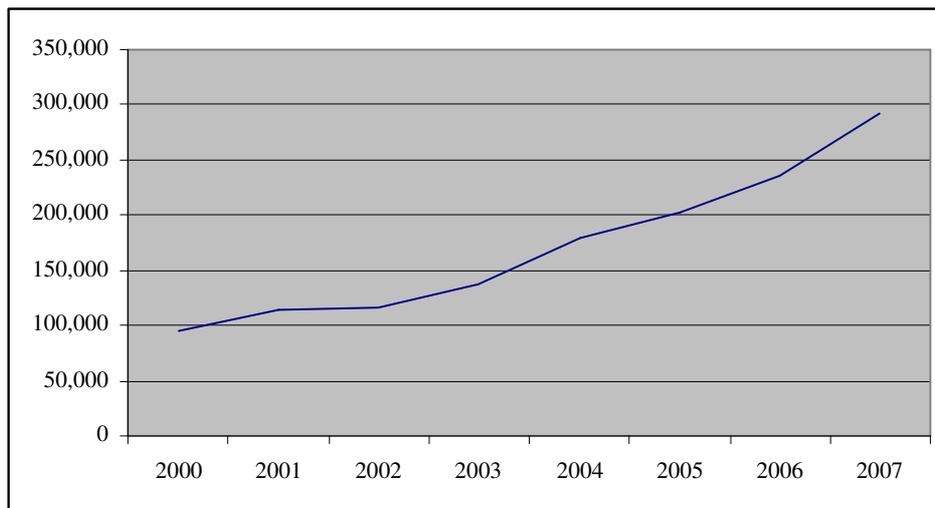
McGregor (1997) identified five main factors that determine an island country's capability to export horticultural products:

1. Suitable agronomic conditions to produce products with identified markets and ready access to an international airport or seaport;
2. The availability of air and sea freight capacity to target markets at reasonably competitive freight rates;
3. Private sector marketing capability;
4. Quarantine pest status and management; and
5. The ability to resolve phytosanitary and other market access issues.

With growing populations of Pacific islanders in Australia, New Zealand and the west coast of the USA, there is a significant export market for a range of horticultural products. Fiji is well placed to take advantage of these opportunities but has unfortunately been unable to do so save for a modest range of products.

Fiji faces extremely high costs of transportation compared to its competitors based in Asia and South America. However, in high value niche commodities, where consumers are willing to pay more, Fiji remains competitive. Fiji is getting increased recognition for its high quality papaya and ginger, and produces a variety of dalo that is widely demanded by the Pacific islander communities overseas. The Fiji branding is also beginning to be used as a marketing tool, led primarily through the success of “Fiji Water”.

**Figure 2 Non-sugar Agricultural Exports (F\$ 000)**



Source: Fiji Island Bureau of Statistics – Key Statistics

Though Fiji has the capability and the market access opportunities to break into new export markets, “*Fiji must substantially enhance its ability to resolve market access issues. Fiji has been weak in its ability to negotiate market access and to resolve access issues.*”<sup>3</sup>. Fiji’s Quarantine service been slow in its progress to negotiate Bilateral Quarantine Agreements (BQA’s) with other countries, despite exporters identifying specific market opportunities for fruits and vegetables in Australia, New Zealand and the USA. These are necessary for opening new market opportunities to Fiji’s exporters.

<sup>3</sup> McGregor, A. (2007)

In order to improve export competitiveness, it is necessary that Bilateral Quarantine Agreements (BQA's) to be negotiated and enforced, regulatory supervision of the operations of the High Temperature Forced Air (HTFA) facility<sup>4</sup> is required, quarantine rules and regulations that minimize risk but facilitate trade and allow farmers access to improved seeds need to be formulated and implemented, and public awareness on the need for quarantine developed.

Fiji has also made little progress in its ability to meet quarantine requirements, as illustrated by papaya (see Box 1). The adoption of new pest risk assessment and industry consultation procedures pose significant problems for exporters. These can be costly and increase the vulnerability of small export industries to the quarantine procedures of larger importing countries. The added difficulties of meeting the increased demands placed on Quarantine by the Sanitary & Phytosanitary (SPS) Agreement have further been to the detriment of the export community. Australia and New Zealand are Fiji's dominant export markets, but both impose strict phytosanitary requirements that limit competitiveness of Fiji's exports. Legislation aimed at curbing the inflow of invasive plant and animal species has been strongly enforced, and consignments found with live insects are subject to expensive mandatory tests. Fumigation, together with the costs of insect identification, significantly increases exporting costs, reducing competitiveness. More importantly, fumigation substantially reduces the shelf life and marketability of the product, particularly if a second fumigation is undertaken.

Fiji's Quarantine service could have benefited from technical assistance in the preparation of submissions to an importing country's quarantine authorities. Fiji has taken on the commitments implied by the SPS Agreement, but without the supporting changes in human resources and institutional structures. Fiji's lack of financial and technical resources also prevent the full enforcement of CODEX standards, particularly among the smaller domestic food processing and handling operations. This lack of domestic compliance does not make it possible to enforce CODEX standards on imports, which leaves Fiji vulnerable to the dumping of poor quality foods.

### **Box 1: Development of Fiji's Papaya Export Industry**

Fiji was a significant exporter of papaya to Australia until the early 1990's, but ceased in 1992 after the loss of chemical fumigation as a quarantine treatment. Fiji responded with the introduction of the High Temperature Forced Air (HTFA) facility for the treatment of fruit fly; a non-chemical quarantine treatment technology. New Zealand approved the treatment for papaya in 1995, and exports began in 1996. However, it took an additional six years before papaya was granted market access to Australia.

Exports of papaya in Fiji have grown dramatically, and the product is now Fiji's most important fruit export commodity. Exports in 1996 were valued at F\$33,000 and have now grown to more than F\$2 million per annum. Papaya is also important in the domestic market.

At present, there are initiatives to develop a BQA for papaya export to the USA. However, it has taken over two years to develop a proposal for submission to the relevant authorities in the USA. It is unlikely that any real progress will be seen for at least 5 years.

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<sup>4</sup> All fruit fly commodities for export must pass through the facility prior to export under Quarantine regulations.

### **3.4 Processing and Value-Adding**

Processing represents a market for lower quality produce that cannot be exported or sold in the local markets. A number of companies have sought to process local fruits and vegetables available for both domestic and overseas markets. With seasonality a factor that limits current market opportunities, processing and value-adding reflects a mechanism by which produce can be sold during the off-season.

Fiji has long attempted to develop a local processing industry, but with little success. The remains of various facilities, all set up by Government, still exist. However, the packing shed in Seqaqa Research Station for the export of pineapple (see Box 2), and the packing shed and juicer at Batiri, remain derelict.

Foods Processors (Fiji) Ltd. are currently the largest processors of vegetable products in Fiji, and have a 100% shareholding by Government under the Ministry of Public Enterprise. The company is the remains of previous Government entity National Marketing Authority, now Agricultural Marketing Authority, and were at the time the only (semi-) successful aspect of it. Foods Processors (Fiji) Ltd. specialise in canning produce, with 60% of products exported to Pacific Islanders living overseas in Australia, New Zealand and USA. Products include canned tomatoes, daruka, ivi, breadfruit, frozen dalo and cassava, honey, and chili sauce.

However, the company would have gone bankrupt if private owned, consistently sustaining losses in recent years. Even as a public service the company provides only slight benefits to the sector. Most of its products are only seasonal in nature and operate on a small scale during this time. For tomatoes, every component of production involves imports: from the cans right down to the actual tomatoes and the end product isn't price competitive in the local market. It is promising though that the Ministry of Agriculture is shifting three members of its Research division into the company to help develop products, rather than the current haphazard approach that currently seems to exist.

Other enterprises do exist in the processing industry, but few are large enough to operate under economies of scale. Examples include some NGO's, such as FRIEND, who make purees, jams and chutneys. There are, of course, exceptions. Kai Ming operates a very successful ginger processing facility, and Herbex Ltd. and Royal Noni, both in Lautoka, are large noni juice processors. Herbex Ltd. currently produces approximately 45 tonnes of juice annually, most of which is sold through the company's website to buyers in Europe, North America, Australia, New Zealand, Japan and Korea. Both companies are certified organic and sell a range of packaged kura products: juice, moisturizer, body lotion, and soap. The products are also available locally.

Government policy has recently attempted to promote small scale processing in private sector endeavors such as honey, jams and chutneys. None of these have taken off, primarily due to a lack of market access and information. Most agents that have produced these products have been left on the roadside trying to sell the products to passers by.

### **Box 2: Pineapple Processing and Exporting at Seqaqa**

Under an EU grant, the facilities to develop the local pineapple industry into a commercially viable and self-sustainable market were first introduced in 1989. The EU grant consisted of F\$1.3 million allocated for the installment of a packing shed in Seqaqa complete with cooler facilities, rollers, packing materials, fork lift, and other necessary equipment. Of the F\$1.3 million, F\$100,000 was assigned for the free provision of agro-inputs to pineapple farmers in Vanua Levu. The Government in return provided a local component of F\$1 million, of which F\$25,000 was distributed to the Tropical Fruit Growers Association for the marketing of pineapple in both the domestic and overseas markets.

Due to the maturity duration of pineapple, it took over a year before the facility began to be used. From 1990 to 1994, the pineapple industry grew in size and was marketed locally. By 1995, supply was large enough to export 5 containers to New Zealand. Unfortunately, the product was unable to compete with other imported pineapples, notably *Dole*. Fiji pineapple faced high costs of transportation, particularly from Vanua Levu to Viti Levu where it could then be exported. In 1995, the cost of freight between the islands was F\$1,600 per container. In fact, it was more costly to ship between the islands than it was to ship from Viti Levu to New Zealand, which cost F\$1,300. By the time the product reached the New Zealand consumer, it cost \$1.99 per kg compared to only \$0.99 per kg for *Dole* pineapple.

Poor post-harvest handling also had an impact, and caused two of the containers to be rejected. Too many pineapples were packed into each crate, with bruising being the reason for rejection at New Zealand Quarantine. In addition, one of the containers was not cooled to an appropriate temperature, and by the time it reached New Zealand the whole shipment was rotten.

Due to lack of returns, Fiji ceased pineapple exports the same year and many of the farmers switched to alternative crops. The packing shed was still used, but only on an ad hoc basis and not for its original intention. In 1999 the packing shed finally closed its doors. The equipment still remains, though it is in need of repair. Similarly, the nursery set up for the cultivation of pineapple is still there, but used by the Research Division for other purposes.

## 4. THE PACKING SHEDS OF YAWAYAWA AND LOKIA

In 2002, the FAO contributed to establishing two packing sheds in the Sigatoka Valley: one at Yawayawa and one at Lokia. These packing sheds were aimed at improving the market channels and links between producers and buyers, constructed with the objective of improving the handling, storage and distribution to reduce post-harvest losses, thus lowering the cost to buyers and improving returns to participants in the food chain. The sheds were designed as case studies for the further expansion and development of packing sheds around Fiji, and as such reflect an important motivation for the current study.

Unfortunately, it can be clearly stated that the packing sheds have failed in their objectives. Both are now redundant and are clear reminders of inappropriate planning and lack of understanding of the local environment. The packing shed at Yawayawa has been converted into a Chapel while the shed at Lokia is now used as a village hall and community centre; both within 4 years of construction.

### 4.1 The Foundations of the Packing Sheds

Both packing sheds were developed along the same lines. The FAO, with the guidance of the Ministry of Agriculture provided the funds necessary for the construction of the sheds and cooler facilities. The sites selected were chosen on the grounds that they had good links with markets and a high concentration of both farmers and buyers in the area that would allow the sheds to develop into self-sustainable marketing centres.

A Memorandum of Understanding (MOU) was signed between the Ministry of Agriculture and the operator/exporter of the packing shed, stating:

1. **Construction:** The packing house is established as a separate building from any existing building on the selected site.
2. **Ownership:** The packinghouse facilities and installed equipment, provided under the FAO project, remain government property for a minimum of two years.
3. **Accessibility:** The packinghouse and all its facilities are made accessible to registered potential users – farmers groups to sort, grade, pack or cool produce; and to Ministry of Agriculture officers, overseas consultants, exporters, tour groups and visitors for teaching and training purposes, with the concurrence of the registered group.
4. **Management:** The packinghouse will be managed by the registered members of the farmer's group under cooperative or other form of group management, to ensure its sound operation and maintenance on a continuing basis.
5. **Maintenance and Security:** All potential users to pay a levied amount for the use of the packinghouse facilities; funds collected should be deposited in a working account for the future maintenance and operation of the premises. The security of the premises containing the packinghouse and its facilities should be maintained at all times to avoid misuse of property.
6. **Quarantine Standards with Certification:** The packinghouse should be in conformance with Fiji Quarantine and Inspection Specifications, and the Occupational Health and Safety Regulations within two years.

## **4.2 The West Bank Pack House (Yawayawa)**

The Yawayawa packing house was set up on the private property of a local farmer and landowner, and run under his supervision. Yawayawa has good road networks, and lies approximately 15 minutes' drive from Sigatoka Town and 5 minutes from Sigatoka Research Station. It lies in a high concentration of farmers growing a wide range of produce and is popular with buyers.

Prior to its completion in 2002, it was planned to form a cooperative to handle the affairs of the packing house. From interviews and surveys, it is clear that the supervisor had arranged several meetings with local stakeholders to form a group to manage the centre. Unfortunately, nothing materialized due to a lack of commitment from stakeholders (including farmers and buyers), and no group was ever set up.

The packing shed was only ever used sporadically and only by a select group of farmers. No Indo-Fijians are known to have used the centre, only members of the local mataqali. Of surveys with farmers, only 3 had ever used the centre. None of the 3 used the centre more than twice.

During the survey, most farmers were surprised by the mention of the packing sheds. Beyond 5km, awareness of the centre is less than 5%. Within 2km awareness is almost 100%, but only in terms of their existence. Only about 5% of farmers were aware that they could use the centres. The survey revealed that the packing shed was seen more as an indication of wealth and social importance than as a facility to farmers.

It appears that the packing shed became quite personalized rather than a communal facility. The shed was set up on private freehold land, and the supervisor was required to use his own funds (F\$3,000) to finish completion. There are no records available locally to confirm whether this was part of the initial agreement or not.

Following the supervisors' death in 2005, use of the centre came to a complete standstill, and it is unlikely that the shed will be re-opened. Family members have made it clear that they have no interest in using the premises for its original intention. The shed has now been converted into a chapel.

It would be difficult to foresee external agents re-opening the facility. AMA have no desire to use the premises as a packing shed or marketing centre, and are instead investing heavily into the refurbishing of a building in the Sigatoka Research Station to be used as a storage facility and packhouse. Following an interview with AMA representatives, the following issues came to the fore:

- The packing shed lies on the freehold land. Should there be a falling out or disagreement with the landowner, operations could cease almost immediately.
- The supervisor worked with British American Tobacco who remain responsible for the water and electricity supply to the premises.
- The premises does not have suitable facilities for cleaning and washing produce. There is only one tap and the pressure is not sufficient for larger operations.

There has been some interest by exporters in using the cooler facilities, but closer inspection reveals that the cooler does not work.

### **4.3 The East Bank Pack House (Lokia)**

This packing house was set up under the supervision of a local producer and landowner and lies just the other side of the river from Yawayawa, less than 1km away geographically. Under an agreement with FAO, the centre was established with the objective of allowing small farmers to tap into the Coral Coast tourism market. It was also intended to make it worthwhile for exporters to come to the hitherto neglected East Bank to source supplies. The hotels and exporters could place their standing order for produce at agreed prices.

However, Lokia has very bad road access. It takes over an hour to reach Sigatoka Town and there is no public transport in the area. While there is a relatively high concentration of farmers, it is not a favourable location for buyers. Compared to Yawayawa, farmers in the area have a higher incidence of subsistence farming.

The packing house at Lokia was set up on the same basis: that a cooperative be formed and take responsibility for the centre. This has not happened, and interviews have suggested that it never will. The premises have been established on the supervisor's own freehold land and he has no desire to see a cooperative working on his land. As such, no initiative has been taken to form any such group. As in Yawayawa, the local supervisor of the Lokia packing shed had to invest private funds for completion of the facility.

Interviews in Lokia have indicated that the area has strong political ties and that the supervisor has a strong desire to help farmers in the area; perhaps explaining its selection as a location for a packing shed. Unfortunately, the shed has had little support from the Ministry or other external sources, and is driven solely by local producers. With limited market information, expertise and training and with few buyers visiting the area, the packing shed has never fulfilled its role. It is now used as a community centre/village hall. Farmers are permitted to use the shed, but none do.

Awareness of the shed is higher than in Yawayawa, with almost 95% of farmers within 5km knowing about the facility. Beyond 5km, awareness remains quite high (70%) up to a distance of 10km. The only benefit that appears to have developed from the packing house is that electricity has been brought into the area. Many households now have access solely due to the centre.

AMA have no interest in using the centre as a collection unit. Poor road access and its location on freehold land are major deterrents to starting operations on the premises. The attraction of the cooler no longer exists either. Following installation, the cooler has only been used sparingly, reflecting lack of buyer demand. Facing high electricity costs, it was simply impractical to use. These days the cooler no longer works, most likely due to damage following flooding in recent years and a lack of proper care.

#### **4.4 Location of the Packing Sheds**

There is general sentiment between both producers and buyers that the packing shed at Yawayawa is in a good location, being centrally located with good road networks. It is within close distance of Sigatoka Town and in a concentrated area of farmers.

However, few support the choice of location of a packing shed at Lokia. Road access is prohibitively bad, the range of products is less than those available at Yawayawa due, in part, to the greater incidence of subsistence farming on the East Bank of the river, and fewer buyers are located in the area to take advantage of the facility.

#### **4.5 Services Provided**

When first installed, the packing sheds were theoretically able to provide storage facilities and cool rooms. However, the cooling facilities at Yawayawa have never worked and those at Lokia not since 2006.

Neither facility has been able to offer additional services to either producers or buyers. The Ministry has not supported the facilities in providing, for example, technical advice, agro-inputs or means of transportation. Although it is difficult to find records, it does not appear that a role for the Ministry was ever considered.

#### **4.6 Management Structure**

Both sheds were ultimately run and owned by a single benefactor, although they were intended to be cooperative run. The supervisor at Yawayawa has not been evaluated well by farmers in the area for his management of the shed because:

1. Few farmers within 2km were aware that they were entitled to use the facility;
2. Few farmers beyond 5km were aware of the facility;
3. No services were provided; and
4. The facility closed within 4 years of its inauguration.

The supervisor at Lokia has favoured much better in comparison, but is still disapproved of by many. Many remember that the supervisor was responsible for bringing electricity into the area and that he has consistently fought to improve the livelihoods of farmers in the area. However, given that the packing shed does not fulfill its obligations, many are quick to criticize.

#### **4.7 Market Linkages**

The construction of the packing sheds has had no benefit in improving market links at any stage of the value chain. Both have poor networks with buyers, poor networks with farmers, and offer no services. No support is given from the Ministry or other external sources. Market access is also severely constrained by the poor road conditions in the East Bank, instantly reducing the number of buyers prepared to source from Lokia.

#### **4.8 Support from Producers**

It is clear that producers will not use the packing sheds of Yawayawa and Lokia in their present state. Only 12% of farmers believed that the centres had the support of the farming community, of which many indicated their appreciation of electricity being brought into the area rather than the actual purpose of the facility. Unfortunately, there are a number of elements which prevent current use of the centres by farmers:

1. **Buyers Sourcing from Farms:** All middlemen and exporters have their own vehicles and will travel into the Sigatoka Valley in search of fresh produce. All will source direct from the farm and pay cash on delivery. There is therefore no incentive for farmers to transport produce to the packing sheds.
2. **Cost and Availability of Transport:** Most farmers do not have ready access to transportation. For farms even within 500 meters of the packing sheds, it would cost approximately F\$30 to hire a vehicle from the farm to the facility. This added cost is not necessary when buyers source at farm gate.
3. **Size of Farms:** Most of the farms are less than 5Ha. As such, there is generally no need for using packing sheds. Farmers indicated that packing is done either in the field or at the house.
4. **No Need for Storage:** Buyers tend to give one day's notice before collection. Farmers tend to go into the field the same day and pick fruits/vegetables that are ready and store either in bags or in crates on the farm premises overnight. Extending shelf life is not considered a priority factor.
5. **No Need for Coolers:** Coolers tend to be used to increase the shelf life of produce. However, this is not a priority for farmers but rather for buyers.
6. **Lack of Market Linkages:** There are no market linkages on offer by the packing sheds. No links exist with buyers or other stages of the value chain.
7. **Lack of Auxiliary Services:** There are no services provided that might otherwise entice use of the facilities.

#### **4.9 Support from Buyers**

None of the buyers surveyed have ever sourced produce from the packing sheds, and less than 20% are aware of the facilities. Of these, none felt the packing sheds were of benefit to the buyer community. They provide no services that interested buyers. Since all buyers operating in the area know the farmers directly, and have their own transport, there is little incentive to source from the packing shed rather than direct from the individual farms in the area.

#### **4.10 Success of the Packing Sheds**

In not achieving any of the goals for which they were established, one can clearly conclude that the packing sheds of Yawayawa and Lokia have failed. Neither have been operational since 2006, and neither has the support from the farmer or buyer communities.

It does not appear likely that the facilities would have ever been successful. The high number of buyers based in the Sigatoka Valley allows them to source direct from farm gate without problem. So long as the buyers are prepared to source direct, there is no incentive for farmers to use the packing sheds. There are no services on offer to either group that warrants the use of the facilities.

Although both sheds were established with the idea that they be run by a cooperative, poor planning on the location of the sheds has been prohibitive. Located on freehold land the facilities are at the disposal of the local landowner. Neither landowner supported cooperatives and as such the sheds have become part of their own property.

Although the management has been far from exemplary, the projects have in part failed due to a lack of review and follow-up. There has been no support from the Ministry of Agriculture through Extension or AMA and no review mechanism put in place.

## **5. PRODUCER AND BUYER QUESTIONNAIRE-BASED SURVEY: METHODOLOGY**

The first phase of the study focused on the use of questionnaire-based surveys for producers and buyers of agricultural produce, supplemented through exploratory interviews and background research. The surveys consisted of both closed and open questions.

The survey had to be tailored to meet the time constraints of the AAACP programme, such that it could be presented at the second stakeholder workshop. In order to get a sufficient indication of the practices of the producer community, and taking into account the timely nature of conducting surveys, a total of 100 farmers were surveyed. 50% of these farmers were taken as a random selection from Extension records of farmers operating in the Sigatoka Valley, and 50% were farmers met by chance while travelling in the Sigatoka Valley. The rationale was that not all farmers may be known to Extension officers due to factors such as subsistence farming or their relative isolation. Leaving some of the surveys to chance meetings gave a certain element of random selection that could not have been achieved otherwise.

The aim was to survey farmers without having prior knowledge of their commercial operation, use of the Yawayawa and Lokia packing sheds, or potential use of collection centres.

Surveyors were introduced to producers through the Extension locality officer. With a high importance placed on social capital, the locality officer had an important role in encouraging farmer participation in the study, having built good relationships with the local community, their role being to assist local producers through Ministry support, the exchange of information and training. However, as some questions related to the effectiveness of Extension services, the locality officer would leave after initial introductions to reduce discrepancies caused through intimidation or feelings of pressure.

To reduce error as much as possible, only a small team of three was used to conduct the surveys. With a smaller number of surveyors, there should be reduced risk of error. While a larger number of surveyors has the benefit of increasing the number of surveys that can be conducted within any time limit, there is a greater incidence of survey discrepancy and reduced accuracy in the data set. With the use of a small team, all of whom were subject to training and field testing prior to the survey, the aim was to reduce error and therefore develop more a more accurate data set.

