



MAURITIUS RESEARCH COUNCIL
INNOVATION FOR TECHNOLOGY

**AN APPRAISAL OF THE SMALL-SCALE
AGRO INDUSTRIAL SECTOR
IN RODRIGUES**

Final Report

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PROJECT REPORT

AN APPRAISAL OF THE SMALL-SCALE AGRO-INDUSTRIAL SECTOR IN RODRIGUES



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EXECUTIVE SUMMARY

Rodrigues has an established reputation for its traditional agro-processed products and the agro-processing sector is viewed as an important sector for the Rodriguan economy as it contributes to employment creation and has linkages with the economy, especially the agricultural and fisheries sectors. Although the sector is gaining prominence in the economy of Rodrigues, it is felt that there is still limited amount of information and knowledge on the sector as such to devise appropriate development packages. In this context, a study was undertaken with the following main **objectives**:

- ✓ *To examine the characteristics of the Rodriguan small-scale agro-processing sector in terms of types of products, size of enterprise, market, level of technology and processes.*
- ✓ *To assess the current support services and facilities for the development of the sector.*
- ✓ *To assess the consumers' awareness and perception of Rodriguan processed products.*
- ✓ *To gauge the level of use of Rodriguan agro-processed products in the main hotels of Mauritius.*
- ✓ *To identify the opportunities for and constraints to the development of agro-industrial units.*
- ✓ *To make recommendations that will facilitate the development of the small-scale agro-industrial sector.*

Methodology

An island wide survey of 119 agro-processors who produce various kinds of animal and plant based agro-processed products was conducted. The questionnaire used, consisted of several sections dealing with the main types of products produced, source of raw materials, manufacturing practices, packaging, product quality and safety, labelling of finished products, training, knowledge about the support services and suggestions to improve sector.

In-depth interviews were also carried out with 10 associations grouping the agro-processors using a checklist focusing mainly on the major activities and composition of the associations, eligibility criteria, facilities offered and major constraints faced by the associations.

A key informant approach was used to study the different service providers in Rodrigues. Face-to-face interviews were conducted using a checklist so as to gather technical and other relevant information on the service providers' objectives and mandate, services provided, degree of adequacy, efficiency and effectiveness of service, eligibility criteria to access services, constraints experienced by service providers and suggested solutions, promotion and follow-up of services, perception and constraints of the agro-industrial sector.

In addition, two consumer questionnaire-based surveys with Mauritians and visitors to Rodrigues were carried out to assess their degree of awareness and perception of Rodriguan processed products.

A questionnaire-based survey was also carried out in a sample of supermarkets and hotels across the island of Mauritius, to gauge the penetration of Rodriguan agro-processed products in the Mauritian market.

Finally, a workshop was organized in Rodrigues with all the stakeholders, agro-processors and service providers in the sector. The workshop enabled the team members to take stock of any new developments in the sector and to validate the preliminary results of the survey.

Key Findings

The small agro-processing sector is mainly dominated by women. The major raw materials used are lime, chilli, pork and octopus and the products mainly produced and most demanded are 'sweet and sour lime', chilli/lime pickled in vinegar and processed octopus products.

Most of the products require low cost technology and few specific ingredients. With time, the processors have innovated in terms of packaging, product presentation and new products. The National Handicraft and Promotion Agency and recently the Commission for Agriculture have put on sales packaging materials to all the agro-processors. Many agro-processors have been exposed to some form of informal training related to food processing, food hygiene and enterprise development.

Manufacturing is usually done in the processors' kitchen. Lack of appropriate equipment for mass production, insufficient raw materials and lack of credit facilities limit their production capacity. Lack of control during manufacturing practices also lead to inconsistent products on the market. Poor labelling, especially the absence of date marking and in some cases packaging in inappropriate containers project a negative image of the sector.

The agro-processors have recourse to multiple outlets for their products, the most important one being direct sale to the consumers either along the roadsides or stalls at the Port Mathurin market. However, the marketing and distribution systems, including product promotion and market information systems of the Rodriguan produce, are not properly organized. The enterprises do not have sufficient knowledge of existing and potential market opportunities in the region. There is also no relevant trade information for those entrepreneurs who wish to expand and export.

Most of the entrepreneurs do not have a proper record keeping system such as financial records, production records and sale records and they do not estimate their cost of production.

There are a number of support institutions and government supported and international agencies that provide technical information, financial and training assistance. NHPA and SMIDO are the most widely known ones by the agro-processors. None of the support institutions provide exclusive service to the agro-processing sector. The major service requested but not sufficiently provided by most of the service providers is financial assistance. While some institutions are quite liberal in provision of their services and have no eligibility criteria, others require more than one eligibility criteria. There seems to be no proper coordination of responsibilities with too many agencies sharing the same tasks.

The majority of the consumers became aware of the Rodriguan processed food products, while travelling to Rodrigues, through family or friends and by '*word of mouth*'. However, it is felt that there are still a large number of local consumers who ignore their existence. The uniqueness of the products, in particular, their taste, is the major criterion that tempts respondents to purchase the products.

A high preference for '*Piments Confit*', '*Achard Limon*' and '*Aigre Doux Limon*' has been observed in the two consumer studies in Mauritius and Rodrigues. It is interesting to note that the majority of respondents, both in Rodrigues and in Mauritius, are satisfied with the Rodriguan food products.

Many consumers do not buy Rodriguan products, as similar products are available in Mauritius from established agro-processors at competitive prices. The higher prices of Rodriguan products, their

limited supply, as reflected in the survey with supermarkets whereby only two chains of supermarkets sell the products, as well as uncertainty regarding their quality, also affect their demand.

The major threats looming over this developing sector are fierce competition with similar products from other sources, decreased availability of raw materials, existence of an export market for the fresh raw materials.

However, opportunities do exist due to the expansion of the tourism industry and the opening up of international niche markets as these products are considered to be 'bio' products. The projects for development of a food laboratory and the Trade and Marketing Agency will improve both the quality and marketing of the products.

A series of recommendations are formulated with the objective to effectively remove the existing constraints and create an enabling environment for the sustained development of the agro-processing sector. They are based on adopting a holistic approach for developing the sector and thus a framework consisting of the different sub-systems of the sector is being proposed. It encompasses the primary producers, the processors and the various support institutions such as Agro-Processing Unit, the Trade and Marketing Agency and shows how these various stakeholders are interlinked. The recommendations rest on the underlying assumptions that each subsystem must work in a synergistic and cooperative manner to drive the successful development of the sector.