In the survey with buyers, a total of 50 surveys were conducted, ranging from middlemen to exporters to market vendors to hotel purchasing officers. Buyers of produce are much more widely dispersed than producers, and surveys were conducted across Viti Levu. Middlemen are located both in urban areas and their periphery but also in rural areas and range dramatically in business size and in the nature of their commercial operation. Exporters are predominantly located in areas with good accessibility, and often near to ports of export. Market vendors are located in urban areas. Hotel purchasing officers tend to be located along the Coral Coast and in the West of Viti Levu. Hotels range in size and cater to different clientele, which must also be factored into the study.

The Sigatoka Valley is known as a key production area for fruits and vegetables. As such, buyers are willing to travel widely to source fresh produce at competitive rates. With this in mind, and to get a full representation of buyers sourcing from the area, it was necessary to travel widely.

In order to meet the time constraints of the survey, while providing an accurate description of buyers, it was determined that a total of 50 buyers would be adequate. Of these 50, 28 were middlemen, 8 were exporters and 14 were hotels.

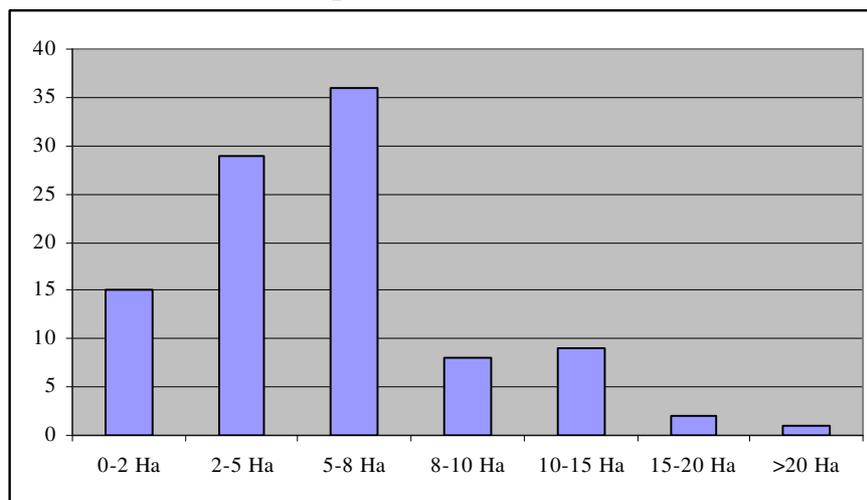
The following two sections reflect the key findings of both the producer and buyer surveys.

## 6. KEY SURVEY FINDINGS: PRODUCER ESTABLISHMENT AND FARM ORGANISATION

### 6.1 Farm Size and Tenure

Of the producers surveyed in the area, 54% had farms of less than or equal to 5 hectares. 35% of farms were between 5 and 10Ha, and only 11% were above 10Ha. Average farm size was only 6Ha. In terms of production area, however, 63% of respondents stated that less than 5Ha of farm land was productive, 30% between 5 and 10Ha, and just 7% used more than 10Ha.

**Figure 3 Distribution of Farm size (% respondents)**



Source: Survey data

60% of farmers surveyed in the Sigatoka Valley have farms on freehold land, 18% operate under NLTB leases, and 17% use mataqali land. Only 5% of farmers are share-croppers or operate under another sort of lease. Of the 18 farmers operating under an NLTB lease, 10 of these will have to renegotiate the renewal of their land with the landowners over the next 10 years, with an additional 5 farmers over the next 15 years (see Annex Table 2).

These figures are quite surprising given that most studies find that NLTB leases dominate agricultural land tenure systems and that very few farmers operate on freehold. Given the scope of the current study, with its focus on the Sigatoka Valley and, in particular, the Mid-Valley and East Bank where the two Collection Centres are located, it is quite possible that this anomaly is a feature of the localities based either side of the Sigatoka river. If farmers in these areas are removed from the study (60%), only 35% of farmers operate on freehold land, 27% under NLTB lease, and 35% on mataqali land. 10% of surveyed farmers operate on more than one plot of land, and have more than one tenure type.

## 6.2 Crops Grown

In examining the crops grown in the Valley, vegetables are grown in much greater abundance than fruits. Eggplant and tomatoes in particular are the most popular crops, grown by 65% and 61% of farmers respectively. Papaya is the next most popular crop, grown by 45% of farmers.

**Table 1: Top Ten Fruits & Vegetables Grown**

Product	No. of Farmers
Eggplant	65
Tomatoes	61
Papaya	45
Okra	20
Cucumber	20
Cabbage	16
Bean	15
Capsicum	13
Watermelon	10
Pumpkin	6

Source: Survey data

Most crops are grown only seasonally, especially in farms below 5Ha, and intercropping is common. Eggplant and papaya, which have both strong local and export demand, are most likely to be grown as a mono crop, although some of the smallest farmers (below 2Ha) also identified intercropping.

The higher value crops and those with strong market demands (eggplant, papaya, watermelon and pumpkin) are more likely to be grown by the larger farms, while smaller farms (<5Ha) are the most likely to grow cash crops which can be harvested quickly (cabbage).

Table 2 shows the reasons given for growing the most commonly grown crops, including watermelon and cabbage. Across every product, the most cited reason was market orientated; domestic or, if relevant, export. That is, respondents valued strong market demand, and therefore an almost guaranteed market for their produce, as the most important reason. In fact, many producers could not identify additional reasons. Approximately 30% of producers did not feel comfortable giving additional reasons.

Close examination of cabbage confirms that farmers grow the product primarily for its quick maturity. In flood prone areas and in a country susceptible to adverse weather patterns, it is a popular crop among smallholder farmers for this reason.

**Table 2 Reasons for Growing Selected Crops (% respondents citing reason)**

	Eggplant	Tomatoes	Papaya	Okra	Watermelon	Cabbage
Market Demand (Domestic)	54	54	40	18	11	11
Market Demand (Export)	45	0	35	9	0	0
Advised by Extension Staff	16	18	14	2	2	0
Cost of Seed	7	9	6	3	2	0
Availability of Seed	18	26	13	7	4	4
Disease/pest resistant	1	2	2	0	0	0
High yields	14	14	10	4	7	0
Ease of Harvesting	16	23	14	11	1	6
Low labour requirement	7	12	7	6	0	1
Taste	4	7	3	1	1	2
Size of fruit	8	4	4	1	0	1
Shelf Life	2	2	0	0	0	0
Quick maturity	0	0	0	0	0	10

Source: Survey data

### 6.3 Farm Equipment

None of the farmers surveyed use tunnels or green-houses. All produce is grown in open fields. This increases the reliance on weather patterns and restricts agriculture to a seasonal nature.

Regarding farm equipment in use, few have ready access to vehicles. Although the cost of vehicles certainly limits their purchase, very few farmers even hire or share transport. This reflects the presence of middlemen in the Sigatoka Valley, who collect from the farm gate, thereby reducing the need for transportation of produce to the market.

Approximately one third of farmers own a tractor with another third hiring according to use or share with others. Of those farmers who own a tractor, only 5 have production areas of less than 5Ha. Those who hire do so because of limited financial capital and generally hire from local sources at a cost of between F\$60 and F\$100 per hectare. Most hire twice per year to assist in ploughing the land prior to planting. Those farmers who share equipment usually tend to do so with other members of their family. Most share with up to 4 others, and all members of the family have farms nearby.

**Table 3 Farm Equipment in Use**

	Car	LGV	Truck	Tractor	Other
Own	11	10	16	30	19
Hire	0	0	21	27	0
Share	0	0	1	6	1
Total	11	10	38	63	20

Source: Survey Data. Note: In terms of "Other" farm equipment, these consisted of Bullocks (16), Ploughs (2), and Horses (2).

Of those farmers who share or hire capital, 55% stated that they experienced difficulties while 45% said that it was not a problem. The two most common problems listed during the survey were:

- The cost of renting equipment was too high; and

- The equipment was not always immediately available.

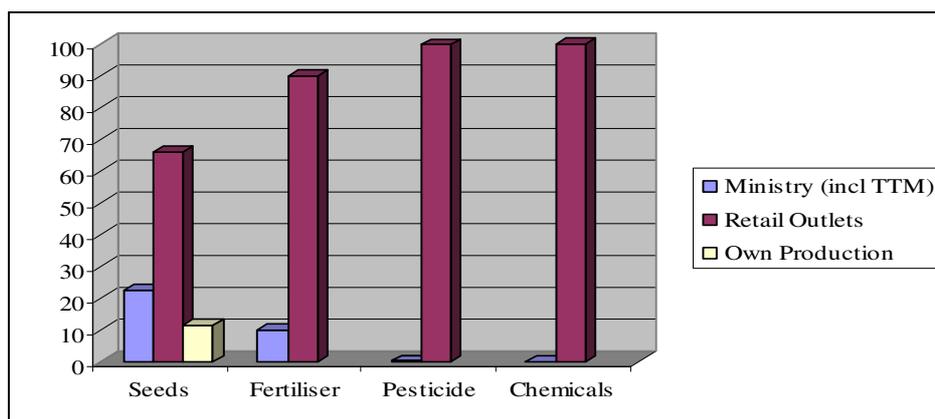
Farmers located along the East Bank and those in the Upper Valley, where road conditions are worse, also appear to suffer from greater difficulty in accessing tractors and vehicles. Many in the Lower and Mid Valley are able to hire from other farms in the area. However, those in more remote areas face the added challenge of having to travel further to find farm equipment for hire. With a lack of vehicles and no public transport in these areas, some participants claimed that this could take several hours and it was unlikely that the equipment would be ready for hire that day. Increased use of mobile phones have assisted communication between farmers and those who hire equipment, but reception is not consistent or universal. During planting season, waiting several days for use of a tractor is often inevitable.

Farmers that claimed not to face difficulties in sharing or renting equipment were always from areas with a greater concentration of farmers and with good road access. In these areas, more farmers own equipment, hence increasing competition between those willing to rent to others. None of those who share equipment claimed to suffer from problems, which may be attributed to smaller groups with a prevalence of family ownership.

#### 6.4 Sourcing Agro-Inputs and Finance

Retail outlets are the most dominant source of agro-inputs, as outlined below. The Ministry of Agriculture, together with the Taiwan Technical Mission (TTM), provide some seeds and seedlings to farmers but only in selected crops and neither institution currently has the capacity to meet demand. TTM focuses on the production of papaya seedlings, but has to be selective and strict in the number that can be distributed to any one farmer. The Ministry of Agriculture, through its Sigatoka Research Station, produces seeds for a range of crops. However, it's primary purpose is in Research and the provision of seeds is only a bi-product of its operations.

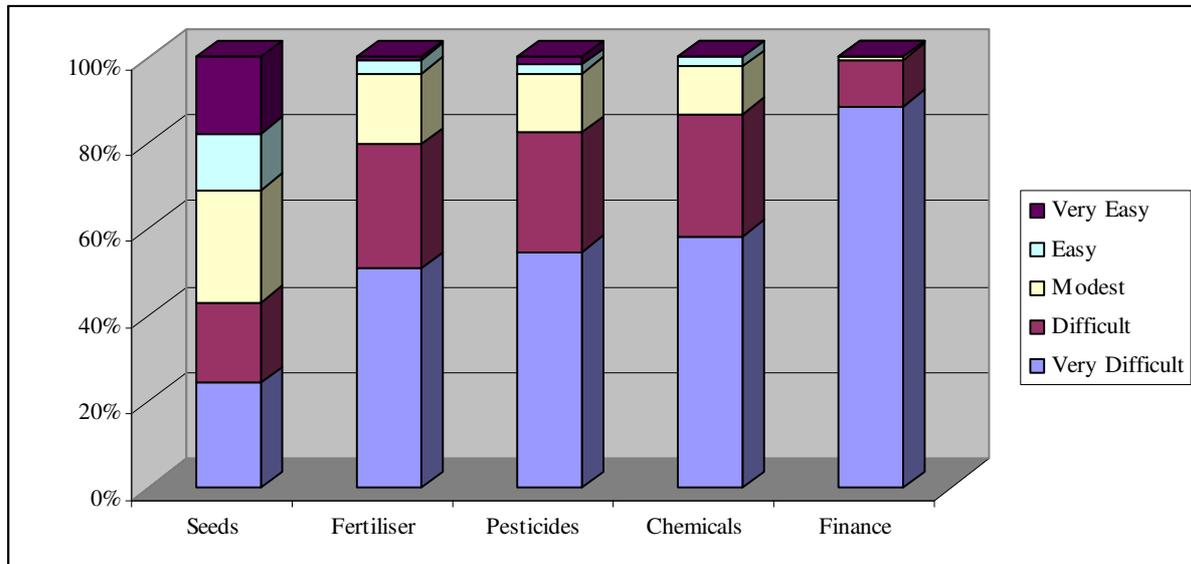
**Figure 4 Sources of Agro-Inputs (% respondents using source)**



Source: Survey data

In getting access to seeds, fertilizer, pesticides, chemicals, and finance respondents were requested to gauge the level of difficulty faced as reflected in Figure 5.

**Figure 5 Access to Agro-Inputs and Finance (% respondents)**



Source: Survey data

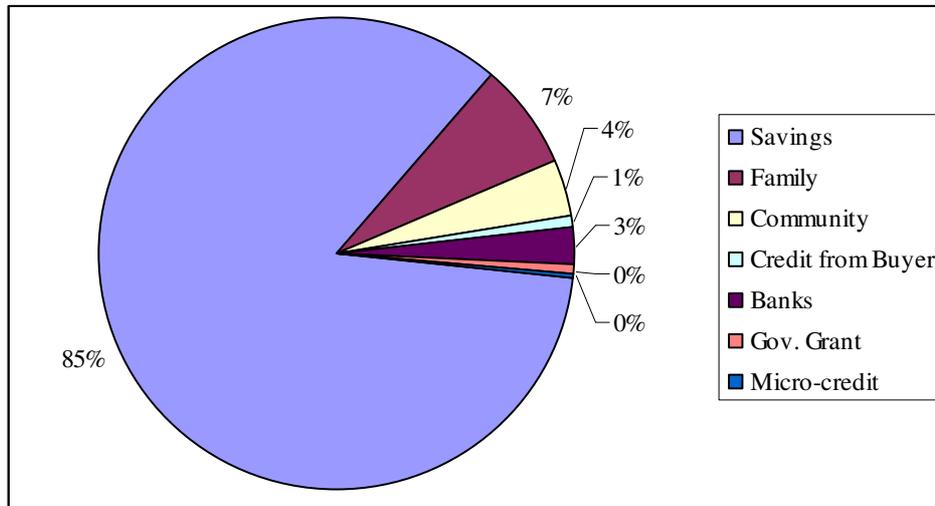
Excluding access to seeds, none of the categories were considered easy; an unsurprising result. The retail outlets are located in Sigatoka Town, Labasa and Suva. In the more remote areas of the Valley, such as the Upper Valley and East Bank, it can take over an hour to get to Sigatoka Town. Many farmers do not have direct access to transport and public transport can be scarce or non-existent. In the event that Sigatoka Town does not have the demanded inputs, farmers may have to travel for an additional hour to Labasa or an additional two to Suva.

Many farmers have also complained about the cost of agro-inputs. Fertilisers and pesticides are often beyond the financial capacity of smallholder producers, and can only be used sparingly., Cheaper fertilisers and pesticides are frequently used rather than those most appropriate to the crop.

Access to seeds is the one anomaly where almost 40% reasoned access to be relatively easy. This is partially due to the presence of the Ministry and partially due to the ability of farmers to use seeds from their existing crops. As the price of agro-inputs increase, farmers are increasingly likely to substitute retail-bought seeds in favour of their own.

Finance was considered particularly difficult to access. Even the largest producers suffered from problems in sourcing externally. In financing farm activities, participants identified that 85% of funds are from private savings and approximately 11% derived from loans from family members and members of the community. Only 3% of funds come from the banking institutions, including the Fiji Development Bank. Micro-credit schemes, such as those offered from the National Centre of Small & Micro Enterprise Development (NCSMED), are not available in Viti Levu, and very few farmers are able to take advantage of Government grants, such as those offered by the Ministry of Agriculture.

**Figure 6 Sources of Financing for Farm Activities**



Source: Survey data

Family and the community are important sources of finance but their role is understandably restricted through their own limitations. Loans are only small and short-term only.

In assessing factors limiting access to credit, farmers were asked to gauge the importance of factors influencing their ability. Each factor is easily identifiable as restricting access to credit in the agricultural sector as shown in Table 5.

**Table 5 Limiting Factors in Accessing Credit (% respondents)**

	High Interest Rates	Lack of Collateral	High Transaction Costs	Lack of Information on Credit Facilities	High Risk of Default	Small Scale of Operation
Very Important	71	57	43	53	46	46
Important	4	12	15	7	8	6
Modest	1	5	15	12	18	11
Limited Importance	0	2	3	5	3	4
Irrelevant	1	0	0	0	0	8

Source: Survey data

15 farmers did not answer the question and an additional 11 claimed that they had never attempted to access loans from financial institutions. Reasons identified included:

- Lack of awareness;
- A belief that neither the banking sector nor the Government support the agricultural sector. Therefore, time spent in consultations and in completing application forms will be a waste of time; and

- Difficulty in understanding application forms.

Some farmers added that they had attempted to access loans from financial institutions but had been turned down due to:

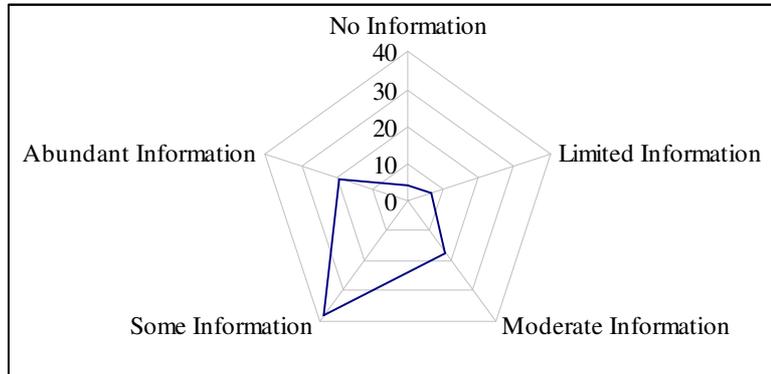
- Lack of ownership of the land, particularly among farmers operating on mataqali land;
- The pending expiry of current land leases;
- An inability to gather all necessary documentation/complete application forms; and
- The high risk of flooding in the area.

### 6.5 Access to Information

Producers gauged the amount of information that they had access to, as well as the primary source(s). These related to farming practices, marketing and business. As outlined below, most farmers receive moderate to some information in terms of farming practices, little information in marketing, and almost no information in business. The importance of family and friends as a source of information is crucial, particularly among smaller farms in less accessible areas. As many farmers have inherited farming from their parents, and have been involved in farming most of their lives, there is a clear importance of family and friends as a source of information, particularly among smaller farms in less accessible areas. Larger farms have a greater incidence of possessing good information; a likely feature of their exposure to other stages of the value chain.

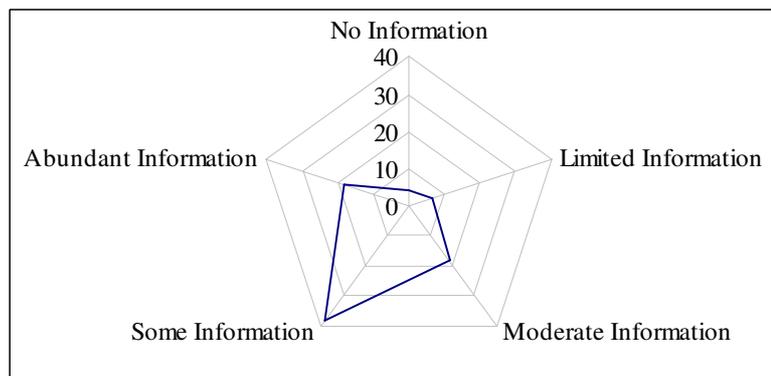
#### Planting Methods & Spacing:

The majority of farmers indicated that they received some information, with 57% indicating that Extension services were the primary source, and 25% indicating family and friends.



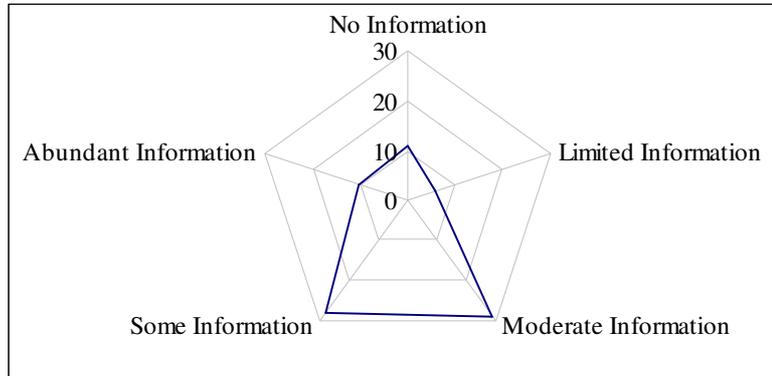
#### Appropriate Use of Fertilisers and Pesticides:

Most farmers indicated receiving some information on the most appropriate use of fertilisers and inputs. 70% indicated that Extension services were the primary source, and 30% family and friends.



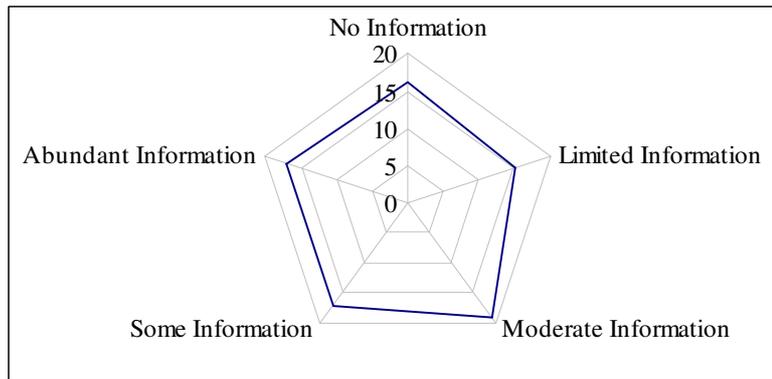
Disease & Pest Control:

Farmers indicated that they receive moderate to some information on disease and pest control. 72% indicated Extension services as the primary source, and 26% as family and friends.



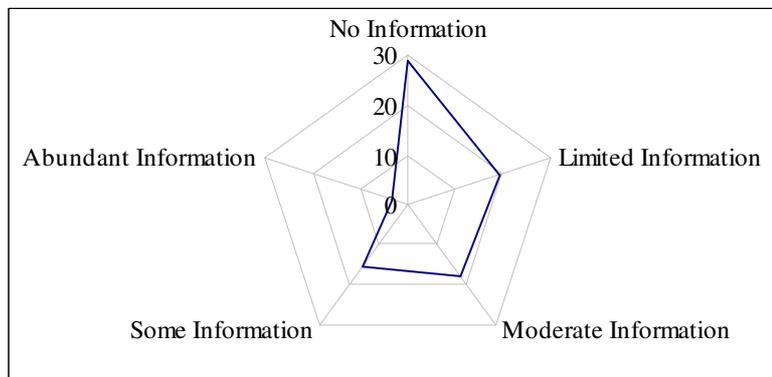
Post-Harvest Handling:

There was a wide spread of answers relating to information received on post-harvest handling techniques and practices. These tend to be directly correlated with farm size and market. Large farms and those predominantly geared to export markets tend to get good information, while smaller farms, particularly those producing crops with a quick maturity, possess very little information. 57% of producers indicated that they receive information from Extension; 25% from family and friends; and 15% from middlemen, exporters and market vendors.



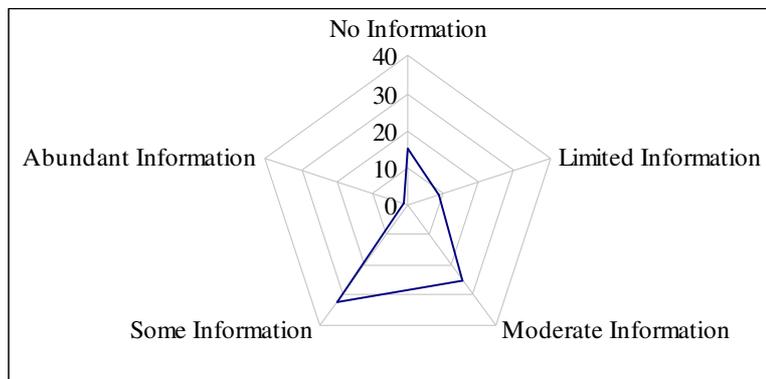
Access to Inputs:

The clear majority of farmers receive little to no information on accessing agro-inputs. Only 40% of farmers indicated receiving information from Extension. Smaller farmers tended to suggest family and friends (47%), especially those in more remote areas. Larger farms and/or those with good relations with middlemen indicated buyers as an important source (14%).



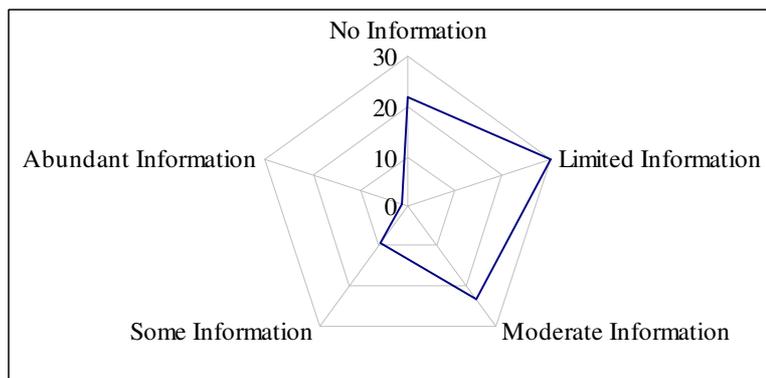
Access to Packing Materials:

Most farmers in the Sigatoka Valley receive some information on packing materials; with 75% indicating exporters and middlemen as the main source. This is not a surprising finding as most middlemen and all exporters provide their own packing materials to reduce damage while in transit. Extension only accounted for 8% as a source of information, and family and friends 11%.



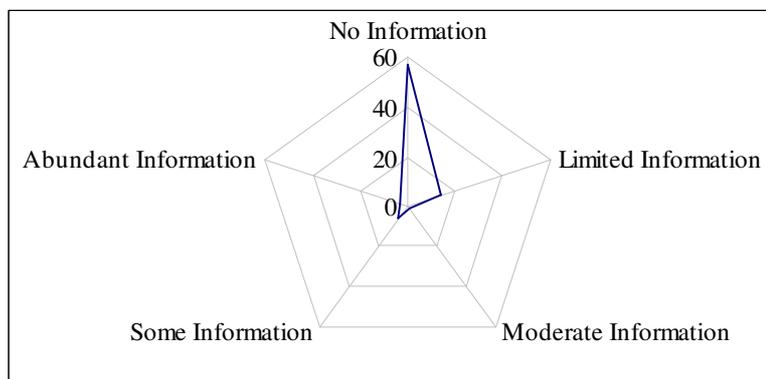
Access to Markets or Buyers:

Most farmers find it particularly difficult to access formal sources of market information and must rely on buyers in area (57%). 30% indicated that family and friends were the most important source of information. Extension, and the Ministry of Agriculture, have little impact in improving information available to farmers on finding markets and/or buyers. 13% of farmers could not identify any source of information.



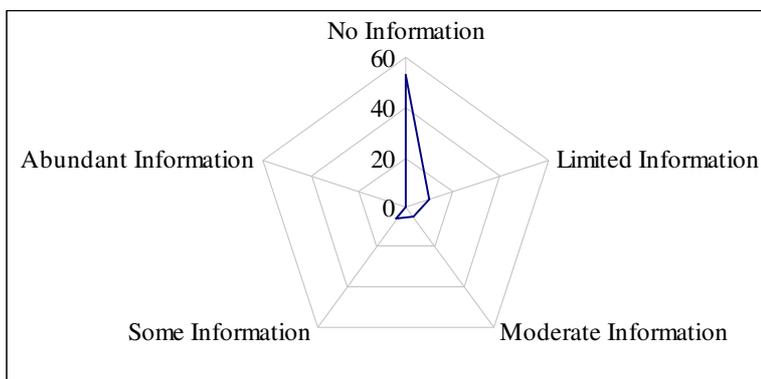
Access to Finance:

The majority of farmers receive no information on finance. It was only the large, established farms that were found to have any knowledge. Only 30% of those surveyed could indicate an external source of information. Of the others, 80% indicated that family and friends were the only source. As 92% of funds for farming activities are derived from own savings or family this complements the notion that farmers have very little access to external sources of finance.



**Training in Business:**

Few farmers receive training on running agriculture as a commercial business. 75% of surveys show that training comes from family and friends, 12.5% from Extension, and 12.5% from buyers. However, in general ‘training’ is done in an informal nature and is usually give as friendly advice rather than actual training per se. As most farmers have little education beyond



secondary school, and there are currently only a few initiatives by the Ministry or any other parties to introduce business training into agriculture, it is a realistic argument that there is little movement of agriculture into a business environment.

**6.6 Contracts**

Over 95% of farmers have never operated under a contract<sup>5</sup>. Of those who have experience with contracts, none currently operate under one. All have identified problems which have affected the trust with buyers, including:

- Not paying in a timely manner;
- Failure to return after first harvest (reasons unknown); and
- Refusal to take full shipment as agreed upon.

Nonetheless, most producers are receptive to developing contracts. In evaluating producers’ needs, producers were asked to establish the most important aspects of a contract. Payment on collection of produce was considered the most important feature, reflecting the lack of interest in offering credit, followed closely by a fair price. That buyers collect from the farm was also a key issue, confirming the difficulty in getting access to transport.

**Table 6: Producer Requirements in Contracts (% respondents)**

	Pay on Collection	Buyer to Collect from Farm	Fair Price	Financial Assistance can be provided	Farming & Post-harvest Handling Advice Provided
Most Important	33	11	27	1	2
↓	17	41	9	3	0
	18	16	35	0	1
	1	2	0	23	9
Least Important	1	1	1	8	17

Source: Survey data

<sup>5</sup> A contract, verbal or otherwise, was defined as providing an agreed quantity over a specified length of time. A single consignment does not constitute as evidence of use of a contract.

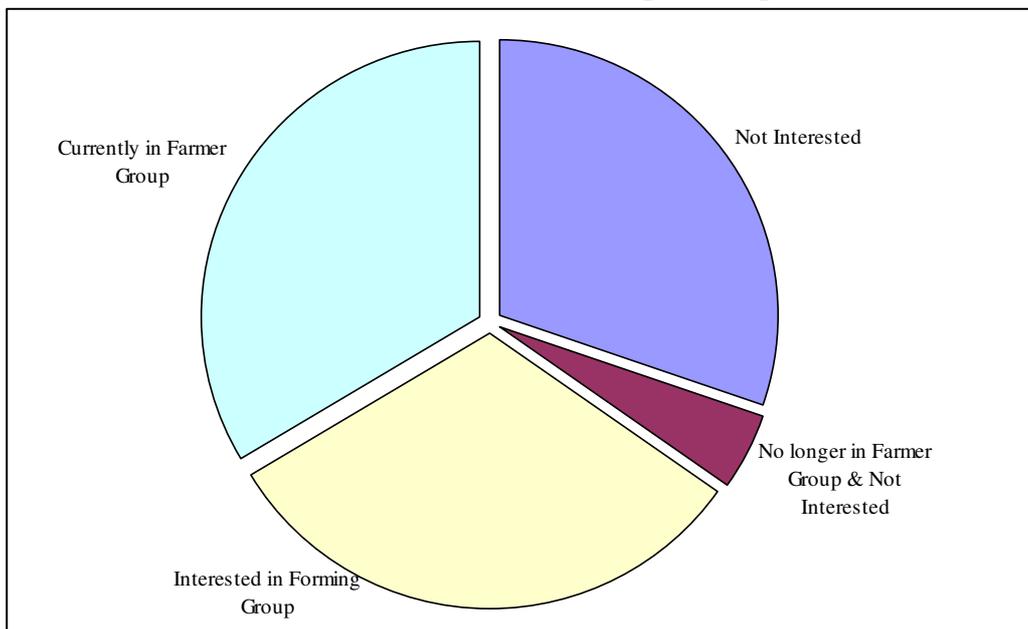
Although most producers recognize the benefits of a fixed contract, 20% stated that they would rather operate without one. This is partly due to the lack of trust with buyers and the reluctance to rely on them. Some producers stated that they liked the ability to remain flexible and to search for buyers offering higher prices. In periods of adverse weather patterns and/or scarce supply, producers can substantially increase prices. As such, a contract with fixed price specifications would be of no benefit. A contract would only be adhered to if buyers were prepared to be price flexible. However, even in this eventuality, a strong relationship would need to exist between buyer and producer. Any suggestion that the buyer may object to paying higher prices would only serve to increase producer intuition to sell to other buyers on a first-come first-served basis.

In contracts with a fixed price agreement, producers stated that they would only adhere to the contract when prices are low, suggesting that they would be prepared to break contracts if an alternative buyer offered a better price. Unless contracts can be enforced, they have little practical use.

### 6.7 Farmer Groups

38% of farmers have operated in a farmer group at some point. Of the others, approximately 50% are interested and 50% uninterested in forming farmer groups. 55% of the farmers operating in a group have done so for less than a year, and only 15% have lasted more than 5.

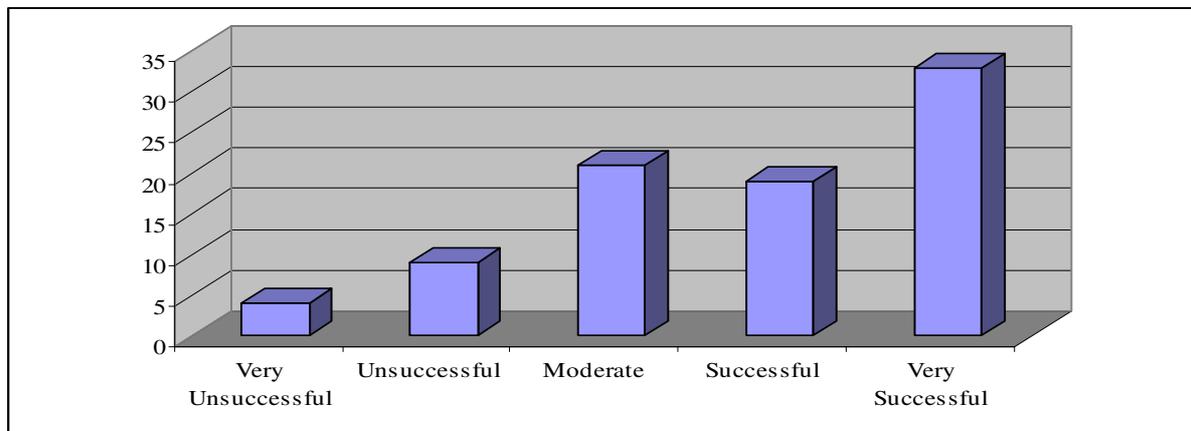
**Figure 7: Current Involvement and Interest in Farmer Groups (% respondents)**



Source: Survey data

On the whole, the majority of farmers view groups as successful. 33% of farmers perceived them as very successful, and an additional 19% as successful. Only 13% view groups to be unsuccessful. 21% consider groups of moderate benefit.

**Figure 8: Perception of Success of Farmer Groups (% respondents)**



Source: Survey data

In determining the main advantages perceived in working in farmer groups, participants were requested to rank from 1 to 5, with 1 representing the most important factor. The factors can broadly be classified according to marketing, community assistance, and assistance from external bodies (Ministry of Agriculture). The results indicate that the most important reason is the belief in a greater ability to find a market, followed by the building of community spirit. Community spirit has an important element in Fiji, particularly among indigenous Fijians, and many participants identified reducing costs of production as a key advantage.

**Table 7: Advantages of Working in Farmer Groups (In Order of Priority; % respondents)**

	#1	#2	#3	#4	#5
Finding Market	22	3	3	5	5
Access to Finance from Ministry of Agriculture	10	14	4	8	4
Access to Finance from other Farmers	1	5	6	2	4
Assistance from Extension	3	11	9	6	5
Building Community Spirit	18	8	20	11	4
Sourcing Inputs	12	18	11	10	5
Reducing Costs of Transportation	2	9	16	10	9
Access to Labour	3	7	3	3	4

Source: Survey data

Increased support from the Ministry is also a factor that many considered important, but this is likely to be the influence of the Ministry’s work programmes and criteria for assistance to farmers. With limited finance, the Ministry only supports farmers operating in farmer groups. Ministry officials believe that smallholder farmers are more likely to succeed in groups, particularly as it reduces production costs through scale economies. It is also more likely that farmer groups get access to an Extension locality officer. Locality officers are often spread thinly in rural areas, particularly in areas with poor accessibility. With limited transportation and poor communication

networks, many officers find it difficult to see all farmers in the area on a regular basis. As such, they tend to prioritize certain areas and certain farmers. With these issues, it is therefore to be expected that farmers identify Ministry assistance (financial or technical) as a key benefit to farmer groups.

11% of the participants in the survey could not identify any advantages of farmer groups, clearly indicating a view that they have little to no benefit. In terms of the problems identifiable with farmer groups, participants ranked from 1 to 5 the most common problems experienced/witnessed, with 1 representing the most common problem. The survey reflects that the most common issue is that some farmers do not work as hard as others in the group and that some do not help each other. From informal observation in the Sigatoka Valley, it was clear that several farmer groups were formed purely to access Ministry finance. Once equipment was purchased (e.g. irrigation pump), the group collapsed.

**Table 8: Problems Experienced/Witnessed in Farmer Groups (In Order of Priority; % respondents)**

	#1	#2	#3	#4	#5
Not Sharing Equipment	9	6	7	8	3
Not Working as Hard as Others	20	17	9	4	1
Not Fulfilling Quotas	3	15	14	7	1
Not Sharing Information of Buyers	1	1	5	3	4
Not Helping Each Other	19	12	12	5	3
Personalising Equipment; Reluctant to Allow Others to Use Equipment	1	3	1	1	4
Other	2	0	0	0	0

Source: Survey data

In terms of “Other”, the farmers identified that it was poor management of the farmer group that was the key problem and eventual cause for its failure.

Although the Ministry of Agriculture supports the idea of forming farmer groups and gives preferential access to finance to farmer groups, it does not continue to assist in the running of groups. This perhaps helps explain the large number of groups that fail to last more than 5 years. The high incidence of failure after 1 year suggests that many farmers only join groups for short-term financial benefit and under pressure from the Ministry. Indeed, it reflects the poor number of farmers groups established without the aid of the Ministry.

The survey data reflects that smallholder farms are not more likely to succeed by operating in a group. The high frequency of farmers viewing groups as successful must be tailored to the hand-out approach of the Ministry programmes. Farmers are more likely to classify farmer groups as successful if they, or others in the community, have benefited from direct financial gain even if the group collapses within the first year.

## 7. KEY SURVEY FINDINGS: BUYER ORGANISATION

### 7.1 Buyer Classification

Several different buyers of agricultural produce participated in this study. Given their different characteristics it is useful to differentiate buyers according to their classification as middlemen, exporters and hotels.

### 7.2 Middlemen

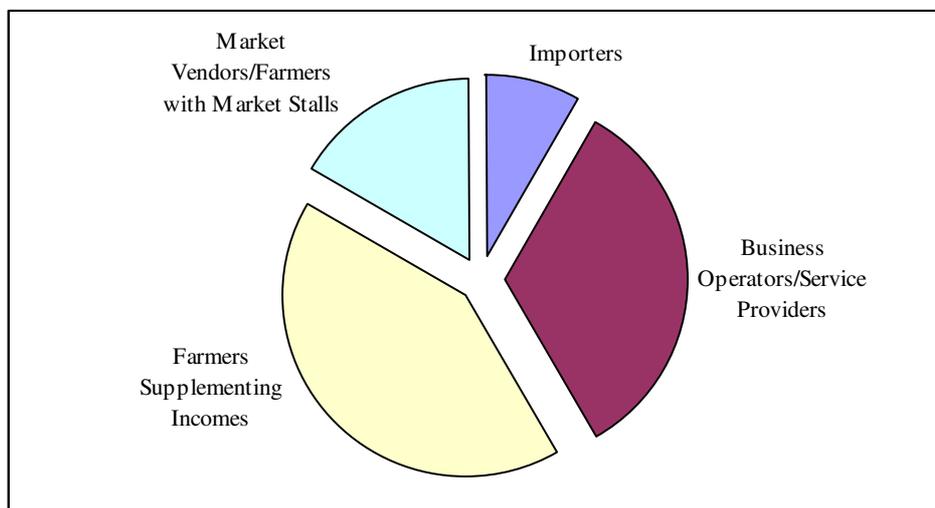
Middlemen play a critical role in the sector through the services offered and the links between markets (exporters, municipal markets, and tourism) that have been built up over the years. The fierce competition between middlemen helps to keep market prices competitive, although this does force them to find produce at best value. Assisted by information asymmetry, this competition is partly to blame for the resentment among farmers for their perceived exploitation over the years.

It is possible to use 4 rough classifications for middlemen that operate in Fiji:

- Type 1: Business Operators/Service Providers
- Type 2: Farmers Supplementing Incomes
- Type 3: Market Vendors/Farmers with Market Stalls
- Type 4: Importers

The distribution of each is represented as follows:

**Figure 9: Distribution of Type of Middlemen**



Source: Survey data

- Business Operators/Service Providers:

In the closest definition of ‘middlemen’, this is the group that is most applicable. They source from local producers and deliver to the end market. They do not take part in the production of agriculture and make-up 33% of all middlemen.

This group does not tend to be located in rural areas but close enough such that they can make regular trips into agricultural areas. All have storage facilities, though rarely have coolers. They have trucks with which to make trips into rural areas, and often possess light goods vehicles to make daily runs to consumer markets/premises.

Some of this group have good relationships with hotels and competition is fierce between one and another. All can provide same-day delivery and 30-90 days credit facilities. Two of the buyers surveyed specifically operate to the needs of the tourism market. Others do sell to hotels, but most of their business is conducted in the local municipal markets.

Farmers are contacted a day in advance and pick-up is made the next day. 80% pay cash on delivery, with only 20% identified as using farmers who will accept 15-30 days credit.

60% of the group grade produce, invariably those who have established links with the tourism market. Simple grading is done on the farm as the produce is collected and paid for, and then in greater detail at the business premises. All prefer to grade themselves than buy already graded, primarily due to the lack of trust with the producers. Those who do not grade produce only sell to the municipal markets, and do not believe it to be necessary.

This group provide some services to the farming community, particularly market information and packing materials, and recognise that it is to their own benefit.

*“I tell the farmers what I need and what is demanded by the hotels. If they grow it I will buy and hotels will buy from me.”<sup>6</sup>*

Most provide their own packing materials to help reduce product damage. Boxes and crates are often provided for this reason, as they protect produce better than sacks<sup>7</sup>. This can be particularly important in less accessible areas where poor road networks increase the risk of damage while in transit.

25% of the group indicated that they on occasion have provided agro-inputs (seeds, fertiliser), small grants or advanced payments. Unfortunately, many have had poor experiences with farmers, and admit that they are very selective of those who they are prepared to provide agro-inputs or small grants to.

None of these middlemen have contracts with farmers, but 80% of operations are with farmers with whom they have operated with regularly and have built up trust. Only 20% of supply is from exploratory searches (ie. driving round in search of produce), generally when supply is scarce. Even with trusted farmers, none of the middlemen use contracts. They are generally reluctant to accept that farmers will honour contracts rather than sell to the highest bidder. However, equally

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<sup>6</sup> Quote from a Business operator/service provider.

<sup>7</sup> Sacks are the preferred means of packing among farmers due to the low cost.

important is their own admittance to searching for cheaper product. Middlemen source from a wide area: from Sigatoka to Nadi to Lautoka depending on price competitiveness and availability. Contracts are not seen as important and considered likely to reduce the flexibility of operations.

These businessmen also import food either directly or from local importers. The most common products imported are lettuce, tomatoes, capsicum, carrots, broccoli, cauliflower, and potatoes. Some of these are imported throughout the year either due to quality preferences (eg lettuce, tomatoes, capsicum) or Fiji's inability to successfully grow the product commercially (eg. broccoli). During off-season imports constitute a larger proportion of their total supply in order to support market demand, particularly in the tourism industry.

These middlemen tend to have profit margins of approximately 20%, accounting for use of coolers, packing sheds, and transport, as well as any other services that may be provided.

- Farmers Supplementing Incomes:

This group (42% of middlemen surveyed) tends to consist of farmers who have their own trucks and during peak season are generally able to fill a consignment for weekly delivery to the municipal markets. However, during off-season when supply is less, they purchase from neighbouring farms and those in the nearby vicinity to complete a consignment. Most of this group (80%) operates on farms less than 10Ha and all are located in the rural areas.

Some of these middlemen (10%) operate only during the off-season as a supplementary source of income. During peak season they work solely on the farm and sell to other middlemen operating in the area.

When supply from the farm is insufficient these middlemen tend to buy produce from other farmers once or twice a week. Municipal markets are the main market for the produce, although a few have sold to hotels and exporters on occasion. The middlemen will arrive early on market days and sell to the vendors before the end consumers arrive. Cash is the sole means of transaction, both to farmers and to buyers.

The middlemen have trucks but no storage facilities. Notice is given to farmers a day in advance and usually collected en route to market.

Due to the nature of operations, contracts do not exist and are of no interest. Flexibility is key as the middlemen only buy to complete a consignment. Several identified that the large number of farmers in the area allows them to search for better-value product. Being tied to a contract would be a disadvantage and impractical to business operations.

This group provide a range of services to farmers, including agro-inputs, advice, (small) loans, market information, and packing materials. However, it is important to understand that this is generally done as a favour to their neighbours. The services provided are done within the village where trust and friendship has been built over the years. Since they have transport, the middlemen perform a social function of collecting seeds, fertiliser and pesticides from the cities before returning to their villages. Farmers in the area – normally neighbours and friends – invariably give money and a 'shopping list' before their colleague travels to market. Market information and

advice is relayed informally and in a social manner. Loans are sometimes provided, but in the same manner as friends and family give small loans to each other.

Most of the middlemen grade produce but generally with less concern. Most are indifferent and complacent to the activity. Half indicated that they prefer to grade themselves while the other half indicated a preference to buy already graded.

Profit margins tend to be marginal, of approximately 5-10%, factoring in the cost of transportation.

- Market Vendors/Farmers with Market Stalls:

This group (17% of middlemen surveyed) consists of market vendors who directly source from rural areas and/or farmers who have a market stall in one of the municipal markets. This group seeks to cut out the costs of other middlemen who sell to the market vendors; hence improving their competitiveness. Farmers who have a market stall do so to guarantee a market for their produce. These farmers tend to be based relatively close to the market (less than 1 hour) and have farms larger than 10Ha. Excess production is sold to other market vendors.

Vendors with their own transport tend to collect two or three times a week from farmers in rural areas, while farmers with a market stall can deliver daily to the market according to demand and harvesting season. All transactions are in cash. The market vendors have farmers who are frequently used, but flexibility is crucial. They do not have suitable storage facilities and cater to market demand. Price competitiveness is important and they will compare prices of different farmers. On occasion they do purchase from Type 2 Middlemen, but only to cater for immediate shortfalls in supply.

Grading is generally done on the business premises; that is, at the market where it will be priced according to size. No services are provided to farmers outside of the usual informal manner of the village.

Although the municipal markets are the main means of distribution, some of the vendors deliver to nearby hotels and restaurants. This tends to be more prevalent in areas with fewer tourist numbers, and where the role of type 1 middlemen is more restricted. In locations such as Nadi where there are large numbers of tourists and greater competition from other middlemen, this role is less required.