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LIST OF ABBREVIATIONS

AGPU	Agro Processing Unit
AREU	Agricultural and Research Extension Unit
CoA	Commission for Agriculture
CPPE	Centre Pour la Promotion des Petites Entreprises
DBM Ltd	Development Bank of Mauritius Ltd
FAO	Food and Agriculture Organization
FFER	Forum des Femmes Entrepreneurs Rodriguais
HACCP	Hazard Analysis Critical Control Point
IFAD	International Fund for Agricultural Development
IVTB	Industrial and Vocational Training Board
MOH	Ministry of Health and Quality of Life
NEPAD	New Partnership for Africa's Development
NHPA	National Handicraft Promotion Agency
RRA	Rodrigues Regional Assembly
SEHDA	Small Enterprises and Handicraft Development Authority
SIDPR	Sustainable Integrated Development Plan for Rodrigues
SMIDO	Small and Medium Industries Development Organization
UNPD	United Nations Development Programme

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CHAPTER 1

INTRODUCTION

1.1 RODRIGUAN ECONOMY

Rodrigues, the main outer island of the Republic of Mauritius, is situated at some 653 km to the North East of Mauritius. With an area that extends over 104 km², the island has a population that stood at 36,907 in June 2005. In contrast to the economy of Mauritius, which is characterised by a balanced development of industrial and agricultural activities, the island of Rodrigues is highly dependent on agriculture and fishing, though tourism is contributing more and more to the economy. Traditional agriculture based on subsistence farming constitutes the main driver of the economy, with cattle and pig rearing and vegetables and fruits growing, as well as processing, representing major sources of income and employment for the population. In 2004, about 3910 people were employed in agriculture, mainly in crop production.

The Rodriguan agriculture is moving gradually from a traditional to a semi-intensive/intensive type of agriculture. Production is mainly characterised by kitchen gardening and backyard production. The Rodriguan agriculture is considered to be mostly organic and almost rain fed, with average plots/orchards areas ranging from quarter to one arpent. Pesticides are rarely used for control of pests and diseases.

The main agricultural food crops grown are creepers, tomatoes, cabbage, cauliflower, lettuce and mixed vegetables while onion, bean, garlic and chillies are the main cash crops. The main traditional crops are maize, cassava, and sweet potato. The main fruits are lime, banana, sweetsop, mandarin, mangoes, coconut, pineapple, grapefruit and pawpaw.

Animal production is another key economic sector in Rodrigues. The main animals produced are sheep, goat, cattle, pig and poultry and are mainly exported to Mauritius. Fishing is an important economic activity for Rodrigues and it has been estimated that about 11% of the population is involved in fishing activities. The fishing sector is dominated by inner lagoon artisanal fishing in small boats. Octopus, being the main seafood product, is mainly exported to Mauritius.

The small scale manufacturing sector also contributes to the economic activities of the island. It is limited to a few enterprises, namely stone crushing, baking, metal works, woodwork, garment making, shoe making, handicrafts and agro-processing.

1.2 CURRENT AND PAST POLICIES

The decentralisation of services from the central government to the Rodrigues Regional Assembly (RRA) in January 2002 marked a turning point in the administration of the island of Rodrigues. The RRA has more autonomy to make policy decisions and to manage and develop Rodrigues. One of its priorities is accelerating the development of the island. Agro-processing is one of the sectors that has been identified as having potential for creating jobs, and generating income, notwithstanding its multiplier effect on the rest of the economy. This sector is also perceived as providing scope for increasing the value-addition of Rodriguan agricultural produce. In this context, the Commission for Agriculture is now in the process of developing strategies and necessary infrastructure for strengthening this sector.

In 1999, a Mauritius Research Council (MRC) study recommended the revival of the agricultural sector of Rodrigues by targeting niche markets

of high value-added, traditional Rodriguan products with an organic label. The promotion of the small to medium scale food and agricultural industries forms part of the Government of Mauritius economic strategy. In its non-sugar sector strategic plan (2003), for Rodrigues, the Government proposes to revitalise the traditional sectors and the value addition to agro-products for export.

In March 2006, the UNDP has provided support to the RRA to formulate a Sustainable Integrated Development Plan for Rodrigues (SIDPR). The plan aims at developing strategies in the various productive sectors of the Rodriguan economy - agro-processing being one of the identified sectors - to create employment, reduce poverty, improve standard of living and the sustainable use and conservation of environmental and natural resources. These various policy measures show that a lot of emphasis is now being put to develop the agro-processing sector in Rodrigues.

There have been several ad-hoc interventions to promote the emergence of a thriving agro-processing sector. Several training programmes have been run by relevant institutions (Collaborative work with Reunion Island, Ministry for Women's Rights, UNPD, Centre pour la promotion des petites entreprise (CPPE) in Mauritius, SMIDO, NHPA, AREU) to impart business skills and introduce new technologies to the entrepreneurs. The Faculty of Agriculture of the University of Mauritius has also run training programmes in areas like: production practices, hygiene, technology development and food safety. A number of studies have also been commissioned to advise on actions and strategies that must be taken to develop the agro-processing sector and the marketing constraints in Rodrigues:

- (a) Vakakis International S.A (Degennes, 2003)- ***“Commercialization of the exotic products of agricultural origin in Rodrigues”***;
- (b) Vakakis International S.A/CIRAD (Beehary Panray, 2004) ***“Marketing Study in Rodrigues,”*** and
- (c) NEPAD/FAO (2005) ***“Strengthening the agro-processing capacity of Rodrigues”***.

1.3 CURRENT STATUS OF THE AGRO-PROCESSING SECTOR

Small-scale agro-industrial enterprises form an important part of the socio-economic landscape of Rodrigues. Agro-processing activities exist predominantly at cottage level and include a wide range of ethnic and traditional food products manufactured from local agricultural raw materials, namely pickled lime, pickled chillies, sweet and sour lime, kidney beans, honey, ham and sausages and smoked chicken, dried octopus, salted fish and processed pork products. These products are available in the Rodriguan market and a few speciality shops in Rodrigues and Mauritius.

Rodrigues has established a reputation for its traditional agro-industrial products, having developed exclusive recipes of *“Piment Limon”* and *“Aigre-Doux Limon”* which are nowhere else to be found. Highly appreciated by many, such recipes, including other less well-known ones, hold very good prospects for increasing their market shares, provided they are produced in accordance with international norms and standards. Rodrigues has also certain attributes that may be efficiently harnessed to develop its agro-industrial sector, more particularly, its image as a pollution-free and organic production base.