Profit margins tend to be marginal, of approximately 5-10%, factoring in the cost of transportation and the rental of the market stall.

- Importers:

There are buyers who solely import fresh and/or frozen produce. Two were interviewed during the survey. Though they do not source from local producers, they do provide an important market service in addressing market demands that are not met locally. Importers distribute to hotels, supermarkets, municipal market vendors, and other middlemen. Neither have the incentive, or want, to buy local produce. Both identified a history fraught with bad experiences of previous initiatives undertaken with local producers, and neither have any trust of local partnerships (see Box 3 below).

The importers have good storage facilities, complete with cooling facilities, and bulk buy from overseas markets and producers (usually Australia) to get scale economies. With the ability to store produce they can extend the shelf life of the product. Importers also have refrigerated transport and can supply daily upon request.

Due to the high demand for imported produce, importers tend to have a number of steady contracts with local businesses, particularly supermarkets. In the tourist market, importers focus on high-end resorts who have fewer budgetary constraints and are more concerned with product quality. They directly compete against other providers of agricultural produce and market their produce as a superior quality. It is now ingrained in many that imported produce is of a quality that cannot be achieved in Fiji.

Profit margins tend to be relatively higher compared to other middlemen of approximately 25%, to account for the use of coolers, storage facilities and transport costs.

### **Box 3: UNO Importers**

Prior to deciding solely to import, UNO had a number of arrangements with farmers and even fixed contracts, selling both locally and overseas. Contracts were devised with local farmers in which UNO would provide papaya seedlings, fertiliser, pesticides and training in agreement that all produce be sold back to the company at a pre-determined price. The contract stipulated that UNO would own the trees but would pay a reasonable price for the product after some deduction for initial investment. After investing heavily in the farms and providing training into both farming and post-harvest handling, the farmer group sold the whole crop to a competing exporter at a higher price. In retaliation, UNO had all the trees cut down.

The director of UNO argues that the company had other problems in dealing with local producers as well. Contracts and agreements were frequently dishonored, and trust broken. Often they found that farmers would lie about the quantity packed as well as providing inferior quality to what had been agreed on.

The company has since stopped all operations with local producers, focusing solely on imports. As quoted from the company director, overseas producers have “better reliability and, more importantly, can be trusted”.

### **7.3 Exporters**

Eight exporters of fresh fruits and vegetables were interviewed. Although most tend to specialise in the export of one product (namely papaya if located in the Western division, or root crops in the Central division), many can be classified as entrepreneurs who will take advantage of any opportunity. Seasonal crops, such as breadfruit and mango, will be exported if supply is there. Three of the exporters distribute to their own or family-owned overseas companies, guaranteeing a buyer. Of the other exporters, there is fierce market competition between each other, made worse by the presence of the Government-run AMA who have repeatedly undercut local exporters.

Three of the exporters have their own farms or have financial interests in farmland. This is particularly beneficial as it allows exporters to closely monitor the farming and post-harvest handling practices; an important feature in products with strict quarantine regulations (papaya) that require all exporting farms be certified.

Most exporters, however, do not farm themselves. They source from a number of farms, giving farmers one day's notice. 65% of their orders are from regularly-used producers (50% if excluding those with their own farms), and 35% (50%) is from exploratory searches of the area. The high incidence of exploratory searches reflects the nature of the business. Farmers will sell to the most attractive offer and there have been frequent incidences where contracts have been broken. All exporters have, when faced with market demand, gone to farmers usually used by their competitors and offered a higher price in return for the harvest.

Only 20% of exporters were open to the idea of ever using contracts with farmers. 80% do not feel that they are necessary or that they will work. With no enforcement of contracts, they have no real value.

In terms of services offered, roughly 50% of exporters offer one form or another. Advice on good farming techniques or post-harvest handling is the most common service as it costs the exporter nothing except time and potentially increases the quality and hence revenue of the crop. Seeds, fertiliser and pesticides are occasionally offered but only to trusted farmers and with the understanding that the crop be sold exclusively to them (usually at a discounted price to take into account the cost of the initial investment). Grants, loans and advanced payments are also done on the same basis, although only 25% of exporters are willing to provide this service, having had their trust abused once too often.

All exporters grade produce at the farm, but re-check at the business premises. 50% prefer to buy already graded, while 50% prefer to grade themselves to ensure quality meets their own requirements. The lack of trust between buyer and producer is an additional motive for self-grading.

Due to the use of coolers, packing sheds, quarantine costs, transport and so on, exporters have profit margins of approximately 20%.

#### **7.4 Hotels**

Hotels can be easily distinguished according to their size and number of stars. A total of 14 hotels were surveyed during the study, of which 3 of the hotels can be classified as Backpacker, 2 as 3 star resorts, and 9 as high end resorts. Eight of the hotels have been identified at some point in their history as sourcing direct from farmers as well as middlemen.

All hotels procure fresh produce on a daily basis due to restricted storage facilities. All currently use middlemen who can provide 30 days credit and same-day delivery; a prerequisite criteria of middlemen conducting business with the tourist industry.

Hotel purchasing officers that have bought produce from farmers have generally done so on an ad hoc basis. Only two hotels have been identified as regularly buying produce from a group of farmers, but these collapsed after the transfer of the purchasing officer and are not currently operating. In each of these circumstances, the purchasing officer had direct links with some of the local farmers.

It appears that operations between hotels and farmers has generally been done as a “social responsibility” to the local mataqali. Purchasing officers are aware of the need to improve the living standards of the local community. However, they have never relied on the local farming community to consistently provide produce. Rather, produce taken from the farmers tends to supplement existing stocks from regular middlemen. Payment is made in cash, but only because the quantity supplied is small. If farmers were to provide large quantities regularly, purchasing officers would insist on credit.

Although hotels are willing to use local produce (see Veit 2007) they do not want to work directly with the farmers. Certain services can be provided by middlemen which guarantee supply and quality. Middlemen will ensure high quality produce – whether local or import – and will reimburse the hotel for any damaged product or product not meeting quality standards. The services on offer are not economically viable for farmers, and highlights the importance of middlemen in the value chain.

Hotels will not engage in contracts with farmers or farmer groups. Purchasing officers look for the best value with as little stress as possible. They have links with a number of middlemen and will invariably ask for prices from all of them before placing an order. Many middlemen have claimed that purchasing officers frequently try to promote price wars and will distribute price lists to other middlemen to encourage competition. Smaller establishments are more likely to source produce from the municipal markets on a daily basis, although some do use middlemen due to services offered such as delivery.

#### **Box 4: Allegations of Corruption and Bribery**

Many middlemen in this study repeatedly mentioned certain purchasing officers who takes bribes in return for access to the hotel market. Though a naturally very sensitive subject, some middlemen indicated that they do engage in such actions. Sometimes, middlemen indicated that the purchasing officer will overlook a price increase to take into account the value of the bribe.

Unfortunately, the relatively unregulated nature by which purchasing officers operate does allow such operations to exist. In a few cases, corrupt officers have been caught and their endeavors publicized, but this is rare.

Due to the highly sensitive nature, it is difficult to get a good indication of the number of purchasing officers and middlemen who operate in this manner. It is important to recognise that it does not apply throughout the industry. Many purchasing officers are reputed as only seeking best value for high quality produce. Likewise, several middlemen refuse to offer bribes – a moral standpoint that has cost them business.

## **7.5 Crops Demanded**

All buyers, from middlemen to exporter to hotel purchasing officers, demand a high range of produce.

Middlemen are clearly the most diverse given the wider market range. In the Sigatoka Valley, they will buy most crops when available, especially the following given the demand from the tourist sector and exporters. :

- Papaya
- Eggplant
- Tomatoes
- Watermelon
- Lettuce
- Capsicum
- Bean
- Cabbage

For those middlemen that supply exporters, papaya and eggplant are the most demanded given the higher returns that can be achieved. Both products are also sought domestically, providing a market outlet for inferior quality as well. That both products can be grown year round provides additional security. Watermelon is also sought for its high returns, marketed for tourism and for local demand. Other vegetables are bought when in season and sold locally.

Middlemen are diverse and adapt to off-season or periods of constrained supply. Provided produce can be sold in the local markets, middlemen will invariably buy what is available on the ground. With access to vehicles, middlemen are prepared to travel to fulfill a consignment. By catering for a wide variety of products, middlemen are able to reduce risk through off-season or adverse weather patterns.

Exporters are much more selective in produce sought, but this is attributable to the low number of BQA's that have been developed. Exporters in Sigatoka procure papaya and eggplant. Exporters who are based in the Central division tend to focus predominantly on the root crops of dalo (taro) and cassava and ginger.

The tourism industry is prepared to buy a wide range of produce but only if the quality is available. When in season, the salad vegetables of tomato, lettuce and capsicum are demanded, but many of the larger establishments will still prefer to choose imports based on the assumption that local producers offer an inferior product. Fresh fruits are always in demand from hotels, such as papaya, watermelon, pineapple, and banana.

## **7.6 Constraints in Sourcing Local Produce**

Buyers of agricultural produce identified constraints that limit their ability to source locally. The most common was the inconsistent or low quality of the produce, followed by the poor infrastructure and insufficient supply.

Inconsistent quality and supply has frequently been identified for the high level of imports, particularly among hotels. Many purchasing officers rely on importers to ensure high quality throughout the year; a feature that cannot be guaranteed by the domestic agricultural sector.

An important issue for middlemen and exporters is the poor road infrastructure. Inaccessible areas cannot be sourced from and poor road maintenance increases the risk of damage to produce. Several buyers indicated that they would not source from the Upper Valley or the East Bank unless absolutely necessary due to road conditions. One exporter estimated that up to 30% of produce collected from these areas has to be rejected once reaching the business premises due to the bruising of the fruit.

Poor road access is also an important issue for farmers. If middlemen are reluctant to source from areas with poor accessibility, farmers find themselves cut off from the market.

**Table 9: Constraints in Sourcing Local Produce by Classification of Buyer (number of respondents)**

	<b>Inconsistent or Low Quality</b>	<b>Supply Insufficient to Meet Demand</b>	<b>Poor Road Infrastructure</b>	<b>Lack of Access to Appropriate Vehicles</b>	<b>Inadequate Post-harvest Handling</b>	<b>Lack of Knowledge of Product Availability</b>
Middlemen Type 1	7	2	3	1	1	0
Middlemen Type 2	5	1	4	1	1	0
Middlemen Type 3	3	1	1	0	1	0
Middlemen Importers	1	0	0	0	1	0
Exporters	6	1	4	0	0	0
Tourism	7	2	0	0	1	1

Source: Survey data

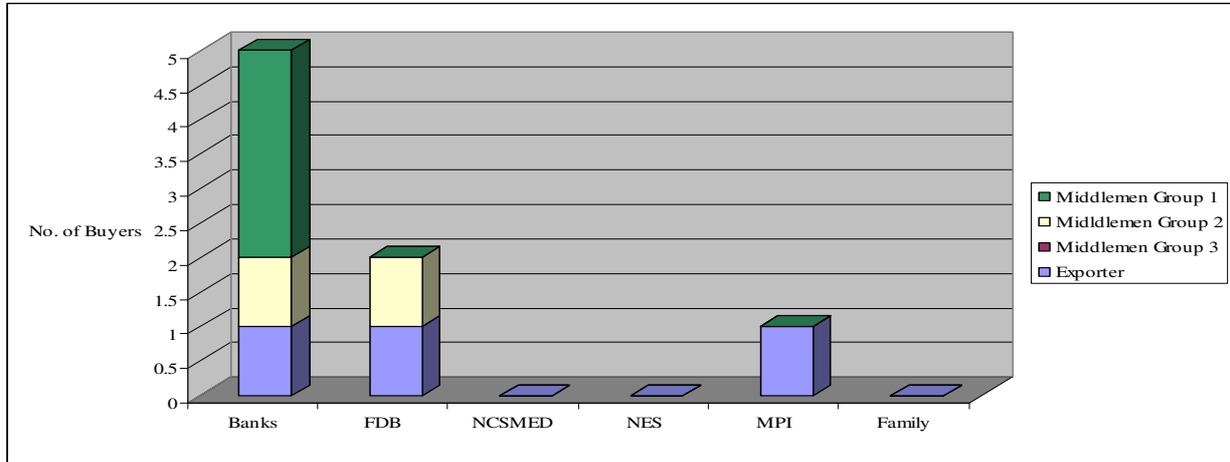
Adequate post-harvest handling is important in reducing the risk of damage and increasing the marketability of the product. Although exporters did not identify the issue as a constraint, all take a key interest in appropriate packing and handling practices at source. All of the exporters provide their own packing materials and often have their own staff assist in loading. This allows grading to occur at the farm and reduces the risk of damage.

### **7.7 Access to Finance and Insurance**

In getting access to funds, middlemen (excluding importers) and exporters have experienced difficulty. Type 1 middlemen have the greatest incidence of sourcing funds from commercial banks, followed by exporters. Type 3 middlemen have failed to access external sources of funds,

most likely due to the small size of operations. Larger companies are more likely to find an external source, aided by established markets.

**Figure 10: Sources of Finance to Buyers**



Source: Survey data

In terms of insurance, 62.5% of exporters have a policy as well as 25% of Type 1 middlemen. However, this only covers business premises and equipment, not product. Neither Type 2 nor 3 middlemen have insurance. Reasons identified for the lack of insurance were as follows:

**Table 10: Reasons Identified for Lack of Insurance Policy (number of respondents)**

	Lack of Awareness of Insurance Options	Premiums too High	Insurance Companies Refuse to Insure Agricultural Enterprises	Do not Believe Insurance to be a Necessary Expenditure
Type 1 Middlemen	0	3	2	1
Type 2 Middlemen	1	2	3	5
Type 3 Middlemen	1	2	1	1
Exporters	0	2	1	2

Source: Survey data

The most consistent cause for each type of buyer was the belief that agricultural premiums are too high. Worryingly, however, is the high incidence of buyers not believing insurance to be a necessary expenditure. This is particularly high among Type 2 middlemen, although the nature of their business operations explains the unwillingness for additional expenses. As this group consists of farmers seeking alternative means of income, disposable funds are scarce. 2 exporters also identified this as a suitable cause. As insurance companies will not insure produce, the only items that warrant a policy include the business premises and certain equipment such as rollers and packing materials (vehicles are insured separately but only as Third Party). Many buyers are willing to risk these rather than pay for insurance.

## **8. COMMON ISSUES RELATED TO THE REQUIREMENTS OF COLLECTION CENTRES**

From the study, there exist a number of common factors that have direct relevance to the development of collection centres, both in terms of issues that should be considered and/or incorporated into the activities of a collection centre as well as affecting the feasibility of the centres.

### **8.1 Lack of Information**

The agricultural sector is characterised by information asymmetry that has left the sellers vulnerable and at risk from exploitation. Market information is lacking, and that which is available is not disseminated in a timely or efficient manner. Full price and quality transparency does not exist.

Insufficient information contributes to the issue of insufficient planning throughout the value chain. Improving the channels of communication between buyers and producers is necessary to fully utilise the links between agriculture and the market. Producers remain relatively ignorant of buyer demands, having gained little feedback through the supply chain. The lack of dynamic communication between market actors and farmers impedes successful planning along the supply chain to the extent where farmers have little knowledge of what and when to harvest to meet demand without flooding the market. Likewise, buyers are often unaware of product availability.

Exporters identified market research as a priority issue. Exporters are unaware of market opportunities overseas and have little access to data with which to explore. Those who wish to find new markets are often constrained by the lack of funding available to attend trade fairs and promotional events. Trade promotion of agri-business is somewhat absent in Fiji, and greater emphasis is needed in Government policy. This includes marketing and use of the 'Fiji brand' which has proven in other businesses to be a positive marketing tool.

### **8.2 Marketing Records and Farm Prices**

There exist few sources of accurate price information which are available to the private sector. Fiji AgTrade, a division within the Ministry of Agriculture, keep a record of weekly market prices from across Fiji. The information rarely reaches ground level in a timely manner. This may be attributed to the poor means of information dissemination between the private sector and Government. No data sets are available of farm gate prices and, at present, Fiji AgTrade appears to be the only source of local market prices (see Tables 5(a) and 5(b) in Appendix), although the reliability of the data must be brought into question. Prices have often been measured by bundles rather than by weight. During periods of low supply the bundle may decrease in size, but the price remains the same. Likewise, good harvests are not accurately reflected as price per bundle remains constant, but the unrecorded weight of the bundle increases. Market surveyors have also been poor in their recording of data, content to omit the units of measurement.

As part of the value chain analysis, both producers and buyers were requested to recall farm gate prices over the months of January, April, August and December 2008. Buyers, on the whole, keep fairly accurate records (except for type 2 and type 3 middlemen), while farmers do not. Many struggled to recall prices just a year ago. Table 6 in the appendix reflects the disparity in keeping accurate records. Farm gate prices depending on producer or buyer can fluctuate quite significantly.

### **8.3 Segregation of Buyers and Producers**

Depending on buyers there can exist a relatively high degree of segregation between producers and buyers. Lack of coordination between the two has not created an efficient system, and the value chain is characterised by information gaps. Distrust has been the end result.

To many producers, the only indicators of the market are from enquiries from buyers and from informal conversations with friends and family. To buyers, the best information of product availability is from field visits made personally.

Exporters and type 1 middlemen reflect the most separated of the groups. The nature of their business creates a much more formal environment. In comparison, type 2 and type 3 middlemen, have much closer ties to producers due to their self-interests in the farms. These middlemen provide important social ties, and are much more capable in building trust with farmers. Services that are offered build relationships that are much more substantial than those with exporters and type 1 middlemen.

Depending on location, the focus of any feasibility study of collection centres must factor in the type of buyer. The characteristics between type 2 and type 3 middlemen contrast widely to those of type 1 and exporters. Collection centres based close to urban areas and/or with good accessibility will have a greater proportion of the latter, while those in more isolated locations or with poor accessibility will have a greater proportion of the former. The pattern of use of the facilities will reflect the characteristics of the buyers in the area.

### **8.4 Infrastructure**

Infrastructure is an important factor to be considered both for the feasibility of collection centres, but also in the general development of the sector. Poor infrastructure is a serious deterrent to buyers, as seen in the Upper Valley and East Bank. Part of the failure of the Lokia packing shed lay in the poor road conditions of the area, reducing the number of buyers prepared to source from the area.

Areas with poor road networks tend to be more isolated locations, and are invariably dominated by type 2 and type 3 middlemen. As mentioned above, the location and accessibility will affect buyers sourcing from the area, and hence the needs, activities and feasibility of a collection centre.

## **8.5 Use of Contracts**

The use of contracts would be one mechanism of reducing segregation along the value chain. Their use can reduce transaction costs, improve the distribution of information and reduce risk throughout the value chain. Minten et al. (2006), for instance, argued that the highly perishable nature of fresh fruits and vegetables creates an incentive to organise and pre-determine key transactions through instruments such as contracts. Da Silva (2005) argued that contracts are an intermediate term between full vertical integration and spot markets that farmers and buyers can use as a mechanism to transfer and share risk along the value chain. Details within contracts can include mechanisms to transfer risk, indicating the pooling of idiosyncratic risks along the chain or where market power is employed to increase the risk borne by some stakeholders.

There are currently few producers or buyers in Fiji that use contracts. This in part reflects the lack of trust between the two. The size of the farm structure must also be taken into account. Larger producers may be more likely to undertake a contract but these are relatively few in the Sigatoka Valley. The use of farmer groups is one option that could be explored, but the survey results indicate a high incidence of failure and joining groups for the wrong reason (i.e. financial handouts from the Ministry). If farmer groups are to be explored further, the incentives to form groups and ensure their continuance must be revised.

The asymmetric distribution of power along the value chains must also be taken into account. Buyers are often in a position of power over farmers during harvest season, although the role can be reversed during periods of reduced supply. A recent study by Angelucci and Conforti (2009) of risk assessment and finance along the value chain in small island developing states, including Fiji, found that traders, retailers and processors tend to be more concentrated than farmers. This often corresponds to a greater ability to set prices and other contractual terms and conditions, as these segments of the value chain tend to be closer to final consumers, and thus are in a better position to receive and react to demand signals.

## **8.6 Risk**

Risk affecting agri-business can be classified according to different criteria. Following the literature (Eckhoudt and Gollier, 1992; Hardaker, 2004), the following categories are frequently used:

1. Price risk: depending on the source, a sudden unanticipated change in input and/or output prices can adversely affect agents in the supply chain.
2. Production or yield risks: these affect harvest quantity and/or quality, such as through a natural hazard. All agents can be exposed to such risks.
3. Asset risks: are associated with theft, fire and other types of loss or damage of capital and assets used for production, processing, trading or transportation.
4. Institutional risk: results from changes in national and international policies or in the concentration of market power along a value chain.
5. Financial risk: arises from unforeseen changes in the cost of capital, exchange rate fluctuations or disruptions in the ability to access credit and/or equity losses.
6. Human or personal risk: affects the productivity of the labour force through death, illness or injury.

At present, there exist few successful mechanisms through which agents across the value chain can reduce risk. Farmer groups have a high incidence of failure within a year; contracts are rarely used, and generally deemed undesirable by the majority of buyers and by a number of producers; there are few opportunities for accessing external sources of finance; and insurance policies are not used and/or deemed excessively expensive. Other possible alternatives are generally unknown by the agricultural sector.

Product diversification is perhaps the only current means by which to reduce risk to the enterprise. Both farmers and middlemen accommodate for a wide range of products, even the smallest enterprises, by which to reduce the effect of a shock. There are fewer commodities by which exporters can diversify but idiosyncratic shocks in one area of the country will generally persuade them to try sourcing from another area, even if more expensive, in the short term. In circumstances when the whole country has been affected by adverse weather patterns, as occurred in the January 2009 floods, there is little that can be done by any agent in the value chain other than use savings and rely on friends and family.

## **8.7 Finance and Insurance**

Both buyers and producers were found to have little access to external sources of finance or to have insurance policies. Even if eligible, many have found the interest rates and premiums prohibitively high.

Part of the problem lies in access to information. Many in the value chain remain relatively ignorant on opportunities available. Finance institutions have remained reluctant to invest in agriculture due to the high transaction costs that exist, finding it difficult to gather reliable and accurate information with which they can make their analysis.

Access to a source of collateral is another factor. Smallholder farmers, in particular, have little means by which to provide collateral, especially if they are located on leased land. Without a source of collateral, banks are unwilling to provide loans. The use of contracts is one means by which collateral can be provided, but there is currently little vertical integration along the supply chain and little prospect of such without external support and guidance.

The high risk of default further limits access to financial institutions, particularly in smaller enterprises. The prevalence of adverse weather patterns in the Pacific during the wet season (also known locally as cyclone season) does little to assist the formation of partnerships between such institutions and agents along the supply chain.

## 9. FINANCIAL ANALYSIS

The second part of the study focuses on an assessment of the potential financial benefits of collection. It should be noted that the definition of “collection centres” used in the analysis is related to the design of the two packing sheds discussed previously. As such alternative designs would require assessment. Nevertheless, the analysis provides some guidance on the potential returns.

Gross Margin analysis was used for selected agricultural commodities. Gross Margin (GM) is the difference between the gross income (GI) earned and the variable cost (VC) associated with it [GM=GI-VC]. The GI in this study is the total sales revenue while VC’s are directly linked to the enterprise; which is correlated to inputs such as fertiliser, seed, spray, machinery costs etc... The sum of the GM was then factored against the total operating and capital expenditure of the collection centre, and a present value and net present value calculated from there to appraise the long-term viability of the project.