However, it is felt that there has not been sufficient focus on the potential of the agro-processing to contribute to the socio-economic development of Rodrigues. This has probably held back progress in this sector. Manufacturing practices have remained poor, while the lack of support systems for production and quality control has led to disparate quality of products being offered for sale, thereby affecting the competitiveness of the sector. Thus the small-scale agro-processing enterprises have not been able to make optimum use of the myriad of resources available in the agricultural sector, to develop and enhance their productive capacity and contribute more to the economy.

There is therefore ample scope to improve the quality, packaging and marketing, amongst others, of the Rodriguan agro-processed products so that they could contribute significantly to the economy of Rodrigues. Globalisation and the opening up of new niches internationally for speciality horticultural, ethnic and organic products provide added impetus for revitalising the sector, through export to the region and the European and United States markets.

Besides its export potential, agro-processing presents increased opportunities for income generation and employment for the resource-poor and vulnerable sections of the Rodriguan population. The activities are particularly well suited for women, since they can be combined with household chores. Furthermore, agro-processing can contribute towards food security, nutrition and health and indirectly contribute to enhance the social and cultural well-being of the inhabitants.

Although this sector is gaining prominence in the economic sector of Rodrigues, it is felt that there is still limited amount of information and knowledge as such on the characteristics of the agro-processors, their

sources of raw materials, their manufacturing practices and marketing strategies among others.

1.4 OBJECTIVES OF THE STUDY

There is a general consensus that the small-scale agro-processing sector in Rodrigues is under-researched. The availability of statistics on the sector is very limited. A cursory survey of literature shows that there are no published work on the characteristics of the enterprises, information needs of the entrepreneurs and the constraints they face. This lack of a comprehensive information base is viewed as a major hindrance for developing appropriate policies and strategies for the development of the sector.

Hence, this present study seeks to close this gap in knowledge and has the following main objectives:

- ❖ To examine the characteristics of the Rodriguan small-scale agro-processing sector in terms of types of products, size of enterprise, market, level of technology and processes.
- ❖ To assess the current support services and facilities for the development of the sector.
- ❖ To identify the opportunities for and constraints to the development of the agro-industrial units.
- ❖ To assess consumers' awareness and perception of Rodriguan processed products.
- ❖ To make recommendations that will facilitate the development of the agro-industrial sector.

CHAPTER 2

RESEARCH METHODOLOGY AND DATA ANALYSIS

2.1 INTRODUCTION

This study comprises of four main components, namely:

1. A survey of the small-scale agro-processors sector in Rodrigues
2. A survey of service providers for small and medium enterprises in Rodrigues
3. A survey of consumers' perception of Rodriguan processed food products, and
4. A study on the availability of Rodriguan agro-processed products in some main supermarkets and hotels in Mauritius.

2.2 SURVEY WITH AGRO-PROCESSORS

2.2.1 Sampling Frame

In order to obtain valuable information from a survey, it is critical that the various stages are properly conceived, planned and implemented. It was initially envisaged to use probability sampling to avoid any form of systematic and persistent biases. For such an approach to be feasible, a complete listing of the individuals involved in the agro-processing sector was required. However, initial fieldwork and feedback from the various service providers and key informants (**Appendix 1**) in the sector revealed that such a comprehensive list was not available. Indeed, information was scattered amongst the service providers. Under such circumstances, a sampling frame had to be compiled, integrating information from different sources namely:

- SMIDO
- NHPA
- Commission for Women & others
- Commission for Agriculture & others
- Associations of Agro-processors
- Relevant key informants in the sector

Agro-processors in Port-Mathurin market and road stalls were also contacted to mount the frame, given that many were not registered with any service providers in the sector. This inventory exercise revealed the existence of a total of 119 agro-processors in 2005 (**Appendix 2**). After giving due considerations to precision, practicability and the available list, it was decided to study the complete set of agro-processors by using a questionnaire-based personal interview.

2.2.2 Questionnaire Design

The questionnaire was carefully designed, so as to take into consideration all the objectives set for the study. It was crucial for the research instrument to be properly designed, as the input derived from it would influence the quality of the output and findings. A 22-page questionnaire was finally developed, after several meetings of the research team. Bearing in mind the characteristics of the target population, it was decided quite early in the planning stages of the questionnaire design, that it would be translated and administered to the respondents in Creole. This would avoid on spot translation from English to Creole and inconsistencies in phrasing questions by the enumerators during interviews. At the same time, this would ensure that good quality and consistent responses are obtained.

The questionnaire (**Appendix 3**) was divided into several sections so as to facilitate collection of information on the following variables:

- Socio-economic characteristics of the processors
- Size of enterprises
- Type of products
- Mode of operation
- Raw materials and other inputs
- Production Process
- Level of technology
- Quality of products
- Marketing
- Training
- Innovation
- Information needs
- Available support services
- Constraints faced by the agro-processors

2.2.3 Pilot Testing of the Questionnaire

The questionnaire was pre-tested with some local processors in Mauritius and copies were also sent to the Commission for Agriculture in Rodrigues to obtain feedback. The objective was mainly to gauge the general reaction to the questionnaire and identify any questions that were ambiguous or needed clarification. The questionnaire was generally well accepted and all the respondents were very cooperative.

This exercise revealed that some questions were improperly framed and necessitated rephrasing. In some cases, the administration of the questionnaire in Creole proved difficult to be understood by respondents and modifications had to be made. This was expected, as Creole has no standard spelling and care was taken to ensure that it was as fluent and easily understood by both respondents and enumerators. It was equally observed that some questions needed extra information, which would require interviewers to prompt respondents, in order to ensure

consistency in the interviewing process. Additional skip instructions were also inserted to ensure a proper flow and ease the interviewing process throughout. Subsequently, the questionnaires were printed, with due care given to ensure good physical characteristics of the document.

2.2.4 Recruitment and Training of Field Staff

The success of a survey resides to a large extent on the ability of the field workers and the training they have received. The three enumerators recruited were second year graduate Rodriguan students from the Faculty of Agriculture. Two of them were following courses in Food Science with Home Economics and the other one in Agriculture. They all had previous fieldwork experience with agro-processors, as they had interacted with them during their placement periods in Rodrigues, under the Student Work Experience Programme (SWEP) of the University of Mauritius.

The island of Rodrigues is actually divided into five main zones: Central, Northern, Southern, Eastern and Western. Prior to fieldwork, the members of the research team briefed the enumerators on how to fill the questionnaire and conduct the interviews. Emphasis was laid on the need to take special precautions whilst asking specific questions and on the way to approach respondents and dealing with refusals, as well as planning for call-backs.

The research team carried out the first few interviews in presence of the enumerators. This preliminary exercise was deemed necessary to ensure that interviews were carried out properly and also to build up the enumerators' confidence. It was followed by a debriefing session to provide feedback and clarify issues.

2.2.5 Questionnaire Administration

Respondents were first contacted by phone for an appointment and the interviews **(Plate 1a and 1b, Appendix 13)** were held either at their place of residence or at different Centres/Associations. This provided an opportunity for the enumerators to visit some of the production units thereby enabling triangulation of information collected.

Prior to the fieldwork, respondents were briefed **(Plate 1c, Appendix 13)** on the objectives of the study and how their input would contribute to the findings and benefit the sector. In general, all respondents were very cooperative during the interview sessions. It took on average around 45 minutes to complete the questionnaire and the fieldwork was carried out from June to July 2005.

2.2.6 Data Processing and Analysis

The first step in the data processing was verification of the completed questionnaires for errors, incompleteness and gaps in the information collected. Once this phase was over, a codebook for coding the data was developed. Some random checks were made in respect of a few questionnaires, in order to ensure that no discrepancies had crept into the process. The complexity of the questionnaire rendered the coding process very lengthy, requiring additional checks to sort out coding problems and inconsistencies. For the open-ended questions, a coding frame was developed, after browsing through the responses in the completed questionnaires. In some cases, a qualitative description was provided for some of the open-ended questions.

Throughout the different stages of the study, an analysis framework emerged depending on which variables had to be analyzed and how and

what cross tabulations should be worked out. A special data entry program was designed and data read into SPSS version 13.0 for analysis. Several routines checks for inconsistencies and invalid codes were made which required cross-reference to the original questionnaires, for sorting out problems. Appropriate tabulations and statistical analysis were then performed using the statistical software.

2.3 SURVEY WITH ASSOCIATIONS

Preliminary fieldwork by the members of the research team revealed that there were 10 main associations involved in the agro-processing sector in Rodrigues. Consequently a checklist was prepared to gather information from them. The checklist (**Appendix 4**) comprised of different sections and information on the main activities of the associations, their composition and eligibility criteria, reasons for joining, facilities offered and major constraints faced were sought. The in-depth interviews using the checklist were usually carried out with the President of the Association at the respective seat of the association. The data analysis consisted of a qualitative analysis incorporating the main information from the study.

2.4 SURVEY WITH SERVICE PROVIDERS

A key informant approach was used to study the different service providers (**Appendix 5**) in Rodrigues. It is an approach whereby persons whose professional roles in their organization imply that they have a good knowledge about the specificities and characteristics of the population being studied. This type of approach has proved to be useful to gather information from “providers” of service as opposed to “customers” of service.

The key informants, who were usually the person responsible of the different support institutions, were first contacted by phone, to schedule appropriate meetings. Face-to-face interviews were conducted during the period June-August 2005 using a checklist (**Appendix 6**) so as to gather technical and other relevant information for the study.

The checklist contained mainly the following information:

- Overview of the service providers' objectives and mandate
- Services provided
- Degree of adequacy, efficiency and effectiveness of service
- Eligibility criteria to access services
- Constraints experienced by service providers and suggested solutions
- Promotion and follow-up of services
- Perception and constraints of the agro-industrial sector

The data obtained from the key informant survey was compiled and tables summarising the information on each item of the checklist for all the service providers were constructed.

2.5 CONSUMER SURVEYS

For both the surveys in Rodrigues and Mauritius, the questionnaires (**Appendix 7 and 8**) were developed after several meetings of the team members, bearing in mind the type of information required. It was also pre-tested as described in section 2.2.3 in order to avoid any unforeseen problems during the fieldwork. The necessary modifications were made before the survey began.

2.5.1 Consumer Surveys with Mauritians and with visitors to Rodrigues

A consumer survey in Mauritius was carried using a convenience sample of 200 individuals during the period August to December 2005. Similarly a consumer survey in Rodrigues was done with 57 travellers leaving Rodrigues for Mauritius or Reunion Island at the Plaine Corail Airport, after prior permission was obtained from the Rodrigues Airport Authorities. The enumerators carried face-to-face interviews from July to August 2005. Information was collected in both cases using a structured questionnaire, which consisted of the following topics:

- Awareness of Rodriguan products
- Source of products
- Reasons for purchasing products
- Types of products
- Place of purchase
- Product satisfaction
- Purchase criteria
- Improvements in product quality and packaging
- Improvements in marketing

2.5.2 Data Analysis

The data from the consumer surveys were coded, captured and then analysed using SPSS version 13.0. The appropriate tables and analysis were then generated.

2.6 SURVEY WITH SUPERMARKETS IN MAURITIUS

This survey was carried out in eight supermarkets and hypermarkets across the island of Mauritius, to gauge the penetration of Rodriguan agro-processed products in the Mauritian market. A three-page questionnaire was developed (**Appendix 9**) for that purpose and the managers of each of the supermarkets were personally interviewed. Information was collected on the types of Rodriguan agro-processed products sold and their source of supply, the volume of sales, perceptions on the quality of the products and other relevant issues.

2.7 SURVEY WITH HOTELS IN MAURITIUS

The main objective of this activity was to gauge the use of Rodriguan agro-processed products in the 60 AHRIM (Association Hoteliers et Restaurateurs de L' Ile Maurice) registered hotels. A postal questionnaire (**Appendix 10**) was sent to all managers of the hotels with an accompanying introduction letter explaining the purpose of the survey and how the information received would be helpful for the study. The three-page questionnaire developed included sections on the types of Rodriguan products used by the hotels, the source of supply and also questions on the perceptions on the quality, safety and hygienic conditions of the products. Since the response rate was quite low, data analysis comprised of a qualitative summary of the various responses.

2.8 VALIDATION AND DISSEMINATION OF RESULTS

A workshop was organized on 10th May 2006 with all the stakeholders, entrepreneurs and service providers in the sector (**Plate 2, Appendix 13**). The workshop enabled the team members to take stock of any new developments in the sector since the end of the survey in July 2005 and

to validate some of the results of the survey. The details on the workshop are provided in **Appendix 11**.

2.9 SWOT ANALYSIS

A critical analysis was carried out to identify the strengths, weaknesses, opportunities and threats in the sector from the primary and secondary information gathered and feedback from the workshop. Following this critical evaluation, some recommendations on how the sector could be improved have been formulated.