The next step was to calculate the gross revenue of product potentially sold in a collection centre. It is assumed that the collection centres act as facilities for 25 farmers, each with an average farm size of 6Ha; giving a total production area of 150Ha. Using data obtained from the survey results, it is then assumed that the area produces eggplant (30%), bean (5%), tomatoes (30%), papaya (25%), okra (5%), pumpkin (3%), and watermelon (2%)<sup>8</sup>. Gross margins of each commodity were calculated using Extension information (updated for current costs), and applied over the whole area. The GM/Ha for eggplant, bean, tomato, papaya, okra, pumpkin and watermelon stood as follows:

**Table 11 Gross Margins of Selected Commodities per Ha (F\$)**

<b>Product</b>	<b>GM (F\$)</b>
Eggplant	5,212
Bean	4,098
Tomato	5,543
Papaya	6,386
Okra	5,615
Pumpkin	1,401
Watermelon	6,981

These GM’s were applied proportionally over 150Ha, totalling a value of F\$823,530.2. The assumption made is that all produce is sold (at Grade A quality) via the collection centre.

In determining the expenditure of a collection centre, both initial costs and running costs are calculated. Set up costs include cost of construction, office equipment, cooler, packing equipment,

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<sup>8</sup> These proportions are based on proportions determined from the survey. Not all commodities could be included (eg, lettuce, capsicum) due to lack of data. Sale price is based on an annual average.

truck, and the option of a tractor and ploughing equipment. Running costs included packaging, electricity, phone and internet, insurance. It is assumed that there are no wages as Ministry staff and local agents operate the centre.

In applying expenditure, two different stratagems are visualised. The first is a “More Expensive Option” based on a collection centre (30m x 20m x 5m) built from steel and iron, and the cost of buying a new truck and tractor. This option would allow for appropriate post-harvest treatment and packaging in accordance with export protocols. The second “Cheaper Option” was based on calculations for the cost of setting up a collection centre similar to the FAO Packing Sheds of Yawayawa and Lokia. That is, a collection centre made primarily of wood, with no tractor. The purchase of a second hand truck is included. The costs of each are given below:

**Table 12 Cost Associated with Collection Centres (F\$)**

		<b>Expensive Option</b>	<b>Cheaper Option</b>
Initial Costs	Building Construction	50,000	25,000
	Office equipment	4,200	4,200
	Cooler	15,000	15,000
	Packaging Equipment	30,000	30,000
	1 x 5 tonne truck (new)	112000	50,000
	Tractor (new) plus ploughing implements	80,000	n/a
<b>Sub-Total</b>		<b>291,200</b>	<b>124,200</b>
Annual Running Costs	Packaging	50,000	50,000
	Auto insurance	12,000	12,000
	Telephone/internet expenses	18,000	18,000
	Electricity	24,000	24,000
	Tractor insurance	8,000	n/a
	Building insurance	11,000	2,500
<b>Sub-total</b>		<b>123,000</b>	<b>106,500</b>

For the purpose of the study, it is assumed that there are no repair or maintenance costs within a 10-year time period.

Based on the revenue earned from the sale of produce and the cost of the collection centre, it is possible to evaluate the financial viability of a collection centre as defined above, compared to existing methods of operating in the Sigatoka Valley; that is, from buyers sourcing from farmers. Due to inefficiencies in the supply chain, it is assumed that current means of operation result in 20% of product being un-marketable – i.e. lost – due to poor quality or damage.

The Present Value and Net Present Value apply a discount rate of 4.5% in accordance with the policy interest rate set by the Reserve Bank of Fiji (May 2009). Once calculated, these can be directly used as means of comparison, as well as a discounted cumulative cash flow, in determining the most efficient means of operation.

It is important to note that there are a significant number of limitations to conducting such an analysis. First, in the calculation of GM's for each product, it has to be assumed that the recommended use and proportions of fertiliser, pesticides and land preparation are all undertaken by the farmer. In addition, the assumed yield per commodity is based on Extension reports of average yield per Ha, and it is assumed that produce is of Grade A quality allowing the appropriate price to be applied.

Second, the costs of installation of a collection centre and its running will vary significantly according to its location, materials used, services provided, and whether it adheres to export protocol regulations. Only two stratagems have been included, but it would be possible to include many more based on these factors, providing a lesser or greater level of service.

Third, the analysis is based on the assumption that buyers prefer to use the facility due to:

- Ease of purchasing from one location;
- Costs saved by reduced travel of rural areas;
- All produce is Grade A and pre-sorted;
- Less produce rejected due to bad quality.

It is also assumed that operating through a collection centre will reduce loss of product due to reasons such as:

- Damage caused by poor farming practices or inappropriate post-harvest handling and/or packing;
- Damage caused on transit due to poor road access;
- Ability to find a buyer;
- Greater sharing of information along the value chain; and
- Extended shelf life of product due to cooler facilities.

The assumptions made in conducting the analysis clearly limit its use, and the study can only, therefore, be used as a basic indicator of the financial viability and benefits of a collection centre.

The following section discusses the findings from the analysis.

## 10. INTERPRETING THE FINANCIAL ANALYSIS

In conducting the analysis of the potential benefits of a collection centre, specifically its financial viability, the Present Value and Net Present Value are calculated for both a “More Expensive” Collection Centre, that adheres to export protocols while providing services to local producers (e.g. hire of tractor and ploughing equipment), and also a “Cheaper” Collection Centre based on the Packing Sheds of Yawayawa and Lokia but also with a second-hand 5-tonne truck.

Under the assumption that all produce is sold via the collection centre, a comparison is made for both options compared to the net revenue of existing means of conducting business in the same area; that is, buyers sourcing direct from farmers and/or producers taking produce direct to the market. As argued prior, and as shown by the survey, it has been assumed that existing means of operating lead to a loss of product. This study assumes that 20% of all produce is deemed ‘unmarketable’ under existing methods.

Both the expensive and the cheaper collection centres are built in  $T=0$  at the cost of F\$291,200 and F\$124,200 respectively. It is assumed that building is completed within  $T=0$ . After installation, it is assumed that there is no loss of product, and both facilities are able to sell 100% of produce, valuing F\$823,530.2. Both exhibit an annual operational cost of F\$123,000 and F\$106,500 respectively once operational from  $T=1$ .

Existing methods of operating face no costs in the installation or operating of a collection centre, but 20% of product is lost in each time period, earning a net income of F\$658,824.12.

Present values are calculated for both options of collection centre and for existing means of operation over the time period, at discounted values of 4.5%. Net present values and discounted cumulative cash flows can be calculated, allowing a comparison of the financial benefits of each option.

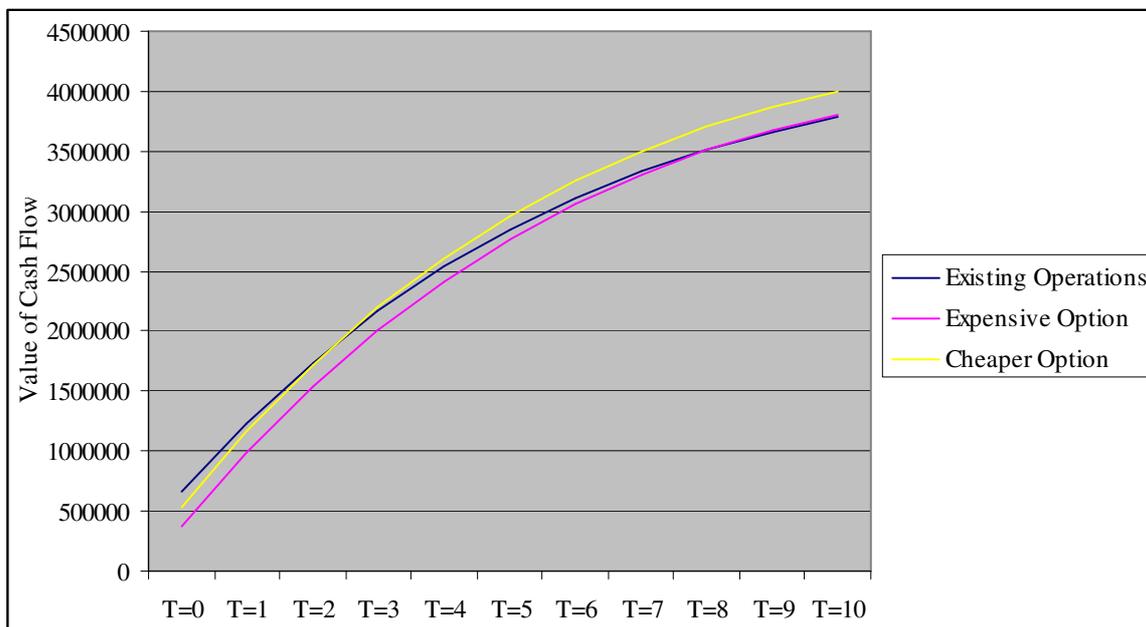
The analysis shows that both the expensive and the cheaper collection centres are able to achieve accumulated net revenue greater than existing means of operation within 9 and 3 years respectively. Present values for both collection centres are greater than that of existing means of operation by  $T=1$ . In a 10-year period, both facilities have a net present value greater than existing means of operation.

Both collection centres hence benefit the community and value chain in the medium-long run under the assumption that they are fundamentally more efficient in reducing product waste. The feasibility of establishing collection centres in the Sigatoka Valley is, as such, economically viable under the assumptions of the study.

**Table 13: Comparison of Financial Benefits**

	Existing Means of Operation		Expensive Collection Centre		Cheaper Collection Centre	
	Present Value	Discounted Cumulative Cash Flows	Present Value	Discounted Cumulative Cash Flows	Present Value	Discounted Cumulative Cash Flows
T=0	658824.1	658824.1	367624.12	367624.1	534624.1	534624.1
T=1	630453.7	1233759	670363.82	993289.9	686153.30	1168208
T=2	603305	1733095	641496.48	1537954	656606.03	1719176
T=3	577325.3	2164372	613872.23	2009661	628331.12	2195749
T=4	552464.4	2534445	587437.54	2415723	601273.80	2605400
T=5	528674.1	2849541	562141.03	2762787	575381.63	2954922
T=6	505908.2	3115318	537934.15	3056893	550604.43	3250483
T=7	484122.7	3336913	514769.52	3303523	526894.19	3497687
T=8	463275.3	3518987	492602.41	3507657	504204.97	3701618
T=9	443325.7	3665767	471389.87	3673810	482492.79	3866890
T=10	424235.1	3781088	451090.78	3806078	461715.59	3997685
NPV	5871914		5910722		6208282	

**Figure 11: Discounted Cumulative Cash Flows**



The choice of collection centre would be determined by the needs of the community. For instance, rural areas focusing on the domestic market are unlikely to need a collection centre that complies with Fiji’s export protocols, and may opt in favour of a more simplistic structure.

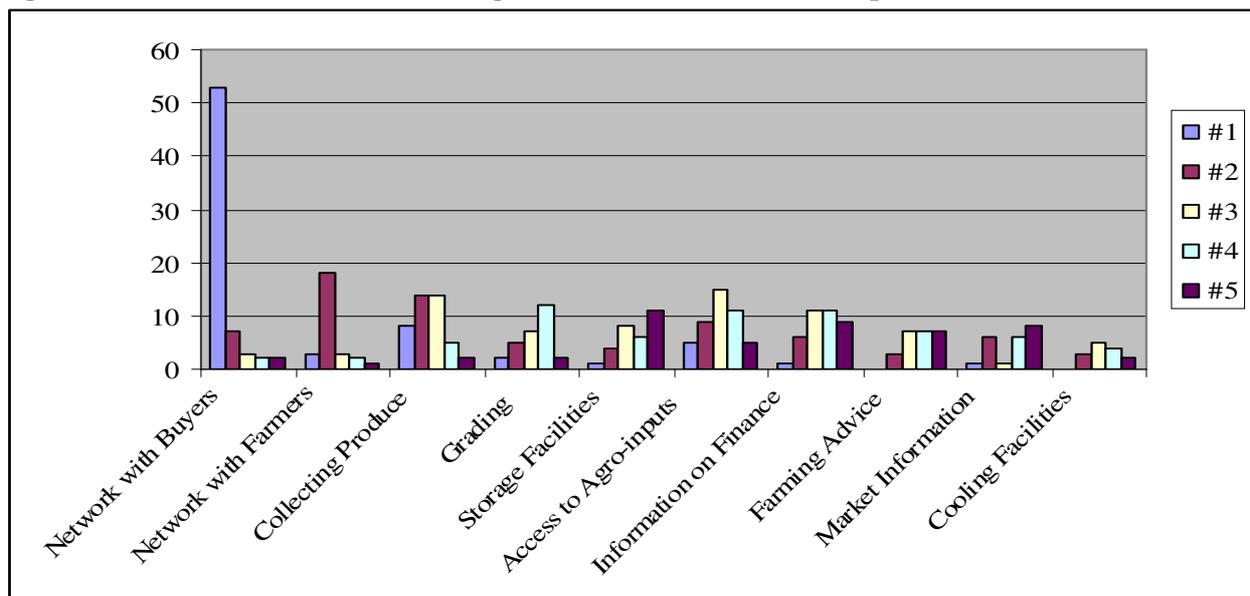
## 11. REVISITING THE FINANCIAL ANALYSIS IN THE CONTEXT OF THE SURVEY RESULTS

Although the analysis provides an indication of the net benefits of collection centres, it is necessary to evaluate the assumptions made, namely the likely support of such facilities within a localised context. The financial analysis is based on the assumption that both producers and buyers prefer to use the centre rather than existing means of operation, and that all produce in the area passes through the facility. This section attempts to evaluate whether this is a realistic assumption and whether such centres would have the support of producers and buyers.

### 11.1 Needs of Producers

In evaluating the needs of the producers, the survey attempted to gauge the most important aspects of a collection centre. Features that were described during the workshop were ranked from 1 to 5 in order of priority. It has been possible to ascertain the following:

**Figure 12: Prioritised Services According to Producer Demands (% respondents)**



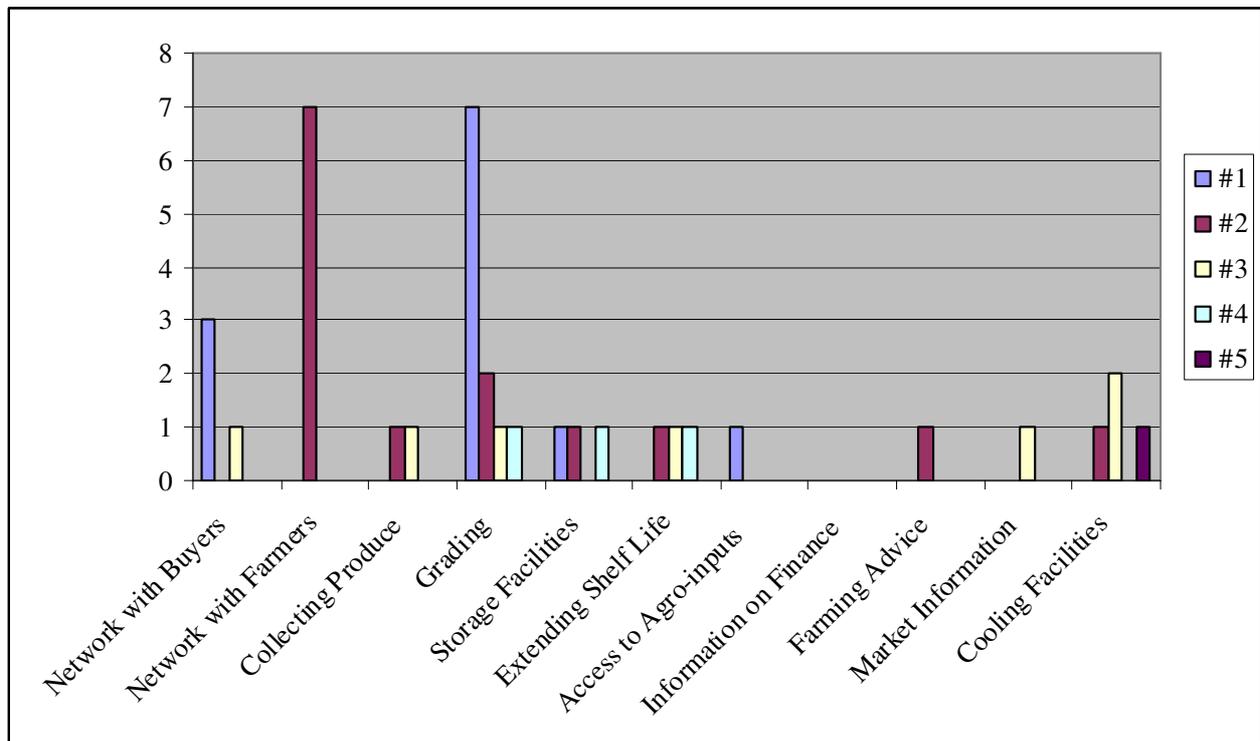
Source: Survey data

It is clear that the most important reason is that the collection centre be able to provide a clear link with buyers, with over 70% of surveys citing this as the most important factor. Unfortunately, it is less definitive to determine a trend beyond this. Other services are all considered more or less important, with little general concern in prioritising. 15% of surveys did not answer the question, citing a definitive lack of interest in collection centres.

## 11.2 Needs of the Buyers

Buyers were requested to identify in order of priority their needs in a collection centre. The following reflects identified priorities:

**Figure 13: Prioritised Services According to Buyer Demands (number of respondents)**



Source: Survey data

Grading facilities followed by a strong network with farmers are the most important characteristics. Other possible services have warranted little support. Unfortunately, 95% of middlemen did not complete the question. There are several possibilities that this could occur, including disagreeing with the notion of collection centres, but it presents an anomaly that can not be fully evaluated.

In providing transport options, 65% of buyers indicated their preference in collecting produce directly rather than produce being delivered to the premises from the collection centre. Reasons included:

- Direct oversight of farm practices and post-harvest handling;
- Using own staff to package produce;
- Ability to search for price competitive product.

### 11.3 Support from Producers

Although producers are generally in favour of a “one-stop shop” with access to markets, market information, finance and agro-inputs, the survey results indicate that they will only use collection centres if they are supported by the buyers. The dominant factor in all studies affecting producer decisions is the ability to find a market.

In evaluating the support of farmers, a number of elements must be considered, including the following:

1. Buyers must prefer to use collection centres rather than sourcing from farms.
2. The dispersion of middlemen and information asymmetry.
3. Access to a buyer.
4. Access to transport.
5. Need for packing sheds, cooling facilities and security.
6. Proximity to the farm.
7. Potential cost of using the facilities.

#### 1. Buyers must Source from Collection Centre

The survey clearly identifies that farmers will not forgo current business with buyers who are prepared to source product at farm gate. If buyers are prepared to offer competitive rates, farmers will opt in favour of selling direct. It is only if collection centres can guarantee a buyer at a better price that producers will favour use of the facility.

For instance, if in the hope of getting better quality produce by sourcing from farm gate, and thereby circumventing the collection centre, only poorer quality produce will be sent to the collection centre. In terms of the quantitative analysis, this directly reduces the net inflows of the facility. Less produce is available, at a lower price due to its poorer quality.

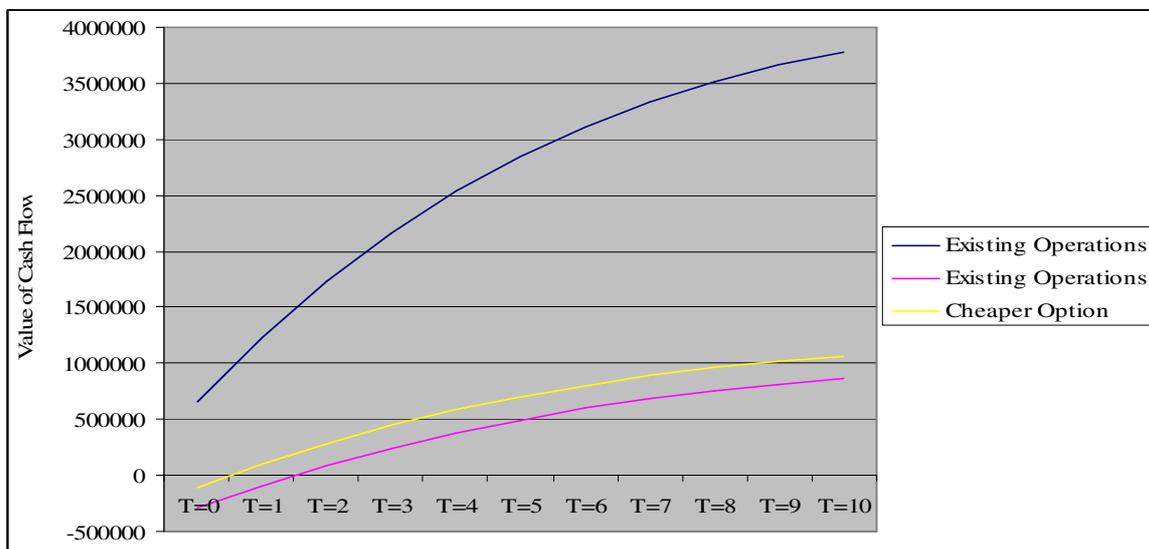
The illustration below reflects the effect of a reduction in the net inflow to collection centres by 50%, using the same framework for analysis. In such an example, it has been assumed that buyers are also sourcing from the nearby area, taking better quality produce before it gets to the collection centre. As such, less produce reaches the facility, and can only be sold at a lower price.

Facing the same costs of operation, the illustration shows in both circumstances, that in a 10-year time period it is more financially viable to maintain existing means of operation rather than invest in collection centres. Net present values are significantly higher, as are the discounted cumulative cash flows by the end of the period.

**Table 14: Comparison of Financial Benefits with only 50% product Inflow to Collection Centres**

	Existing Means of Operation		Expensive Collection Centre		Cheaper Collection Centre	
	Present Value	Discounted Cumulative Cash Flows	Present Value	Discounted Cumulative Cash Flows	Present Value	Discounted Cumulative Cash Flows
T=0	658824.1	658824.1	-291200	-291200	-106500	-106500
T=1	630453.7	1233759	197523.54	-89642.5	213313.01	102213.4
T=2	603305	1733095	189017.74	87306.87	204127.28	284737.3
T=3	577325.3	2164372	180878.22	242050.2	195337.11	443649.2
T=4	552464.4	2534445	173089.20	376772.9	186925.47	581293.1
T=5	528674.1	2849541	165635.60	493462.7	178876.04	699800.7
T=6	505908.2	3115318	158502.97	593926.9	171173.25	801108.9
T=7	484122.7	3336913	151677.48	679808	163802.15	886977.9
T=8	463275.3	3518987	145145.91	752598.4	156748.47	959005.9
T=9	443325.7	3665767	138895.61	813653.4	149998.53	1018644
T=10	424235.1	3781088	132914.46	864203	143539.27	1067208
NPV	5871914		1342081		1657341	

**Figure 14: Discounted Cumulative Cash Flows When Net Inflow to Collection Centres is 50% of Total Produce**



If buyers continue to operate in sourcing direct from farmers, producers will have little incentive to use the collection centre. The most important criteria in all aspects of farmer decision making is market-orientated; that is, finding a buyer. Only 17% of producers indicated that they would rather use collection centres than current buyers who source from the farm gate. Producers will not stop current operations, unless, of course, a higher price is offered. If, as in the above illustration, buyers source higher quality produce from farm-gate, the collection centres will, in effect, become

a storage facility for lesser grades and as an information service provider, becoming less financially viable.

## 2. Wide Dispersion of Middlemen and Information Asymmetry

The presence of buyers spread throughout the valley provides little incentive to have produce taken to the collection centre. Type 2 and type 3 middlemen, in particular, are available in almost every village. Farmers will not transport produce to the collection centre if middlemen are available and offering competitive prices.

If there is an erosion of information asymmetry – as is the aim of the collection centre – the collection centre will act to serve as a price monitoring mechanism and source of information, but if buyers offer competitive rates at farm gate, producers will have less incentive to use the centre.

## 3. Guaranteed Buyer

Farmers will not use the centre if a buyer can not be guaranteed. Producers have little concern over the use of coolers and storage facilities which might increase the shelf life of the produce. Producers are only likely to use the collection centre if they have not already found a buyer. If a buyer cannot be found almost immediately, farmers will seek alternative means. This will leave them open to possible exploitation by middlemen operating in the area who will offer a lower market price in return for an immediate cash payment.

## 4. Access to Transport

Part of the failure of the packing sheds of Yawayawa and Lokia was due to the lack of support from buyers and producers. Producers will not pay produce to be delivered to the packing shed as it represents an unnecessary added cost. As buyers source from the farm gate, the need for transport is greatly reduced.

For producers supplying middlemen, the only need for transport arises in sourcing agro-inputs. A number of middlemen are able to provide a means to this as part of a social obligation. Although it is not an optimal solution, it helps create close ties within the community and to build trust between buyers and producers.

To operate and gain the support of the producers, collection centres must have transport options available. These were built into the initial calculations. However the potential cost caused through disrupting the ties created through the services provided by middlemen has not been calculated. This study does not attempt to evaluate these, but one must be aware of the possible social implications caused.

## 5. Need for Packing Sheds, Cooling Facilities and Security

In terms of requiring packing sheds, small holder farmers, who comprise the vast majority of the agricultural sector in the Sigatoka Valley, currently use their own premises for packing and grading produce. None of the participants in the survey recognise the need to transport produce to an alternative location to do so.

Cooling chambers are not currently considered necessary either. Many producers tend to harvest having already secured a buyer or will look to find a market for produce as soon as possible. While

beneficial in increasing the shelf life of product, producers will not aim to store produce for any length of time. Cooling facilities may therefore only be used sporadically, and unlikely to warrant the high cost of electricity.

Collection centres could offer a secure place to store produce. Theft was not, however, found to be a significant factor in the Sigatoka area, particularly in less accessible areas. Most farmers could not identify more than a minimal amount of produce stolen from the farm. It is likely that in areas with a high element of subsistence farming, and where there is a strong emphasis on the village community, theft of produce is not considered an issue. It is much more likely that areas on the periphery of urban centres be targeted by thieves. As such, storage of produce for security aspects is not a necessary factor in rural areas, although it may be in urban peripheral locations. If collection centres are to be established in the Sigatoka Valley, this finding would suggest that the cheaper option be a more sensible option.

#### 6. Proximity to Farm

As distance of the collection centre to the farm increases, there is reduced incentive for farmers to use the facility. Information services provided by the centre will be used less frequently as transport to/from the facility for farmers (not produce) will not necessarily be available. Without such provisions, farmers will find it easier to sell direct to buyers, without the hassle of having to contact and make arrangements with the collection centre. In many areas, phone networks are unreliable or unavailable, increasing difficulties.

#### 7. Potential cost of using the facilities

Government policy has a poor track record in maintaining project financing, and it would be ill-advised to submit a proposal that relies on Government paying the annual costs associated with the operation of a collection centre. A self-sustainable facility would be the most suitable option, having to rely less on external factors. In evaluating producer support of collection centres, the survey attempted to gauge whether participants would be willing to pay a monthly premium in return for its services. 50% of producers indicated that they would be willing to pay for a facility, provided that they are able to find a market for all produce. However, few could indicate how much they would be willing to pay. 25% indicated between F\$10 and F\$50 per month on this condition.

Smaller producers are naturally concerned whether they would be expected to pay the same amount as larger producers. 75% of those who theoretically support a collection centre could not provide an amount, indicating that they would need to see the facility operating before they would consider paying.

A more equitable approach may be to evaluate the net benefits per farmer and to distribute the costs according to this.

Using the figures from the financial analysis, the table below shows the annual earnings and costs of running collection centres as defined, when evenly distributed among all farmers. As above, it is assumed that the centres each serve 25 farmers, each with 6Ha of land, and producing the same value of harvested crops.

**Table 15: Profit and Cost Breakdown: Even Spread Among Producers Using Collection Centre (F\$)**

	<b>Expensive Option</b>	<b>Cheaper Option</b>
Annual Earnings from Sales	823,530.2	823,530.2
Annual Operating Cost	123,000	106,500
Gross Profit	700,750.2	717,030.2
Annual Gross Profit per Farmer	28,021.21	28681.2
Monthly Gross Profit per Farmer	2335.1	2390.1
Annual Collection Centre Costs per Farmer	4920	4260
Monthly Collection Centre Costs per Farmer	410	355
Net Annual Profit (Profit – Cost) per Farmer	23101.21	24421.2
Net Monthly Profit (Profit – Cost) per Farmer	1925.1	2035.1

If all profits and costs are evenly distributed over all 25 farmers, the expensive and the cheaper collection centres will provide an annual income of F\$23,101.21 and F\$24,421.2 respectively. However, the operating costs require an annual contribution from each farmer of F\$4,920 and F\$4,260; or F\$410 and F\$355 per month. If costs are to be borne solely by the local producers, it is unlikely that either collection centre will gain the support from producers, until they have evidence on the value added. None of those in the survey identified a willingness to spend more than F\$100 per month. As such, some of the costs may have to be recuperated in other ways.

#### **11.4 Support from Buyers**

35% of total buyers indicated that they would rather use collection centres than their current means of operating. These 35% indicated that they would only use the facility if they provided the following services:

- Grading of Produce (9);
- Produce delivered to premises (4);
- Produce stored in cool room (2);
- Produce packaged according to buyer demands (6);
- Collection centres easily accessible with good road access (3).

Of the 65% that indicated that they would prefer to use their existing farmers and current means of operating, reasons given included:

- Good relations with existing farmers (9);
- Investment in farms (finance, infrastructure, fertiliser, pesticides etc..) (9);
- Do not think collection centres to be viable in the long run (5); and
- Prefer to search for price competitive sources (9).

Different categories of middlemen tend to source from different areas: exporters and type 1 middlemen tend to be more concentrated in areas with good access, while type 2 and type 3 middlemen in more rural areas with poor accessibility. It is hence likely that support for such facilities varies according to location and concentration of buyers.

Exporters are most likely to use collection centres, with 75% (6 of 8) of exporters indicating an interest in using the facilities. There is a clear financial advantage as pre-graded and packaged produce will reduce operational cost to the business. In evaluating net returns, all exporters of fresh produce (papaya, eggplant, okra, ginger, dalo and cassava), exporters have consistently

argued that supply is unable to meet demand. That is, all export quality produce will be bought if available. If an area of 150Ha (in consistency with the study) produces solely papaya and eggplant of export-quality standard, with an equal distribution of each, and in compliance that exporters support their claim to buy everything possible, the centres receive a net inflow of F\$869,851.5.

In this circumstance, collection centres focusing on these products would be viable if exporters are aware of their presence, allowing 100% of sales<sup>9</sup>. These centres would have to be in areas with good road access and close to urban areas, such as the Lower Valley and Cane Coast. The Upper Valley and East Bank have unsuitable road conditions, and the distance from urban areas and ports would be a significant deterrent to exporters.

In terms of support from middlemen, use of such facilities is less likely, particularly by type 2 and type 3 agents. Both these groups have a higher incidence of direct influence in farming. In addition, these middlemen are positioned throughout the rural areas, sourcing from nearby farms and neighbours. For those supplying the market there are no services potentially offered by a collection centre that would be of benefit. Grading requirements are not necessary and extending shelf life is not considered a priority as market vendors focus on a quick turnover of produce.

Type 1 middlemen are the most likely of middlemen to use the facility, although only 1 of 8 indicated that they would use the facility rather than their existing farmers.

Beyond areas frequented by exporters (Lower Valley and the Cane Coast), collection centres are unlikely to work if not fully supported by the whole buyer community. If some buyers are able to source at lower prices, others will have to follow suit in order to remain competitive. As many buyers are prepared to source from around Fiji, higher prices in one area encourage entrepreneurs to search different localities. Information asymmetry provides the potential for buyers to offer competitive prices.

In terms of buyers bearing some of the operational cost of collection centres, exporters and type 1 middlemen would be willing to pay only small amounts. It should be remembered that both already have their own staff and facilities for grading and packing. Paying an additional premium for activities conducted by the collection centre may not be seen as sensible. Use of the collection centres for grading and packing may allow them to reduce their staff wages and costs in time, but until the centres have proven themselves over several consecutive years no buyer would take the risk of an over-reliance of the centre. Previous initiatives undertaken by Government and donors have shown that it is important to remain self-reliant, as many fail shortly after their implementation or do not operate as initially planned.

Other buyers are unlikely to be prepared to pay for the facility given that they have little desire to use the facility.

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<sup>9</sup> It is clear that the packing sheds of Yawayawa and Lokia were unbeknown to almost the entire buyer community. Lessons learnt reveal that suitable advertising of such centres is necessary and to link them with buyers.

## **11.5 Lessons Learnt from Yawayawa and Lokia**

In the evaluation of collection centres it is important to use the case examples of Yawayawa and Lokia can provide in lessons from past experiences. These provide a valuable insight into the support within a local context, and in the identification of possible pitfalls.

### **1. Location of Centre**

Both packing sheds failed in part due to their location within the local community; situated on freehold land and hence making their success inextricably linked to landowner. Both reflect the risks associated with freehold land and should not be repeated. Government owned land may be best. Unfortunately, in some areas mataqali land dominates available land. Locating in these areas would thus require extensive negotiations prior to implementation to reduce the risk of problems associated with disagreements between the mataqali and the collection centre.

### **2. Links with Buyers**

Neither packing shed established suitable links with the buyer community. It is unrealistic to assume that their presence will automatically increase the flow of buyers into the area. Few buyers were, in fact, aware of the packing sheds and so have never contemplated using them as a source of product. As such, their existence has been of little benefit to either producers or buyers.

### **3. Road access**

The Lokia packing shed has poor accessibility, and the area is identifiable by its poor infrastructure. As such, exporters and type 1 middlemen do not frequent the area. The lack of buyers has subsequently stunted the development of the area, and many producers continue to operate as subsistence enterprises. Buyers in the area predominantly consist of type 2 and type 3 middlemen, which the survey has shown to have the least amount of interest in using collection centres. Without appropriate infrastructural improvements, the introduction of facilities such as collection centres will not be the best means by which to improve links in the value chain and the development of the sector in these areas.

### **4. External Support and Review**

Neither packing shed had had suitable support from the Ministry or other organisations in areas such as marketing, training or in improving links with the value chain. According to the Memorandum of Understanding between the supervisor and the Ministry of Agriculture, Extension services were to assist for the first two years, followed by AMA for the subsequent two. Following that, the packing sheds should be self-sufficient through a supervising cooperative.

Unfortunately, the problems of the packing sheds have remained relatively hidden. Neither the Ministry nor other parties have extended support since their installation. If collection centres are implemented, the history of the packing sheds has shown that it is important to have a regular review process to continually improve operations.

### **5. Management Structure**

Although the MOU indicated that the packing sheds be managed by a local farming cooperative, the reality is that both were managed by one person. Survey results have indicated that neither supervisors were viewed as having been successful in the operations of the sheds.

The management structure should have a representative of the local community but also have the support from the Ministry through its Extension services and/or AMA. Not only would these assist in improving links within the value chain, but could greatly assist in the dissemination of information and in the provision of training.

#### 6. Services Provided

Neither packing shed provided services such as technical assistance, training or access to funds. Neither had good information links with other stages of the value chain or in other areas of the economy. Neither facility knew of the requirements of the buyer community or of factors, such as access to credit, that could benefit the producers.

To meet the demands of the buyers, it is important that appropriate links be set up and information disseminated. Phone lines, internet access and regular communication are needed. Records need to be kept and regularly up-dated. Other areas of the economy that directly impact agriculture (e.g. access to finance) need to be made available.

#### **11.6 Assessment**

Collection centres are best lent to improving the links along the value chain through the development of a facility that allows the collection and grading of fruits and vegetables for processing, distribution and/or selling.

In the collection of fruits and vegetables, it is vital that the collection centre have access to transport. Survey results and the experience of the Yawayawa and Lokia packing sheds have both indicated a lack of producer support to transport produce to such a facility due to:

- Cost of hiring transport from farm premises to facility;
- Buyers sourcing from farm gate, thereby negating the need to use such facilities;
- Ability to use own premises to grade and pack produce.

Even if transport can be provided, producers will only use collection centres if they are used by buyers. A number of buyers indicated the usefulness of purchasing produce from the centre rather than from farm gate, particularly as it would reduce the costs to the buyer.

Results shows that the primary interest for producers is the ability to find a buyer. If buyers use the facility, there is an incentive to the producers to do so. Other services potentially on offer by a collection centre are only secondary in importance, and often not considered important to the local farming community.

At present, producers are able to use their own properties to grade and pack produce. Farms in the Sigatoka Valley only average 6Ha, and most farmers have little difficulty in finding space on the farm to complete the activity. Grading facilities provided by collection centres may be to the benefit of certain classifications of buyer. However, even among buyers it is only exporters and type 1 middlemen that request grading, although these already have their own facilities and staff to ensure appropriate grading and packing. This activity maybe less useful to type 2 and type 3 middlemen.

Additional features such as cooling chambers may benefit producers by extending the shelf life, and therefore the ability to find a buyer. Farmers will seek market opportunities as soon as produce is ready for harvest. With a large number of buyers operating in the area, those with good road accessibility rarely struggle. Less accessible areas find it more difficult to find buyers, leading to a greater incidence of subsistence farming and type 2 and type 3 middlemen. In both situations, cooling chambers may not be an efficient use of resources. Survey results indicate that cooling chambers are generally only demanded by exporters.

In the distribution and selling of produce, collection centres can assist farmers in finding a market. Buyers will also benefit from reduced transport costs and ease of sourcing from one location. Since all buyers have their own transport and packing materials, they have the ability and option to travel further in search of competitively priced produce. Indeed, the middlemen located in rural areas, of which there are many, predominantly source from nearby areas, i.e. neighbours and friends, and will continue to operate as such. These middlemen offer important services to households in the area not only by providing a market for produce, but through activities such as acting as courier of agro-inputs from the urban areas. These voluntary services create important social ties and help to develop trust.

The processing of commodities was not an area explored in the survey, due to the lack of processors sourcing produce from the Sigatoka Valley and the lack of a viable and sustainable processing industry in Fiji. As discussed above, the processing industry in Fiji is limited, and the largest processor – the Government owned Food Processors Ltd. – has consistently maintained losses in recent years. There is some processing by the private sector, but this is generally small-scale and focusing on niche commodities such as kura. As such, the introduction of processing facilities into collection centres is, at this point, not sensible. Although processed foods reduce potential waste caused through over-production during peak season, there are few commodities that could benefit. Tomatoes, particularly lower grades, could be canned. However, the operations of Food Processors Ltd. (the only tomato canning company in Fiji) should be reviewed and reorganized before this activity be considered a viable service of collection centres. There are no other commodities otherwise used by processing companies that are considered over-produced to such an extent as to cause wastage.

In the possible development of collection centres in the Sigatoka Valley, one can ultimately conclude that choice of location, and thus the targeted group of buyers, is the most important factor. Areas frequented by exporters and type 1 middlemen are most likely to use the facilities, due to services such as grading, cooling, and packaging. These are invariably located closer to the urban periphery and with good road networks. However, even in these areas, if farmers are willing to sell to anyone from the farm gate, the effectiveness by which a collection centre can operate will be dramatically reduced, as will its cumulative financial benefits. In this circumstance, there is a real danger of a downward spiral as the centres increasingly lose support from the producers and buyers. If only lower quality grades are available at the collection centre due to other buyers sourcing direct from farm gate, more buyers will circumvent the centres to satisfy their needs. In return, producers will have less incentive to use the centres for marketing purposes, leading to the eventual failure of the centres as marketing centres.

One must also consider the distribution of operating costs. Using the figures in the financial analysis, collection centres have an annual operational cost of F\$123,000, and F\$106,500 for the more expensive and the cheaper options respectively. Farmers will not be willing to pay the entire amount themselves, and exporters would only be prepared to pay a modest amount. It would be necessary to seek funds from other sources. The centres may best be included into the operational structure of the Ministry, such that the Ministry pays a large proportion of the operational costs. Unfortunately, Government has a poor history in supporting projects into the long-term. This would have to be addressed and secured before collection centres be implemented with government support.

## **12. SOLUTIONS TO THE IDENTIFIED CONSTRAINTS**

The introduction of collection centres in the Sigatoka Valley is a complicated issue and may attract limited support from producers or buyers. Viable areas with the potential for their implementation are areas with good accessibility that are frequented by exporters and type 1 middlemen.

Producers will use the facility for the primary reason of finding a buyer. However, the survey results show that, even in areas with good accessibility, producer preference is to sell from the farm gate. Buyers in search of competitive prices are unlikely to pay for the use of the facility when they have their own transportation and a general preference to source from the farm. With a large number of buyers widely dispersed throughout the rural sector, many would continue to operate regardless of a collection centre. Most have little preference for the grading of produce, but seek competitive pricing. Many will source from the immediate vicinity, where friendships and trust have been established over a number of years, and will not source from the centre.

This section hence attempts to seek alternative options available that can use the existing infrastructure and services already present.

### **12.1 Addressing Information Asymmetry**

Information asymmetry reflects one of the biggest factors in the possible exploitation of farmers, particularly as the vast majority of farmers receive very little market or business information. Most producers receive market information from friends and family in an informal manner or from buyer interest.

Most buyers have a modest mark-up of approximately 10-30% depending on their target market and the additional services offered. Smaller businesses targeting municipal markets, especially type 2 and type 3 middlemen, invariably have only a marginal mark-up (5-10%). For these, the only additional service offered is transportation. Exporters and type 1 middlemen offer a greater range of services (eg. coolers, packing sheds etc.) and have larger margins of approximately 20%.

In addressing the needs of the sector, up-to-date information is necessary as well as its dissemination. Extension officers often have limited knowledge of market information, not aided by the lack of communications between locality officers and Ministry Head Quarters. Locality offices should be equipped with phone, fax and internet facilities. At present, none have any internet facilities, and most are without phone access because of poor budget planning.

Extension field offices are available throughout Fiji. Though they may be small and only have one or two officers to support local producers, they have the potential to greatly expand their role. Using the existing premises as a centre by which to disseminate market information to farmers would not be expensive or difficult to undertake. Extension officers should, in theory, be well known and respected in their various localities. If up-to-date market information could be disseminated through their offices, farmers would be better informed and information asymmetry reduced along the supply chain.

## **12.2 Infrastructural Improvement**

Inadequate infrastructure is the greatest debilitating factor to market access in rural areas. It prohibits buyers from sourcing produce and reduces market awareness of producers. Inaccessibility is a dominant force in allowing information asymmetry to be used in the exploitation of producers. Core marketing infrastructure includes roads, jetties and wharfs, telecommunications, and electricity. As argued by McGregor and Gonemaituba (2002), marketing will be seriously constrained or not occur if key infrastructure is absent, regardless of what other measures are taken. The Lokia packing shed serves as a clear example, illustrating that inaccessible areas are great enough a disincentive to all buyers, including the Government-run AMA. The interests of more remote areas are best served by measures that facilitate improved private sector performance. Good quality infrastructure is essential for the efficient movement of produce along the value chain. Public investment in key infrastructure can lead to a major marketing response.

## **12.3 Sourcing Agro-Inputs**

This study revealed the difficulties farmers face in access to agro-inputs. Many lack the necessary transportation and have to travel far. In addressing these needs, it is better advised that the Extension field offices be better equipped in the supply of agro-inputs to local producers. There are a number of different mechanisms by which this could be done.

1. The Ministry could liaise with companies supplying agro-inputs and arrange for weekly deliveries. If locality officers could provide a list of demanded inputs, and factor in fuel costs, it would most likely be quite profitable for companies to deliver.
2. The Ministry could partner with companies such as AgChem or Sigatoka Chemical. These companies could use Extension offices as local storage centres and either use the locality officer to make the necessary transactions or provide an employee to sell once a week.
3. Extension offices could be equipped with storage facilities for agro-inputs that can be disseminated as and when necessary. This could be done through the Ministry's own projects, targeting specific communities or products. At present, under Ministry approved projects, it can take several weeks before the farmer gets access to the requested inputs. Having local storage facilities would significantly reduce the time period between project approval and the distribution of inputs.

## **12.4 Sources of Finance**

It is important to increase awareness of accessing sources of finance. The large majority of producers have limited ability to source funds, and very few have tried. Likewise, many buyers have found it equally as difficult.

Part of the problem is that awareness of sources of finance is very low. Few farmers or buyers know of opportunities available through the Ministry of Agriculture, the commercial banking sector, and institutions such as FDB and NCSMED. Agents from these institutions must be able to brief the agricultural sector in a manner which can be understood. Likewise, it is important that Extension staff be able to help producers in the application process, as many have highlighted the

process as difficult to comprehend and arduous. However, this in turn requires that Extension staff are aware of the facilities available and possess a knowledge of filing applications. Ultimately, it is necessary that appropriate training be conducted to both Extension officers and to the farmer and buyer communities.

### **12.5 Training and Technical Assistance**

Very little training and technical assistance is currently available in rural areas. It is important to offer advice on better methods of farming. This will increase the value of the product, and promote the use of domestic produce rather than imports. Likewise, many farmers lack the necessary knowledge on running the farm as a commercial entity. Increased training would help develop the sector as a whole, as well as provide fundamental business skills to farmers. These would prove valuable in sourcing loans from external sources.

Training can all be done through the local Extension field offices. To encourage participation, trainers should be taken into the field as many households in rural areas have difficulty in sourcing transportation. Extension should liaise with other sectors of the economy, such as the banking sector, to provide field training. At present, there is very little cooperation between different sectors of the economy: a factor reflected in the relative isolation of the agricultural sector.

### **12.6 Grading Produce**

Farmers in the Sigatoka Valley did not find it necessary to have a facility that could be used solely for grading and sorting produce. All smallholder farmers are able to use their own premises. Indeed, in the experience of the Yawayawa and Lokia packing sheds, no farmers used the facilities for that purpose, but the poor planning of the two packing sheds may be a significant contributory factor.

However, in addressing the needs of exporters and the tourism industry it is advisable to conduct training on appropriate grading and post-harvest handling. Prioritised areas should be those currently sourced by exporters and type 1 middlemen. Type 2 and type 3 have shown to be less concerned with grading standards.

In developing grading standards, it is recommended that training first be conducted in areas frequented by buyers demanding export-quality produce. Areas with poor road accessibility and with greater incidence of subsistence farming due to their isolationism would not benefit from grading standards to the same degree. If buyers are aware of producers that grade produce, and especially if trust has been established, it is more than likely that the buyer will return on a regular basis.

### **12.7 Developing Contracts Between Buyers and Producers**

Trust remains a vital issue in developing the use of contracts between buyers and producers. Neither party trusts the other and there are frequent tales of bad experiences. The lack of enforcement of contracts has to date rendered their real value worthless. Contracts have been broken by both parties in search of better prices. Although many producers have indicated that

they would be beneficial, less than 20% of buyers have any interest of operating under a contract that stipulates a fixed price over a time period of several months.

Due to the large number of producers and large number of buyers operating in rural areas, particularly the Sigatoka Valley, there exists a high degree of competition. This competition is perhaps the largest deterrent of establishing contracts as it allows both producers and buyers to search for other options. It is also important to note that a large number of middlemen operate on a small scale. These make up a large component of buyers of agricultural produce. Flexibility is key in their activities and being tied to an inappropriately formulated contract could be highly detrimental.

The only group of buyers likely to benefit from such contracts would be exporters. However, the range of products is small and few are available year-round. For contracts to succeed, trust needs to have been well established by both parties. While many producers have expressed an interest in longer-term contracts, it may be that contracts would not be honoured if there is a sudden price increase. The prevalence of natural disasters is high, and market prices can triple overnight following. It is unrealistic to assume that farmers – one of the poorest socio-economic groups in Fiji – would not take advantage of the situation, provided their stock has not been damaged.

It should therefore be further explored whether contracts at an agreed market price but flexible to external shocks represent a realistic option. This would allow a certain element of price fluctuations but maintain a consistent supply to buyers.