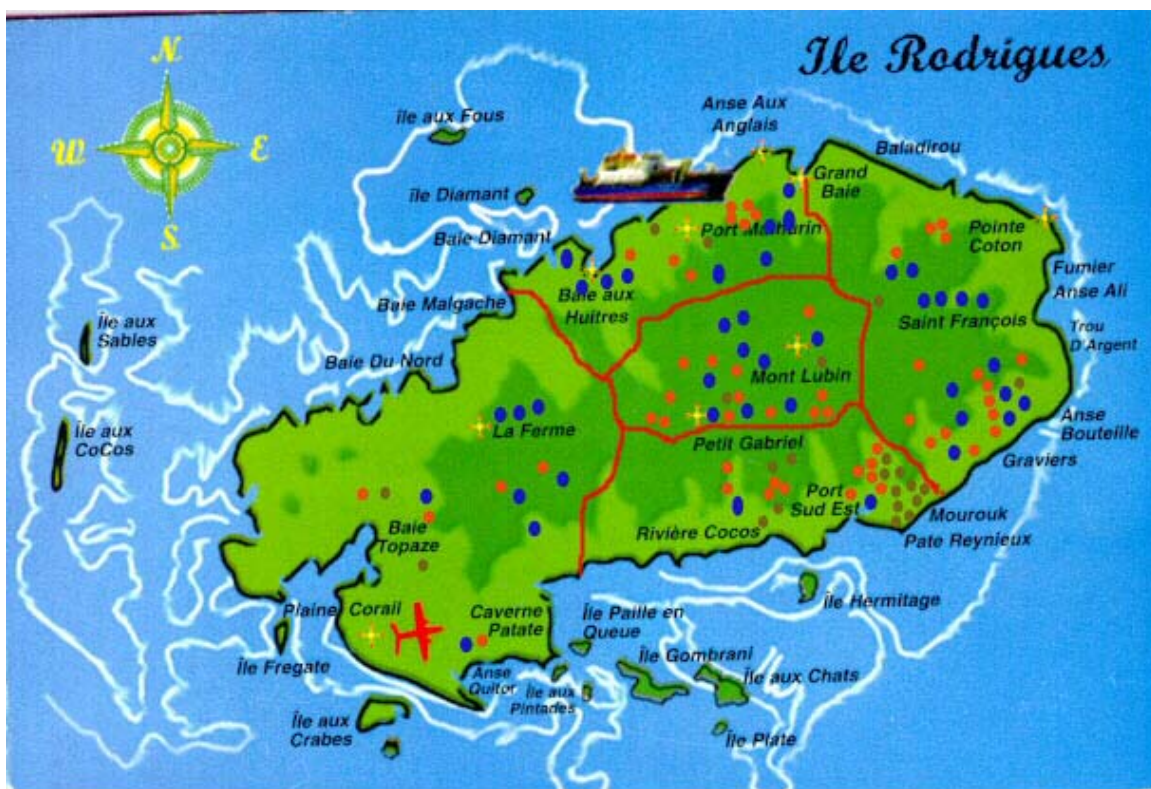
CHAPTER 3

RESULTS

SECTION 3.1: AGRO-PROCESSORS AND ASSOCIATIONS

3.1.1 BACKGROUND OF AGRO-PROCESSORS

The inventory of the agro-processing sector in Rodrigues identified a total of 119 production units in 2005. These agro-processing activities which are scattered throughout the island (Fig. 3.1) involve mainly women (90.8% or 108) at their home place.



KEYS

- Crop and Animal Based Processing Units
- Animal Based Processing Unit
- Crop Based Processing Unit

Figure 3.1: Distribution of the agro-processors sector-wise.

The majority of the crop-based processing plants are located in the North, East and Centre of the island whilst the animal based processing units are concentrated in the Eastern side of the island.

The majority of agro-processors are married (81.5%) and over 25 years of age (88.2%); the young aged between 17 and 25 constituting 11.8% of the population as opposed to 25.2%, for the age group 51 and above. Some 71.4% of agro-processors have studied up to the primary level (36% completed; 35% incomplete), 22.7% have pursued secondary education while only one agro-processor has completed tertiary education.

Agro-processing activities in Rodrigues are predominantly individual (43.7% or 52) or family- based (49.6% or 59), with only 2.5% (3) of businesses being constituted of an association or a company (2 or 1.7%). More than 1 in 2 (54.6%) agro-businesses are run on a full-time basis. The workforce of the industry is estimated at over 300 (some 311), giving an average of 2.61 workers per agro-enterprise. Overall, a total of 187 persons are employed in the sector, of which 106 are permanent and 81 temporary workers; the number of employees per enterprise ranging from 1 to 7. Of this total, 159 are family members.

Some 17.6% of agro-processors have been in the business for less than one year while about 53% counted 5 years of experience or less in the sector (Table 3.1). About 28% of agro-processors, on the other hand, have been in operation for more than 10 years. The main reasons put forward by respondents for joining the business are principally to earn a living (65.1%) or to increase their revenue (82.6%). Other important factors include entrepreneurial drive (53.2%) and the existence of a market for the products (39.4%).

Table 3.1: Number of years business has been in operation

Period (Years)	No. of Respondents	% of Respondents
<1	21	17.6
1 – 2	15	12.6
3 – 5	27	22.7
6 – 8	14	11.8
9 – 10	9	7.6
>10	33	27.7
Total	119	100.0

3.1.2 TYPES OF PRODUCTS

Some 32 different products (**Plate 3, Appendix 13**) are being manufactured by agro-processors in Rodrigues as shown in Table 3.2. The most popular ones are “*Limon Aigre-Doux*” (69%), “*Achard Limon*” (49.1%), “*Limon Piment*” (44.8%), “*Piment Confit*” (40.5%), “*Ourite Piment*” (34.5%), “*Mazavarou*” (34.5%), “*Mangue Piment*” (34.5%), “*Confiture Papaye*” (29.3%). **Appendix 12** provides a complete list of products, with their English names, manufactured by agro-processors.

Table 3.2: Main products manufactured by agro-processors

Product	Responses	% of Cases
Limon Aigre-Doux	80	69.0
Limon Achard	57	49.1
Limon Piment	52	44.8
Piment Confit	47	40.5
Piment Ourite	40	34.5
Mazavarou	40	34.5
Mangue Piment	40	34.5
Papaye Confiture	34	29.3
Tamarin	30	25.9
Poisson Salé	21	18.1
Limon Confit	19	16.4
Bilimbi Confit	19	16.4
Goyave Confiture	17	14.7
Crevette Piment	16	13.8
Ourite Grillé	14	12.1
Saucisses	14	12.1
Carambol	13	11.2
Ourite Sec	12	10.3
Ananas Confiture	11	9.5
Fruit Citere	9	7.8
Fraise Confiture	5	4.3
Achard Legumes	5	4.3
Pamplemousses	5	4.3
Coco	3	2.6
Achard Mangue	3	2.6
Ourite Frais	3	2.6
Ail Achard	1	0.9
Grenadine	1	0.9
Tomates	1	0.9
Saucisses Grillé	1	0.9
Café	1	0.9
Miel	1	0.9

The average sale volumes of some of the products are shown in Table 3.3 below.