## **12.8 Use of Greenhouses, Tarpaulin and Tunnels**

Survey results indicated that the use of greenhouses, tarpaulin shading, or tunnels is almost non-existent in the Sigatoka Valley. If these were implemented, the whole value chain would benefit from better quality produce for a longer period of time.

The Ministry, through its Extension division, could increase the support given to purchasing inputs such as these, and in promoting their use to farmers. The Research division could likewise analyse varieties best suited to Fiji's agronomy and climate, while meeting the demands of buyers. Both activities could be implemented without difficulty into the existing programmes.

## **12.9 Review of Farmer Groups**

The survey results reflected a large number of farmer groups failing within 1 year. There is a significant implication that farmers only form groups to access Ministry funds and once having done so are willing to disperse. As the Ministry does not conduct any follow-up or examination of the groups after funds are dispersed, there has been no review mechanism or examination of the success of farmer groups. It is therefore important that the Ministry review its belief that farmer groups are more successful and, if still considered more effective, consider implementing review mechanisms to help reduce the high incidence of failure.

## **13. CONCLUSIONS AND MAIN FINDINGS**

During the November 2008 AAACP workshop, it was suggested that creating an effective collection and grading system that allows a supply cascade could potentially generate higher returns. Evidence provided by the participants underlined that the domestic supply of fruits and vegetables is insufficient, inconsistent and/or not up to standards to meet the demand of operators and that several products that could potentially be produced and sold locally are instead imported.

In providing for this, participants at the workshop proposed that collection centres could provide a more efficient means in improving links in the value chain through its services as a marketing facility, as a provider of extension services and as an information centre. Participants argued that the centres should provide for product warehousing able to segregate varieties, grades and pick dates, as well as cooler facilities. They should be able to source direct from the farmers and to deliver to the markets. As an information provider, they should directly contribute to improved knowledge of the needs of the market and to better planning throughout the value chain.

This study attempted to identify issues related to the setting up of collection centres in the Sigatoka Valley. It used both questionnaire-based surveys and financial analysis to examine the suitability of collection centres in a localised context.

### **13.1 Main Findings**

The main findings of the producer survey, the buyer survey and the financial analysis are as follows:

#### Producers

With over 70% of farms less than 10Ha, producers can at best be described as smallholder, semi-commercial enterprises, worst as subsistence farmers. Market demand is the dominant and sole reason for growing a particular product.

Few farmers have immediate access to equipment such as tractors and vehicles, and must rely on sharing or renting from others in the area. In areas with good road access and a high concentration of farmers, market forces allow a competitive arena for those that hire capital equipment, and it is not generally considered difficult to do so. In areas with poor accessibility and a greater dispersion of farms, those in possession of capital equipment are fewer and more widely spread out, making it more difficult for farmers to access.

Agro-inputs are not easily available to any farmer. The high cost results in smaller farms using fertiliser and pesticides more sparingly, and encourages farmers to cultivate their own seeds. Sources of finance are particularly difficult to find and few have succeeded in sourcing loans from external sources. The social structure has been critical in agriculture as the ability to source loans from friends and family is an important element of village life.

Farmer groups are generally considered as successful, but few have lasted more than 5 years. With the importance placed on Farmer Groups by the Ministry of Agriculture in its work programmes, many farmers form such groups only for the application of funds and equipment.

In accessing information it is clear that not enough support is available at ground level. Farmers generally agreed to being well informed in farming practices, but lack information on marketing and business. Family and the community are important sources of information, with Extension only being able to offer technical advice on farming.

### Buyers

Buyers can be classified into a number of categories, each with different characteristics and features.

Type 1 middlemen or Business Operators/Service Providers source from local producers and deliver to the end market. They do not take part in the production of agriculture. This group do not tend to be located in rural areas but close enough with which they can make regular trips into agricultural areas. All have storage facilities, though rarely have coolers. They have trucks to make regular trips into rural areas, and often possess light goods vehicles to make daily runs to consumer markets/premises. Some of this group have good relationships with hotels and competition is fierce between one another. All can provide same-day delivery and 30-90 days credit facilities.

Type 2 middlemen or Farmers Supplementing Incomes tend to consist of farmers who have their own trucks and during peak season are generally able to fill a consignment for weekly delivery to the market. However, during off-season or when supply is less, they purchase from neighboring farms and those in the nearby vicinity to complete a consignment. Most of this group (80%) operate on farms less than 10Ha and all are located in the rural areas. A number of these middlemen operate only during the off-season as a supplementary source of income. During peak season they work solely on the farm and sell to other middlemen operating in the area.

When supply from the farm is insufficient these middlemen tend to buy produce from other farmers once or twice a week. Municipal markets are the main market for produce although a few have on occasion sold to hotels and exporters. The middlemen have trucks but not storage facilities. Notice is given to farmers a day in advance and collected en route to market. Cash is the sole means of transaction, both to farmers and to buyers.

Type 3 middlemen or Market Vendors/Farmers with Market Stalls consists of market vendors who directly source from rural areas and/or farmers who have a market stall in one of the municipal markets. This group seek to cut out the costs of other middlemen who sell to the market vendors; hence improving their competitiveness. Farmers who have a market stall do so to guarantee a market for their produce. These farmers tend to be based relatively close to the market (less than 1 hour drive) and have farms larger than 10Ha. Excess production is sold to other market vendors.

Vendors with their own transport tend to collect two or three times a week from farmers in rural areas, while farmers with a market stall can deliver daily to the market according to demand. All transactions are in cash.

Type 4 middlemen or Importers solely import fresh and/or frozen produce and distribute to hotels, supermarkets, municipal market vendors, and other middlemen. Importers have no incentive to buy local produce. They have good storage facilities, complete with cooling facilities, and bulk buy from overseas markets and producers to get scale economies. With the ability to store produce they can extend the shelf life of the product. Importers also have refrigerated transport and can supply daily upon request.

Exporters tend to specialise in the export of only one product (namely papaya if located in the Western division, or root crops in the Central division), though many can be classified as entrepreneurs who will take advantage of any opportunity. There is fierce market competition between each other. Only a few have their own farms or have financial interests in farmland, allowing exporters to closely monitor the farming and post-harvest handling practices; an important feature in products with strict quarantine regulations that require all exporting farms be certified (e.g. papaya).

Hotels and the tourism industry as a whole prefer to use middlemen as they can provide 30 days credit and same-day delivery; a prerequisite criteria of middlemen conducting business with the tourist industry. Few have had direct dealings with farmers, and none have lasted any significant length of time. Smaller businesses quite often use the municipal markets, but the option of free daily delivery from middlemen is an attractive feature.

Buyers as a group expressed little interest in using contracts with farmers, and many have poor past experiences. With an importance placed on flexibility, many middlemen do not currently consider contracts as beneficial. Price competitiveness is key and buyers are willing to search for better value in order to improve their own market share. Road conditions and infrastructure are the most preventative factors preventing buyers from sourcing produce.

Buyers have better access to finance than producers but still face difficulties. Excluding hotels, very few buyers have insurance policies, partially due to limited options available and the high premiums. Many do not consider insurance as a necessary expenditure.

### Financial Analysis of Collection Centres

Under a number of assumptions, the analysis demonstrated that collection centres would be viable and with greater returns than the current system. However, an important feature of the analysis is the critical assumption that collection centres are more efficient in reducing waste and that buyers prefer to source all produce from the centres. The analysis shows that if only 50% of produce is sourced from the centres, it would be better to continue operations unchanged; that is, the centres are not fiscally viable.

## **13.2 Conclusions**

The study has identified a number of aspects that would need to be considered in the design and development of collection centres as being critical to their viability. A number of factors are particularly important. A cross checking of a questionnaire-based surveys with a financial analysis

and drawing on the past experiences of the Yawayawa and Lokia packing sheds, suggests that collection centres are better located in areas with a high prevalence of exporters and type 1 middlemen. That is, in areas close to urban centres and international ports of access with strong infrastructures. In locations where infrastructure is weak, where other types of buyer are more prevalent, the collection centres are unlikely to get the support from buyers, and consequently from producers.

However, even in areas where collection centres may have support from local agents, if producers remain willing to sell to any buyer at farm gate and thereby circumventing the use of the collection centres, the centres will face increasing difficulties of remaining fiscally viable.

The main issue affecting producers is the ability to find a market for their produce. If buyers are willing to source from the farm gate at a competitive price, then producers may not transport product to the collection centre despite the services it offered. Grading and packing facilities are not required as there is usually ample room on the farm premises, and cooling chambers are not necessary as producers will search for buyers as soon as the crop is ready for harvest.

Except for exporters, no other buyers indicated significant support for collection centres. Price competitiveness and flexibility are key aspects that must be taken into account in the decision making of buyers. With their own transport, many are willing to search for better prices. In addition, it is important to remember the local environment. There are a large number of middlemen scattered throughout the rural areas. These tend to source locally and provide an important social service in assisting others to access ago-inputs.

The study identifies important elements constraining the development of the sector such as access to inputs, market information and technical advice. It may be better to adapt the existing infrastructure and network to cater to the needs of the sector and therefore further analysis of the relative merits of a fully designed and costed system of collection points is warranted.

Extension offices can be adapted to the needs of producers and the Ministry of Agriculture needs to place a greater emphasis on information dissemination and field training, especially in terms of marketing and business. Improving the flow of information reduces the risk of exploitation and improves market access. It is also important to dramatically improve the road conditions in rural areas to improve accessibility to buyers. In areas that are less accessible there is a higher incidence of information asymmetry, allowing buyers to offer the most competitive pricing available.

Improving infrastructure, the dissemination of information, and technical training should be prioritised activities. Addressing these areas would have the greatest returns to the agricultural community across the value chain by allowing greater market access to a number of producers that are otherwise constrained by their location, to the benefit of all agents along the value chain.

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## ANNEXES

**Table 1: Contribution to GDP: Constant prices of 1995 at Factor Cost (FJD000)**

Sectors	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Agriculture	341405 (14.0)	304011 (12.3)	350147 (13.1)	341204 (13.0)	329213 (12.2)	343848 (12.4)	335113 (12.0)	342373 (11.6)	342349 (11.5)	345127 (11.2)	332269 (11.6)
Crops	202479 (8.3)	163374 (6.6)	207977 (7.6)	199329 (7.6)	186309 (6.9)	197761 (7.1)	188352 (6.7)	193091 (6.5)	192643 (6.5)	190561 (6.2)	178131 (6.2)
Sugarcane	136497 (4.5)	100689 (4.5)	143059 (4.3)	131761 (4.1)	121853 (3.9)	124721 (3.9)	121070 (4.3)	122331 (4.1)	114813 (3.9)	121157 (3.9)	94431 (3.3)
Other crops	65982 (2.7)	92685 (3.8)	64917 (2.4)	67568 (2.6)	64456 (2.4)	73040 (2.6)	67282 (2.4)	70760 (2.4)	77831 (2.6)	69404 (2.3)	83700 (2.9)
Livestock	15259 (0.61)	16125 (0.65)	15886 (0.59)	16028 (0.61)	15822 (0.59)	17872 (0.64)	18770 (0.67)	20510 (0.69)	20511 (0.69)	23917 (0.78)	24175 (0.84)
Subsistence	116236 (4.8)	117119 (4.8)	118151 (4.4)	119035 (4.5)	119329 (4.4)	119624 (4.3)	120176 (4.3)	121059 (4.1)	121499 (4.1)	122181 (4.0)	122770 (4.3)
<b>TOTAL GDP</b>	<b>2433142</b>	<b>2464387</b>	<b>2680832</b>	<b>2637397</b>	<b>2688595</b>	<b>2774544</b>	<b>2800111</b>	<b>2953223</b>	<b>2971624</b>	<b>3072959</b>	<b>2871047</b>

% in parentheses

Source: Fiji Island Bureau of Statistics – Key Statistics

**Table 2: Expiring ALTA Leases (Provisional Estimates)**

Expiry Year	No. of Leases	Expiry Year	No. of Leases	Expiry Year	No. of Leases
1997	135	2008	299	2019	306
1998	237	2009	278	2020	152
1999	1594	2010	374	2021	168
2000	1955	2011	445	2022	135
2001	458	2012	419	2023	148
2002	622	2013	487	2024	88
2003	432	2014	380	2025	85
2004	600	2015	784	2026	65
2005	463	2016	361	2027	54
2006	521	2017	177	2028	13
2007	652	2018	254		
				<b>TOTAL</b>	<b>13141</b>

Source: Land Resources and Planning Division, Department of Agriculture

**Table 3: Foreign Investment by Sector (F\$)**

Sectors	2000	2001	2002	2003	2004	2005	2006	2007
Agriculture & Forestry	800,000	8,132,591	109,000		162,515	2,226,117	8,188,168	745,000
Building & Construction					300,000	28,309,537	8,462,263	5,214,887
Fisheries	3,519,450	4,964,000	2,060,000	5,555,000		7,002,137	5,233,463	100,000
Manufacturing	13,257,004	16,161,999	2,631,130	545,000	940,000	4,753,934	21,614,572	786,346
Mining & Quarrying	30,000,000	110,000				288,836	245,781	1,000,000
Real Estate					600,000	600,000	542,592	2,068,000
Services	24,329,468	31,943,746	32,993,813	9,108,444	7,071,694	18,199,660	70,457,186	40,701,387
Tourism	45,835,231	29,352,266	3,055,900	8,859,000	19,269,825	194,315,275	166,582,600	60,047,775
Transport, Storage & Communication		250,000	6,691,953	50,000		565,280	150,000	
Wholesale & Retail	4,945,800	1,063,500	800,000		6,250,845	2,438,104	7,048,036	200,000
<b>TOTAL</b>	<b>122,686,953</b>	<b>91,978,102</b>	<b>48,341,796</b>	<b>24,117,444</b>	<b>34,594,879</b>	<b>258,698,880</b>	<b>288,524,661</b>	<b>110,863,395</b>

Source: Fiji Islands Trade and Investment Bureau

**Table 4: Approved Projects of Foreign Investment by Sector Not Implemented (F\$)**

Sectors	2000	2001	2002	2003	2004	2005	2006	2007
Agriculture & Forestry	11,200,000	(828,877)	1,216,000	3,896,648	248,777,485 *	2,658,883	16,341,832	3,497,964
Building & Construction					300000	(3969637)	(497163)	(4,111,554)
Fisheries	20,410,550	(3,199,000)	4,910,000	(1,006,118)	1,482,000	1,882,863	9,801,637	10,533,000
Manufacturing	14,094,508	(14,219,254)	1,302,370	64,131,948	13,354,200	4,752,643	6,961,328	21,265,749
Mining & Quarrying	(30,000,000)	(110,000)			30,145,000	17,961,164	4,013,719	6,420,000
Real Estate					(600,000)	400,000	6,579,408	4,247,340
Services	1,873,642	(18,091,013)	46,445,187	22,417,008	78,527,988	135,522,322	357,744,092	200,080,122
Tourism	(18,152,821)	(14,003,266)	11,607,046	183,245,407	463,264,806	745,558,152	261,966,823	137,157,194
Transport, Storage & Communication		(250,000)	(6,691,953)	1,726,760	2,335,000	(565,280)	50,525,000	1,000,000
Wholesale & Retail	21,917,700	45,436,500	1,800,000	11,745,100	13,124,155	8,001,896	11,211,964	4,150,000
<b>Total (F\$)</b>	<b>21,343,579</b>	<b>(5,264,910)</b>	<b>60,588,650</b>	<b>286,156,753</b>	<b>601,933,149</b>	<b>912,203,006</b>	<b>724,648,640</b>	<b>384,239,815</b>

Note: Parentheses reflect investment implemented from enquiries made in previous year(s).

Note: \* In 2004, there was a F\$200 million investment proposal by a single company interested in sugar and bi-products. The project interest has not since continued.

Source: Fiji Islands Trade and Investment Bureau

**Table 5(a): Average Monthly Prices for 2008**

Commodity	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
English Cabbage	kg	3.79	5.21	4.27	5.10	5.02	4.12	2.06	1.94	1.61	1.63	1.93	2.55
Chinese Cabbage	bdl	1.67	1.98	1.51	1.36	1.51	1.72	1.02	1.09	1.05	1.18	1.35	1.49
French Bean	kg	3.76	6.98	5.56	5.06	4.38	3.88	2.31	2.63	2.54	2.19	2.80	3.64
Long Bean	bdl	1.95	2.24	2.06	1.85	1.81	1.98	1.94	1.90	2.21	1.69	1.51	1.40
Okra	kg	2.86	3.34	2.97	3.31	1.85	2.12	2.88	2.56	2.59	2.04	2.04	2.65
Tomatoes	kg	4.49	6.71	6.63	6.55	6.11	5.37	3.04	3.09	2.33	2.05	2.15	2.95
Eggplant (Round)	kg	0.99	1.36	1.80	1.98	1.69	1.46	1.63	1.42	1.52	1.19	1.24	1.09
Eggplant (Long)	kg	0.98	1.39	1.63	2.00	1.78	1.49	1.71	1.44	1.44	1.14	1.23	1.02
Pumpkin	kg	0.81	1.27	1.35	2.39	1.43	1.61	1.63	1.49	1.40	1.11	1.12	1.04
Watermelon	kg	1.80	1.96	2.19	3.17	2.26	2.10	1.79	1.75	1.87	1.81	1.72	1.53
Banana (Ripe)	kg	1.23	1.37	1.82	2.06	1.77	1.67	2.34	1.74	1.98	1.78	1.74	1.40
Banana (Green)	kg	1.17	1.37	1.63	2.02	1.65	1.65	2.16	1.90	2.05	1.74	1.66	1.40
Mango	kg	1.51							1.94	2.38	1.72	1.37	1.01
Pineapple	kg	1.32	1.37	1.67	1.91	1.70	1.53	1.68	1.95	1.76	1.46	1.28	1.10
Papaya	kg	1.42	1.47	1.68	1.93	1.69	1.73	2.02	1.90	1.92	1.59	1.49	1.27

Source: Fiji AgTrade

**Table 5(b): Average Monthly Prices for 2007**

Commodity	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
English Cabbage	kg	2.03	3.10	3.03	4.56	4.61	2.73	2.56	1.80	1.79	1.82	2.39	3.31
Chinese Cabbage	bdl	1.10	1.28	1.31	1.78	1.74	1.06	1.13	0.99	1.35	1.30	1.48	1.90
French Bean	kg	3.28	3.03	3.27	5.71	4.35	3.17	2.56	2.13	2.64	2.70	2.53	2.81
Long Bean	bdl	1.34	1.30	1.65	1.77	1.87	1.38	1.69	1.67	1.64	1.48	1.57	1.62
Okra	kg	2.50	2.36	2.56	2.69	2.51	2.78	2.57	2.75	3.86	2.71	2.36	1.74
Tomatoes	kg	2.87	3.96	4.93	6.18	5.35	7.85	3.37	2.35	2.35	2.42	2.45	2.77
Eggplant (Round)	kg	0.87	1.24	1.23	1.44	1.22	0.86	1.27	1.13	1.58	0.99	0.74	0.67
Eggplant (Long)	kg	0.81	1.19	1.08	1.54	1.22	0.81	1.20	1.15	1.58	1.02	0.68	0.67
Pumpkin	kg	0.78	0.72	0.95	1.03	0.95	1.09	1.03	1.12	1.44	1.01	0.92	1.08
Watermelon	kg	1.54	1.53	1.83	1.70	1.79	2.16	1.63	1.61	2.28	1.63	1.32	1.35
Banana (Ripe)	kg	1.23	1.26	1.32	1.65	1.47	1.43	1.40	1.30	1.71	1.54	1.41	1.17
Banana (Green)	kg	0.81	0.93	0.79	1.08	1.04	1.20	1.37	1.20	1.33	1.30	0.99	0.77
Mango	kg	0.92	2.23	2.67	1.10			3.09	2.59	2.21	1.25	0.84	1.09
Pineapple	kg	0.94	2.65	1.99	2.77	1.76	1.28	1.52	1.38	2.04	1.64	1.52	1.18
Papaya	kg	0.81	0.97	1.16	1.29	1.38	1.00	1.38	1.17	1.90	1.52	1.40	1.29

Source: Fiji AgTrade

**Table 6: Farm Gate Prices (2008) as Recorded by Producers and Buyers for Select Commodities**

			January	April	August	December				January	April	August	December
<b>Eggplant</b>	Producer	Average	0.501207	0.516234	0.633229	0.640702	<b>Papaya</b>	Producer	Average	0.757365	0.885989	0.823758	0.715991
		Min	0.057143	0.085714	0.1	0.1			Min	0.166667	0.2	0.32	0.32
		Max	2	1.6	5	5			Max	1.2	3	1.5	1
	Buyer	Average	2.516667	1.166667	1.45	0.685714		Buyer	Average	1.134483	0.9988	1	1.038462
		Min	0.8	0.8	0.6	0.25			Min	0.7	0.27	0.5	0.7
		Max	1.3	2	5	1.2			Max	3	3	2	3.5
<b>Tomatoes</b>	Producer	Average	1.023967	0.628016	1.0372	1.659091	<b>Okra</b>	Producer	Average	2	0.833333	1.75	0.75
		Min	0.3	0.25	0.28	0.7			Min	0.5	0.5	0.5	0.5
		Max	3	1.428571	4	3			Max	3	1	3	1
	Buyer	Average	2.553846	2.313	3.375	3.5		Buyer	Average	1	0.8	0.7	2
		Min	1	0.63	2	2.5			Min	1	0.8	0.7	2
		Max	4	8	4.5	4.5			Max	1	0.8	0.7	2
<b>Capsicum</b>	Producer	Average	3.05	1.74	2.633333	n/a	<b>Watermelon</b>	Producer	Average	1.114286	0.766667	0.7	1.166667
		Min	0.15	0.3	0.9	n/a			Min	0.8	0.5	0.5	1
		Max	5	4	5	n/a			Max	2	1	1	1.5
	Buyer	Average	5	4	5	n/a		Buyer	Average	1.5	1	1	n/a
		Min	5	3	5	n/a			Min	1.5	1	1	n/a
		Max	5	5	5	n/a			Max	1.5	1	1	n/a

## **Annex 2: Agricultural Policy in Recent Years**

Following independence in 1970, government policy focused on import substitution and direct government investment in agricultural development for the next two decades. The import substitution policy focused on growing local foods to directly replace products that were imported - rice, beef, dairy, poultry and feed grains. To provide additional incentives, imports were restricted through the use of high tariffs, licenses and quotas. Government was also involved in the processing and marketing of some products (rice and cocoa), but due to high costs and small production gains the approach was unsustainable.

In 1989, government policy switched to that of deregulation and export-led growth, with a broad range of economic reforms being adopted. The reforms focused at reducing the cost of business, providing flexibility in pricing, and exposing domestic firms to international competition. The reforms were accompanied with the removal of licensing controls and replaced by a simplified tariff system that allowed a progressive reduction of tariffs from a maximum tariff of 50% to 20%. Unfortunately, the deregulation of the sector led to multiple business failure as the private sector, now dependant on Government protection and investment, found itself unable to compete with cheaper imports.

At accession to WTO in 1996, Fiji opted to offer ceiling bindings rather than tariffication; choosing a single bound rate of 40% for all agricultural products except for rice and milk powder which were bound at 60%. By 1994, all licensing on agricultural products was removed and replaced by tariffs. At that time, most non-protection tariffs were set at 10% and most protection tariffs at 20%. An exception was white rice, which had a protection tariff of 40%. All agricultural inputs were allowed to enter duty free or were subject to only a 10% duty.

The tariff structure has been simplified and reduced in subsequent national budgets. By 1999, the maximum ad valorem tariff was set at 27%. The number of tariff bands were also reduced from 7 to 4.

In recent years, there has been some backsliding in tariff levels in response to pressure from local manufactures. The 1998 budget saw many locally manufactured items increased to 35%. The average general level of tariff was 27%, with most agricultural products set at 15%.