Table 3.3: Monthly average sales of popular products

Product	Average Sales (Jars/Month)	Range (Jars/Month)
Piment Confit	71.1	(10 - 300)
Piment Ourite	55.1	(11 - 80)
Mangue Piment	31.8	(6 - 100)
Limon Piment	28.8	(10 - 50)
Aigre-Doux Limon	27.3	(2 - 80)
Achard Limon	20.4	(10 - 80)
Mazavarou	15.5	(10 - 20)

The most easily sold products are “*Piment Confit*” which sells at an average of 71 jars each month followed by “*Piment Ourite*” (55 jars/month), “*Piment Mangue*” (32 jars/month) and “*Piment Limon*” (29 jars/month) and “*Aigre-Doux Limon*” (27 jars/month). Respondents were also asked to list the first four products most in demand. Figure 3.2 shows the most demanded products. “*Limon Aigre-Doux*” is the most preferred product, followed by “*Piment Confit*”, “*Piment Ourite*” and “*Ourite Grillé*”.

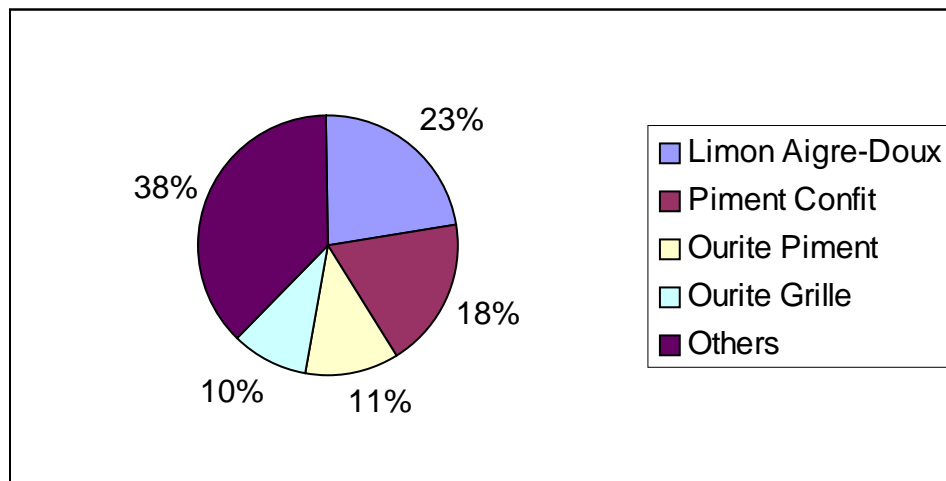


Figure 3.2: Products most in demand

Agro-processors are most experienced in “*Aigre-Doux*” (11.3 years) as shown in Table 3.4. Producers have also about 10 years experience in “*Piment Limon*” and “*Achard Limon*”. Table 3.4 also reveals that there are some relatively new lines of production, namely those products in which producers have approximately one year of experience on average.

Table 3.4: Years Experience in production by types of products

Product	Average (Years)
Limon Aigre-Doux	11.3
Limon Piment	10.4
Limon Achard	9.5
Saucisses	7.0
Ourite Grillé	4.7
Piment Confit	4.6
Mangue Piment	4.4
Ourite Piment	4.4
Mazavarou	4.2
Bilimbi Confit	4.0
Tamarin	3.2
Papaye Confiture	3.1
Poisson Salé	2.9
Limon Confit	2.7
Crevette Piment	2.0
Goyave Confiture	1.9
Fruit Cythère	1.8
Ourite Sec	1.6
Carambol Achard	1.5
Ananas Confiture	1.4
Fraise Confiture	1.3
Pamplemousses Crystalisee	1.3
Achard Legumes	1.0
Achard Ail	1.0
Saucisses Grillé	1.0

3.1.3 CHARACTERISTICS OF RAW MATERIALS

Table 3.5 illustrates the main raw materials used by the agro-processors to manufacture their processed food products. The main plant-based raw materials are lime followed by chili, while animal-based raw materials are mainly octopus, fish and pork

Table 3.5: Main types of raw materials used

Product	Count	%
Limon (Lime)	77	64.7
Piment (Chili)	65	54.6
Ourite (Octopus)	56	47.1
Tamarin (Tamarind)	26	21.8
Poisson (Fish)	19	16.0
Mangue (Mango)	16	13.4
Papaye (Pawpaw)	16	13.4
Bilimbi (Bilimbi)	14	11.8
Pork	13	10.9
Fruit cythère (Golden Apple)	12	10.1
Ananas (Pine Apple)	7	5.9
Crevette (Shrimp)	7	5.9
Goyave (Guyava)	7	5.9
Miel (Honey)	6	5.0
Coco (Coconut)	2	1.7
Pamplemousse (Grapefruit)	1	0.8
Grenadine (Passion fruit)	1	0.8
Tomate (Tomato)	1	0.8

The raw materials used by the agro-processing units emanate mostly from backyard gardening; cultural practices remaining very traditional and small-scale. Agro-processors generally source their raw materials directly from growers (68.2%) and to a lesser extent from their gardens (24.3%) and the market (7.5%). The raw materials which consist principally of lime, chilli and a variety of fruits as well as sea-based products, like fish, octopus and shrimp, are purchased either in bulk

(47.2%) or in small quantities (52.8%). In deciding where to buy their raw materials, agro-processors tend to be influenced by quality (100%) as well as price (88.4%), and to a lesser extent by regularity of supply (41.1%) and proximity of the supplier (14.3%).

The seasonal characteristics of input used by agro-processors in manufacturing their products tends to have an effect on the prices of raw materials in general, depending on the time of the year purchases are made. On average, prices tend to vary between in- and off-seasons. For example the price of lime and chilli which are two commonly used raw materials, varies from 25 cents to Rs 3.00 per unit and from Rs 125/lb to Rs 400 /lb respectively.

A number of problems exist with regard to raw materials as shown in Table 3.6. Around 2 in 3 agro-processors identified high prices (66.7%), poor quality (71%) as well as irregularity of supply owing to the seasonality of products (69.4%) and climatic conditions (54.5%) that result in low accessibility (68.2%) and limited quantity (66.7%), as being very serious.