As a result of deregulation policies and recent trade negotiations, the current trade policy regime is fairly liberal with generally low tariffs on food and agriculture products. The private sector is also now considered instrumental in the policy direction of agriculture. Since 2008, the agricultural sector has looked towards private-sector led development rather than through the Ministry's own proposals. The aim has been at developing partnerships and encouraging a participatory approach in the planning and formulation of projects and their priorities.

Agriculture has been viewed by the Government as central to the restructuring of the economy and into a commercially viable, efficient and sustainable industry. In the *2007-2011 Strategic Development Plan*, and in the more recent *Peoples Charter 2008*, the Government has sought to build agriculture upon the pillars of income and food security, poverty alleviation, and the sustainable use of natural resources. Policy goals have included facilitating private sector

development, accelerating agricultural diversification into areas of competitive advantage (e.g. high value niche export and traditional crops); promoting food security; and to enhancing tourism-agriculture linkages. Unfortunately, neither document has adequately addressed measures in which these policy goals can be put into effect and many in the industry remain sceptical of the development of the agricultural sector. It is perhaps therefore unsurprising that both foreign and domestic investment has been lacking in the industry.

**Annex 3: Feasibility Study on Rural Collection and Grading Centres**  
Survey of Producers

*All information is confidential*

**Name:** \_\_\_\_\_

**Tikina:** \_\_\_\_\_

**Village:** \_\_\_\_\_

**Enterprise and Organisation**

Q. 1

Size of farm and production area:

Farm: .....ha

Production area: .....ha

Q. 2

Land Tenure Details

Land Plot	Plot Area (Ha)	Tenure Type (use codes)	If Leased:		
			Total Length of Years	Time Left Years	Annual Fee (\$ p.a.)

**Tenure Type:**

Freehold

NLTB Lease

Mataqali

Other Lease

Share-cropping

Q.3

Selected Crops Grown

Name of Crop	Crop Code	Crop Status Code			Mono Crop		Mixed Crop	Already Harvested	Grown All Year Round or Seasonal			Percent (%) in Open Field	Percent (%) in Tunnel or Green- house	Main Variety Grown	How many years have you been growing this crop
		0	1	2	No Plt	Area (ac)	No Plts	No Plts	1	2	3				
(1)	(2)	(3)			(4)	(5)	(6)	(7)	(8)			(9)	(10)	(11)	(12)
Tomato		0	1	2					1	2	3				
Capsicum		0	1	2					1	2	3				
Cucumber		0	1	2					1	2	3				
Lettuce		0	1	2					1	2	3				
Eggplant		0	1	2					1	2	3				

<b>Papaya</b>		<b>0</b>	<b>1</b>	<b>2</b>					<b>1</b>	<b>2</b>	<b>3</b>				
<b>Watermelon</b>		<b>0</b>	<b>1</b>	<b>2</b>					<b>1</b>	<b>2</b>	<b>3</b>				
<b>Bean</b>		<b>0</b>	<b>1</b>	<b>2</b>					<b>1</b>	<b>2</b>	<b>3</b>				

**Crop Status Code:**  
**0 – Not Grown in 2008**  
**1 – Currently Growing**  
**2 – Grown during 2008**

**Codes column 8:**  
**1 – Grown All Year Round**  
**2 – Grown Seasonal**  
**3 – Grown Cycled with Other Crops**

**Q. 4**  
**List of Other Important Crop Enterprises on the Farm**

Other Crops	Area		Open Field (%)	Tunnel (%)	% Sold	Number of years you have been growing crop
	No. Plts	Acres				

**Q. 5**  
**Why do you grow these? Rank 1 to 5 for each product.**  
**1 = most important reason.**

<i>Reason</i>	<b>Product (specify)</b>					
Market demand (Domestic)						
Market demand (Export)						
Advised by Extension staff						
Cost of seed						
Availability of seed						
Diseases/pest resistant						
Yields						
Ease of harvesting						

Labour requirement						
Taste						
Size of the fruit						
Shelf-life						

**Q. 6**

**Farm equipment in use**

Working Farm Machinery	Own, Share or Rent	If Shared:					If Rented:
		Number of People Shared with	Area covered (Ha)	Reason for Sharing (Use index)	Method of Sharing Cost (Use index)	Approx. Cost per Annum \$	Approx. Cost per Annum \$
Car							
Light Goods Vehicle							
Truck							
Tractor							
Rotary Tiller							
Other Cultivation Equipment							
Other - specify							

**Reason for Sharing:**

Cost to buy Equipment too High  1  
 Operating in Collective  3  
 Other – specify  5

Harvest too small  2  
 Operating as Farmer Group  4

**Method of Sharing Cost:**

Evenly distributed  1      According to Use  2      Other – specify  3

**Q. 7**

Do you experience problems in sharing or renting?

No   
 Yes

If yes please explain:

.....  
 .....  
 .....

Q. 8

Constraints in supply.

Please specify for each crop on a scale of 1 to 5; 1 = very difficult and 5 = very easy and available all year.

	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5
Seed					
Fertiliser					
Pesticides					
Chemicals					
Access to finance					
Other					

Q. 9

Where do you source your agro-inputs? (percentage)

	Ministry of Agriculture (%)	Retail Outlets (%)	AMA (%)	Exporter/Middleman (%)	TOTAL
Seed					<b>100%</b>
Fertiliser					<b>100%</b>
Pesticides					<b>100%</b>
Chemicals					<b>100%</b>
Other					<b>100%</b>

Q. 10

When you need money, how do you finance your activities?

Form of financing	%
Self-financing	
Borrowing from other members of the family/friends	
Borrow from other farmers or members of the community	
Credit from buyers (Specify which buyer: .....)	
Credit from banks	
Grants from government	
Micro-credit schemes (eg. National Centre Small & Micro Enterprise Development)	

Q. 11

What are the major limiting factors in accessing credit?

Please rank the factors from 1 to 5 in terms of importance (*1 = limited importance to 5 = very important*)

- |  |                          |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| • high interest rates                    | <input type="checkbox"/> |
|  | <b>1</b>                 | <b>2</b>                 | <b>3</b>                 | <b>4</b>                 | <b>5</b>                 |
| • lack of collateral                     | <input type="checkbox"/> |
|  | <b>1</b>                 | <b>2</b>                 | <b>3</b>                 | <b>4</b>                 | <b>5</b>                 |
| • high transaction costs                 | <input type="checkbox"/> |
|  | <b>1</b>                 | <b>2</b>                 | <b>3</b>                 | <b>4</b>                 | <b>5</b>                 |
| • lack of information on credit products | <input type="checkbox"/> |
|  | <b>1</b>                 | <b>2</b>                 | <b>3</b>                 | <b>4</b>                 | <b>5</b>                 |
| • high risk of default in my operation   | <input type="checkbox"/> |
|  | <b>1</b>                 | <b>2</b>                 | <b>3</b>                 | <b>4</b>                 | <b>5</b>                 |
| • small scale of my operation            | <input type="checkbox"/> |
|  | <b>1</b>                 | <b>2</b>                 | <b>3</b>                 | <b>4</b>                 | <b>5</b>                 |

**Farmer Groups**

Q. 12

Have you ever operated as part of a farmer group?

No

Yes

If \_\_\_\_\_ yes, \_\_\_\_\_ for \_\_\_\_\_ how \_\_\_\_\_ many years?.....

If no, why?

.....  
.....  
.....

If no, would you be interested in working in a farmer group?

No

Yes

Q. 13

Are you still part of the same farmer group?

No

Yes

If no, why?

.....  
.....  
.....

Q. 14

How successful do you view farmer groups?

- 1. Very unsuccessful
- 2.
- 3.     ↓
- 4.
- 5. Very successful

Q. 15

Please rank from 1 to 5 the advantages of working as a farmer group as you see them.

1 = greatest advantage.

Finding a market for produce	
Access to finance from the Ministry of Agriculture	
Access to finance from other farmers	
Assistance from Extension staff	
Building community spirit	
Sourcing inputs	
Sharing transportation costs	
Access to labour	
Other – specify:	

Q. 16

What problems have you experienced/witnessed in farmer groups? Please rank from 1 to 5; 1

= most common problem, 5 = least common problem.

Some farmers do not share equipment	
Some farmers do not work as hard as others	
Some farmers do not fulfil their quotas	
Some farmers do not share contacts with their buyers.	
Some farmers do not help others	
Some farmers personalise shared facilities (eg tractors, vehicles) are reluctant to allow others to use.	
Other – specify:	

## Market Channels

Q. 17

For crops sold, please provide details related to quantity and transaction

Name of Crop	Yes (1) or No (2)	Month	Year	Value in FJ\$ per kg	Marketing Constraints (code)	Type of Buyer Sold to	Type of transaction
<b>Tomato</b>		<b>December</b>	<b>2008</b>				
		<b>August</b>	<b>2008</b>				
		<b>April</b>	<b>2008</b>				
		<b>January</b>	<b>2008</b>				
<b>Capsicum</b>		<b>December</b>	<b>2008</b>				
		<b>August</b>	<b>2008</b>				
		<b>April</b>	<b>2008</b>				
		<b>January</b>	<b>2008</b>				
<b>Cucumber</b>		<b>December</b>	<b>2008</b>				
		<b>August</b>	<b>2008</b>				
		<b>April</b>	<b>2008</b>				
		<b>January</b>	<b>2008</b>				
<b>Lettuce</b>		<b>December</b>	<b>2008</b>				
		<b>August</b>	<b>2008</b>				
		<b>April</b>	<b>2008</b>				
		<b>January</b>	<b>2008</b>				
<b>Papaya</b>		<b>December</b>	<b>2008</b>				
		<b>August</b>	<b>2008</b>				
		<b>April</b>	<b>2008</b>				
		<b>January</b>	<b>2008</b>				
<b>Eggplant</b>		<b>December</b>	<b>2008</b>				
		<b>August</b>	<b>2008</b>				
		<b>April</b>	<b>2008</b>				
		<b>January</b>	<b>2008</b>				

<b>Watermelon</b>		<b>December</b>	<b>2008</b>				
		<b>August</b>	<b>2008</b>				
		<b>April</b>	<b>2008</b>				
		<b>January</b>	<b>2008</b>				
<b>Bean</b>		<b>December</b>	<b>2008</b>				
		<b>August</b>	<b>2008</b>				
		<b>April</b>	<b>2008</b>				
		<b>January</b>	<b>2008</b>				

**Code for Marketing Constraints:**  
1 – Quality inherent  
2 – Quality postharvest  
3 – Quantity demand/supply  
4 – Quantity consistency in supply  
5 – Quantity Variety of Vegetables/Fruit  
6 – Others specify.

**Code for Type of Buyer:**  
1 – Domestic Market  
2 – Retailers  
3 – Wholesalers  
4 – Restaurants  
5 – Hotels & Motels (Hospitality)  
6 – Schools, Hospitals, Hostels  
7 – Others specify.

**Code for type of transaction:**  
1- No contract (eg market transaction)  
2- Contract for delivery of just this shipment (month)  
3- Contract covering all production of the crop grown this season  
4- Longer term contract to supply buyer (eg more than one season)  
5 – Other (specify)

Q. 18

How do you take your produce to the selling place?

<b>Transport arrangement used</b>	<b>%</b>
◆ Through my own transport	
◆ Through private transporters	
◆ Using public transport	
◆ The buyer picks it up from my farm	
	<b>100 %</b>

Q. 19

Do you undertake any of the following post-harvest handling techniques?

Please tick appropriate box(es)

Wash produce after harvest	
Pre-cool produce during or immediately after harvest	
Grading – ie separate harvest into different qualities	
Store produce in cool rooms	
Use refrigerated transport to deliver produce	
Other – specify:	

Q. 20

What criteria do you value and what do you think are most important to buyers?

Rank 1 to 5, with 1 = most important

Criteria	Your criteria	Criteria of Buyers
Produce's colour		
Produce's size		
Produce's cleanliness		
Lack of bruises or damage from pests		
Other (Specify: .....)		

Q. 21

Please provide details on the type of packaging used in delivering produce. Tick box(es).

Plastic Bag	<input type="checkbox"/>
Sack	<input type="checkbox"/>
Wooden Crate	<input type="checkbox"/>
Plastic Crate	<input type="checkbox"/>
Other – specify:	<input type="checkbox"/>
None	<input type="checkbox"/>

Q. 22

Are packing materials easily available?

No

Yes

Q. 23

If you use contracts or have used in the past, for each type please describe:

Crop	Contract type	Detail of contract (time, quantity, quality)	Problems

**Code for Contract:**  
 2- Contract for delivery of just this shipment (month)  
 3- Contract covering all production of the crop grown this season  
 4- Longer term contract to supply buyer (eg more than one season)  
 5 – Other (specify)

Q. 24

What do you consider to be the most important aspects in contracts with buyers?

Rank 1 to 5. 1 = most important

Pay on collection of produce	
Buyer will collect produce from farm	
A fair price is negotiated	
Finance assistance can be provided	
Farming and post-harvest handling advice can be provided	
Other – specify:	

Q. 25

How well are you informed on the following?

Rate each from 1 to 10. 1 = no information, 10 = well informed.

Issue	Rank	Source
Post-harvest handling techniques		
Access to farm inputs		
Access to finance		
Access to packing materials		
Access to a market or buyer		
Market requirements (standards)		
Training in business		
Planting methods and spacing		
Use of appropriate fertilisers/pesticides		
Disease/insect control		
Other – specify:		

<p><b>Source:</b>            1 – Extension            2 – Buyer (Exporter)            3 – Buyer (Middleman)            4 – Buyer (Tourism)            5 – Market vendors            6 – Journals and Magazines            7 – Other:</p>
--

Q. 26

How much produce do you estimate to be stolen each year? (% of total crop)

.....%

**Collection Centres**

Q. 27

Have you used the existing collection centres in Sigatoka?

No

Yes

If yes, from.....(mm/yy) to.....(mm/yy)

If yes, at which location? .....

If no, are you aware of the centres?

No

Yes

Q. 28

If you previously used the centres but do not any longer, please give reasons:

.....  
.....  
.....  
.....  
.....

Q. 29

Do you feel that the collection centres had the support of the farming community?

No

Yes

If no, please explain

.....  
.....  
.....  
.....

Q. 30

Do you feel that the buyers prefer to buy produce from the collection centre rather than from the farm gate?

No

Yes

Please explain you reasons:

.....  
.....  
.....  
.....

Q. 31

Did you have any contracts with other buyers while selling produce at the centres?

No

Yes

Q. 32

Rate each of the following activities at the collection centres from 1 to 10.  
1 = lowest; 10 = highest

Network with buyers	
Network with farmers	
Collect produce from farms	
Grade produce	
Storage facilities	
Extending shelf life of produce	
Provide access to seeds, fertilisers, pesticides.	
Provide information on access to finance	
Provide farming and post-harvest handling advice	
Provide market information	
Have cooling facilities	
Other – specify:	

Q. 33

How do you rate the current management of the collection centres?  
1 = low, 10 = high

Q. 34

Do you think the existing centres are in a good location?

No

Yes

If no, please explain

.....  
.....  
.....  
.....

Q. 35

How much do you think the centres helped the farming community?  
1 = low, 10 = high

Please provide reasons:

.....  
.....  
.....  
.....

Q. 36

What do you consider to be the most important aspects of a collection centre?

1 = most important

Network with buyers	
Network with farmers	
Collect produce from farms	
Grade produce	
Storage facilities	
Extending shelf life of produce	
Provide access to seeds, fertilisers, pesticides.	
Provide information on access to finance	
Provide farming and post-harvest handling advice	
Provide market information	
Have cooling facilities	
Other – specify:	

Q. 37

Would you be willing to pay a monthly premium for use of a collection centre?

No

Yes

If yes, how much would you be willing to pay per month?

Q. 38

If you have a contract with a buyer, would you be willing to share details with the collection centre and allow other farmers to sell to them?

No

Yes

Q. 39

Would you be willing to forgo your contract with a buyer, allowing the buyer to source from the collection centre?

No

Yes

**Other Information**

**Name of Surveyor:**

.....

**Place and date of interview:**

.....

## Feasibility Study on Rural Collection and Grading Centres

Survey of Buyers

*All information is confidential*

**Name:**

**Business:**

**Location:**

**Produce Procurement**

Q. 1

How long have you been involved in buying fruits and vegetables?

.....years

Q. 2

What are the main fruits and vegetables you buy? (domestic and imported)

Domestic	Imported

Q. 3

Where do you buy your local produce?

Product	Location

Q. 4

How often do you buy produce?

State which product and tick appropriate box.

Frequency of purchase	Product 1	Product 2	Product 3	Product 4	Product 5
Daily					
Twice or more times per week					
Once a week					
Once every .....					
Other (specify.....)					

Q. 5

How much advanced notice do you give when buying produce?

State which product and tick appropriate box.

	Product 1	Product 2	Product 3	Product 4	Product 5
None					
1 day					
2/3 days					
One week					
2/3 months					
6 months					
1 year					
Other – specify:					

Q. 6

Do you advise farmers on demand estimates for farmers future planning?

No

Yes

If yes, how many months do you provide estimates for? .....

Q. 7

How do you usually pay the producers?

Advance payment (Specify %:.....)

Cash payment

15-30 days credit

30-90 days credit

Q. 8

How much of your supply comes from contracts and how much do you source through exploratory trips where you buy there and then?

Contracts: %

Exploratory: %

**100 %**

Q. 9

Do you think there are certain advantages to setting up contract with farmers?

Tick appropriate box(es):

Reliability of supply	
Price competitive	
Stable price	
Better post-harvest handling	
Better use of good-farming techniques	
Farmers are more responsive to buyer needs	
Other:	

If you do not use contract farming, why?

.....  
 .....  
 .....

Q. 10

Would you ever be interested in using contracts with farmers?

No

Yes

If yes, under which circumstances?

.....  
 .....  
 .....  
 .....

Q. 11

Have you previously operated under a contract with a farmer or farmer group but have since stopped?

No

Yes

If yes, what were the reasons for the termination of contract?

.....  
 .....  
 .....  
 .....

Q. 12

What do you consider to be the most important aspects in contracts with farmers?

Rank 1 to 5. 1 = most important

Payment on credit	
Produce is ready to be collected or delivered on time	
A fair price is negotiated	
Good farming practices are used on the farm	
Adequate post-harvest handling practices are in place	
Other – specify:	

Q. 13

Do you provide any of the following to farmers?

Service	Yes/No
Agro-inputs (eg. Seeds, fertiliser, pesticides)	
Advice on good farming techniques or post-harvest handling	
Finance in the form of loans, advanced payments or grants	
Accurate market information	
Packing materials	
Training in developing a business	

Q. 14

What are the main constraints you face in sourcing local produce?  
(State which products and tick appropriate boxes)

Constraints	Product 1	Product 2	Product 3	Product 4	Product 5
Produce quality is not satisfactory and/or is inconsistent					
Supply can not meet market demand					
Road infrastructure insufficient					
Lack of access to appropriate vehicles for collecting produce.					
Post-harvest handling is inadequate					
Knowledge of product availability					
Other – specify:					

Q. 15

How much local produce do you reject?

Product	Rejection Rate (%)

Q. 16

Do you grade produce?

No

Yes

If yes, where do you grade?

At farm	
At business premises	
In packing sheds	
Produce is already graded by farmers	
Other – specify:	

Q. 17

Would you rather buy produce already graded or do you prefer to grade yourself?

Buy already graded

Grade myself

Q. 18

What price do you pay for your produce at farm gate?

Name of Crop	Yes (1) or No (2)	Month	Year	Value in FJ\$ per kg	Constraints	Market for Produce	Type of transaction
					(code)		
Tomato		December	2008				
		August	2008				
		April	2008				
		January	2008				
Capsicum		December	2008				
		August	2008				
		April	2008				
		January	2008				
Cucumber		December	2008				
		August	2008				
		April	2008				
		January	2008				
Lettuce		December	2008				
		August	2008				
		April	2008				
		January	2008				
Papaya		December	2008				
		August	2008				
		April	2008				
		January	2008				

**Code for Constraints:**

- 1 – Quality inherent
- 2 – Quality postharvest
- 3 – Quantity demand/supply
- 4 – Quantity consistency in supply
- 5 – Quantity Variety of Vegetables/Fruit
- 6 – Others specify.

**Code for Market:**

- 1 – Overseas
- 2 – Domestic Tourism Industry
- 3 – Local Municipal Markets
- 4 – Other middlemen or traders
- 5 – Supermarkets
- 6 – Processors
- 7 – Other: specify.....

**Code for type of transaction:**

- 1- No contract (eg market transaction)
- 2- Contract for delivery of just this shipment (month)
- 3- Contract covering all production of the crop grown this season
- 4- Longer term contract to supply buyer (eg more than one season)
- 5 – Other (specify)

Q. 19

Have you previously requested finance from any of the following:

Tick appropriate box (es).

Commercial Banks	
Fiji Development Bank	
National Centre Small & Micro Enterprise Development	
The National Export Strategy	
Ministry of Agriculture	
Friends/family	

Q. 20

Do you have insurance?

No

Yes

If yes, what does it

cover?.....

If no, for what reasons:

Tick appropriate box(es)

Lack of awareness of insurance options	
Premiums too high	
Insurance companies refuse to insure agricultural enterprises	
Do not believe insurance necessary	
Other:	

### Collection Centres

Q. 21

Have you ever bought produce from the Collection centres in Sigatoka?

No

Yes

If yes, from.....(mm/yy) to.....(mm/yy)

If yes, at which location? .....

If no, are you aware of the centres?

No

Yes

Q. 22

If you previously used the centres but do not any longer, please give reasons:

.....  
 .....  
 .....  
 .....

Q. 23

Do you feel that the collection centres had the support of the buyers?

No

Yes

If no, please explain

.....  
 .....

Q. 24

Do you prefer to buy produce from the collection centre rather than from the farm gate?

No

Yes

If no, please explain:

.....  
 .....

Q. 25

Rate each of the following activities at the collection centres from 1 to 10.

1 = lowest; 10 = highest

Network with buyers	
Network with farmers	
Collect produce from farms	
Grade produce	
Storage facilities	
Extending shelf life of produce	
Provide access to seeds, fertilisers, pesticides.	
Provide information on access to finance	
Provide farming and post-harvest handling advice	
Provide market information	
Have cooling facilities	
Other – specify:	

Q. 26

How do you rate the current management of the collection centres?

1 = low, 10 = high

Q. 27

Do you think the existing centres are in a good location?

No

Yes

If no, please explain

.....  
.....  
.....  
.....

Q. 28

Do you think that the collection centres have served their purpose both in improving links between producers and buyers?

Please provide reasons:

.....  
.....  
.....  
.....

Q. 29

What do you consider to be the most important aspects of a collection centre?

1 = most important

Network with buyers	
Network with farmers	
Collect produce from farms	
Grade produce	
Storage facilities	
Extending shelf life of produce	
Provide access to seeds, fertilisers, pesticides.	
Provide information on access to finance	
Provide farming and post-harvest handling advice	
Provide market information	
Have cooling facilities	
Other – specify:	

Q. 30

If the collection centre had transport, would you prefer produce be delivered to your premises or would you prefer to collect produce directly.

Deliver

Pick-up

Q. 31

If the collection centres were to be re-established, would you use them rather than using your existing farmers?

Yes

No

If yes, under what circumstances:

Tick appropriate box(es)

Grading of produce	<input type="checkbox"/>
Produce delivered to premises	<input type="checkbox"/>
Produce stored in cool room	<input type="checkbox"/>
Produce packaged according to buyer demands	<input type="checkbox"/>
Collection centres easily accessible with good road access	<input type="checkbox"/>
Other – specify:	<input type="checkbox"/>

If no, why?

Tick appropriate box(es)

Good relations with existing farmers	<input type="checkbox"/>
Invested in current farms (finance, infrastructure, fertiliser, pesticides etc...)	<input type="checkbox"/>
Do not think collection centres to be viable in long run	<input type="checkbox"/>
Ability to search for better value	<input type="checkbox"/>
Other – specify:	<input type="checkbox"/>

**Other Information**

**Name of Surveyor:**

.....

**Place of interview:**

.....

**Date of interview:**

.....