Table 3.6: Problems encountered with raw materials

Problem	% of Respondents		
	None	Quite Serious	Very Serious
Expensive	8.1	25.2	66.7
Season	9.0	21.6	69.4
Quantity	13.5	19.8	66.7
Availability	7.3	24.5	68.2
Quality	2.8	26.2	71.0
Storage	47.2	23.1	29.6
Climate	19.1	26.4	54.5

The storage of raw materials is, on the other hand, deemed to be less serious, with 47.2% of agro-processors not finding it to be problematic.

The raw materials most frequently stored were lime and chilli, as shown in Table 3.7.

Table 3.7: Main raw materials that are stored

Product	Count	% of Cases
Limon	84	77.8
Piment	66	61.1
Ourite	31	28.7
Tamarin	30	27.8
Mangue	28	25.9
Poisson	16	14.8
Bilimbi	14	13
Fruit cythère	12	11.1
Pork	10	9.3
Papaye	8	7.4
Carambole (star fruit)	7	6.5
Ananas	6	5.6
Goyave	5	4.6
Crevette	2	1.9
Pamplemousses	1	0.9
Café	1	0.9

The raw materials are stored very often in refrigerators and kept in bottles, glass jars, bags, boxes or plastic containers and, depending on the products in question, may last between one and fifteen days, in the case of fruits, octopus, fish and pork and between one day and one year, in the case of lime and chilli kept in brine and vinegar.

The raw materials are processed, using salt and vinegar commonly available on the market, the strength of the preservative used varying from product to product and from one processor to another. In the case of lime and chilli, the ingredients used for processing normally consist of salt and vinegar, while sugar is sometimes used besides salt in processing fruits.

3.1.4 MANUFACTURING PRACTICES

The main types of processing undertaken by agro-processors are pickles (or achard), preservation using sugar (la gelée (jam), aigre-doux (sweet-sour), pate-à-fruits (fruit paste)), salting/drying (salé/sec) and curing (jambon, saltpêtre). Some 67.2% of agro-processors indicated that they use specific equipment for making pickles, as opposed to 58.2% for sugar-based preservation, 12.5% for salting/drying and 62.5% for curing. The equipment utilised in each preparation varies with the products: in the case of pickles and conservation, for example, a grinder is resorted to. Agro-processors, overall, expressed the need for additional equipment like juicers, electric slicers, large knives and chopping boards.

Some 62.7% of agro-processors follow a recipe while manufacturing their products (Figure 3.3). The recipes are mostly traditional ones, emanating from grand-parents and elders (43%), although some 32.9% of agro-processors stated having developed their own or learnt about it while undergoing a training programme.

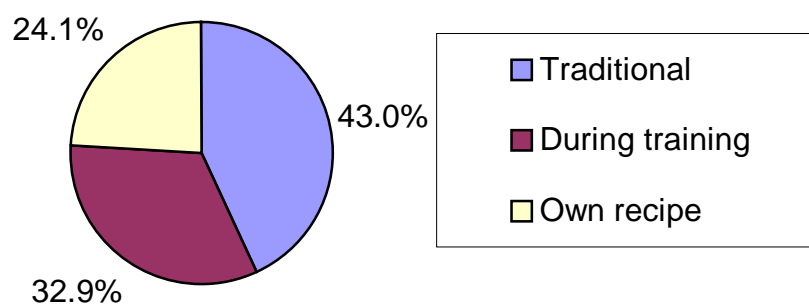


Figure 3.3: Source of recipe

The products are prepared mostly in the kitchen (84.3%) or in a special room reserved for that purpose (12.2%) in the house. In a few cases, the

preparations are carried out in a common room (3.5%). The majority of agro-processors make use of chlorinated tap water (94.1%) while 32.5% treat the water further, using either chemicals (79.4%) or by boiling (20.6%) before use.

The raw materials are washed and cleaned (92.9%), with chemicals (7.1%) being used by some, prior to preparations. The products are then put in jars, bottles, or plastic containers. Only 18.3% of agro-processors weigh their jars/containers before selling their finished products. Some respondents do not weigh their products because they lack a weighing scale while others state that with experience they know approximately the weight of the products based on the jar sizes they use.

The important problem agro-processors meet in manufacturing their products include raw materials, followed by space, ingredients, water, labour, electricity and waste disposal (Table 3.8).

Table 3.8: Factors affecting production

Factors Affecting Production	% of Respondents		
	No Problem	Quite Serious Problem	Serious Problem
Electricity	87.9	7.8	4.3
Water	73	18.3	8.7
Space	45.2	25.2	29.6
Waste	89.6	7.8	2.6
Raw Materials	23.9	37.2	38.9
Ingredients	70.4	16.7	13
Labour	82.3	13.3	4.4

There is general agreement that production can be improved through proper training (63.9%), better equipment (21.3%), improved facilities in

the form of space, finance, etc. (9.3%), innovations (3.7%) and hygiene (1.9%).

3.1.5 PACKAGING MATERIALS

Table 3.9 shows that the packaging used by agro-processors consists mainly of glass jars and to a lesser extent barquettes and plastic containers (**Plate 4, Appendix 13**). Some 27.3% of agro-processors use small packaging and 6.1% large ones, while 66.7% use both large and small packaging; the size of packaging being mainly determined by consumers' preference (72%).

Table 3.9: Types of packaging materials used

Packaging Materials	Responses	% of Responses
Glass jar	77	68.8
Barquette	17	15.2
Other	11	9.8
Plastic	7	6.3
Total	112	100.0

The agro-processors are influenced in their choice of packaging materials by both aesthetic and utilitarian considerations, as reflected in their preoccupation for the look and presentation (40.7%) of their products as well as their conservation (29.6%) respectively. Other reasons put forward by agro-processors for adopting these types of packaging are because they are of the right size (9.3%), are available (8.3%); they are not expensive (5.6%), they can be filled easily (4.6%) and for processing need (1.9%).

The packaging materials are bought from the National Handicraft Promotion Agency (now SEHDA) (77.9%) (**Plate 4, Appendix 13**) and in shops (16.8%) in Rodrigues. Some 3.5% of agro-processors, however,

buy theirs in Mauritius. In over 80% of cases, the packaging materials are treated before being used. Glass jars including bottles are generally boiled, while vinegar and detergent are added to boiling water, in the case of plastic containers and barquettes.

Some 86.7% of agro-processors indicated that they encounter problems with packaging; these relate mostly to their availability (50.5%), high costs (30.5%) and defective materials (5.7%). Because glass jars are not available in sufficient quantity on the market to satisfy their entire requirements, they often have to use plastic containers, as alternative. A few agro-processors ask relatives coming from Mauritius to purchase their packaging. In some cases, cans of '*Ovaltine*' and '*Milo*', bottles **(Plate 4, Appendix 13)** are used for storage purpose. The lack of packaging materials on the market very often disrupts production.

3.1.6 PRODUCT QUALITY AND SAFETY

The majority of agro-processors stated hygiene (cleanliness, use of gloves, hair caps, etc) as the main precautions they take to ensure quality and safety of their products. Some also mentioned that they control the quantity and quality of ingredients used during manufacturing the products.

There exists a high degree of awareness (98.3%) in the sector concerning the life-time or shelf-life of a product. In 60% of cases, the agro-processors themselves determine the shelf-life of their products. Many stated that they keep a sample jar of their products at hand and monitor their taste over time. Some also keep a jar closed and observe the time it takes before it deteriorates. A few do not use any of these methods but rely on their experience and the know-how accumulated over time to

determine the right proportion of ingredients, salt in particular, so that the products last long enough.

According to the agro-processors, the shelf-life of products tends to vary in general, with some products having longer shelf-life than others, as shown in Table 3.10 below.

Table 3.10: Shelf-life of selected products

Product	Shelf-Life
Aigre-Doux Limon	less than 1 year
Limon Piment	1 – 2 years
Achard Limon	1 year
Piment Confit	1 – 2 years
Piment Tamarin	1 – 3 years
Mazavarou	less than 1 year
Gelée	less than 1 year
Piment Ourite	6 months - 1 year
Ourite Grillé	6 months – 1 year
Poisson Salé	6 months – 1 year
Saucisse	2 months – 1 year

Those producers that do not determine the shelf-life of their products state that they do not know how to do so.

To ensure that their products maintain their consistency and quality over time, agro-processors have recourse to various means, the most important being to follow the same recipe all the time (29.2%), to use the right mix of ingredients (25.6%), adopt hygienic norms and procedures (26.9%) and to use uniform size of jars (18.2%).

Agro-producers mostly store their final products in a cool dry place in carton boxes or containers. Fresh sea products are wrapped in plastic films and kept in refrigerators.

The majority (98.3%) of producers control the quality of their products. They do so mostly through observation (37.5%), hygiene (12.5%), tasting of final product (12.5%) and by avoiding moisture or foreign bodies getting into the final product. Storage condition is the main problem associated with product quality and security. Bad storage conditions lead to fungal growth and moisture in the final product. Agro-processors believe that improved storage conditions, better hygiene and training will improve quality of their products.

Some 55.5% of agro-processors indicated that they are conversant with the Food Act, 1998. Of these, 53% have learnt about it during a training programme, 29% through radio and 13% through Ministries (Fig. 3.4).

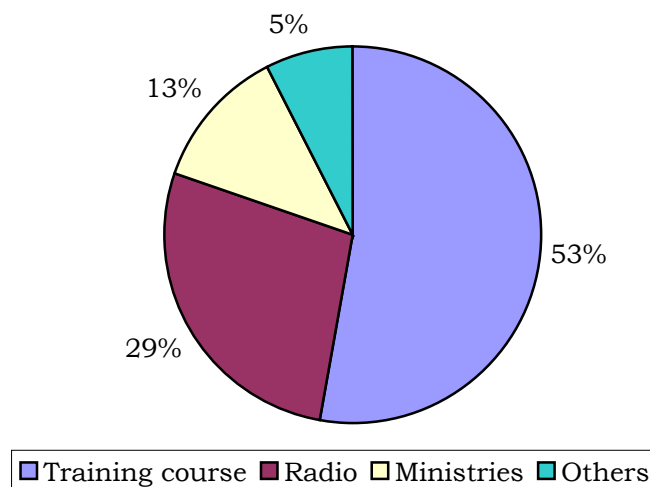


Figure 3.4: Source of Information About Food Act 1998

Some 60.5% of processors possess a Food Handler's Certificate. Most of the latter obtained their certificates between 1992 and 2004. Some producers mention that they renew their certificate every year

3.1.7 LABELLING OF PRODUCTS

Over 3 out of 4 agro-processors (77.4%) stated that they label their products (**Plate 5, Appendix 13**). The main purpose is to provide information to consumers on the contents and ingredients used. Many also see labelling as a means of giving greater publicity to their products, as consumers are able to identify where the product comes from. Furthermore, by providing contact details of the manufacturer, consumers can contact the latter whenever they have problems with their products.

In a high number of cases, the label includes information on the name of the product, the ingredients used, the producer's name, address and telephone number. A few respondents also provide their logo or the name of the country. However, only 18.7% of agro-processors mention the date of manufacture and 53.8% the products' expiry date, or their weight (14.3%) on the labels as shown in Table 3.11.

Table 3.11: Information available on product labels

Information on label	No of Respondents	% of Cases
Product name	90	98.9
Ingredients	77	84.6
Producer's name	71	78
Producer's address	66	72.5
Producer's Tel. No.	64	70.3
Expiry date	49	53.8
Date of manufacture	17	18.7
Weight of produce	13	14.3

The majority of respondents purchase their labels. The cost varies from 30 cents to Rs1.40 depending on whether the label is in '*black and white*' or in '*colour*'.

The problems agro-processors face with labelling relate mainly to high costs (56.3%) and faulty design of labels (27.5%). A few respondents also indicated that there is a lack of facilities (12.5%) for labelling and that they encounter delay in delivery of labels (3.8%). Frequent computer breakdowns while making labels were also reported to be a recurrent problem. Those who import their labels from Mauritius equally experience difficulties.

Respondents advocated two main approaches to encourage proper labelling of products. These include the provision of appropriate training and sensitisation programmes as well as enforcement of regulations, including the imposition of penalty on those who fail to label their products.

The totality of agro-processors (100%) expressed willingness to meet specific conditions attached to production and to adhere to standards and norms in respect of hygiene, quality control and labelling of their products, so as to benefit from the Rodriguan label.

3.1.8 MARKETING OF PRODUCTS

Agro-processors have recourse to multiple outlets for their products (**Plate 6, Appendix 13**), with 69.4% admitting that they sell directly to consumers, 42.3% in markets, 36% through exhibitions and fairs, 18% through associations/cooperatives, 12.6% in supermarkets, 12.6% in hotels. Other less common outlets are through intermediaries, in Mauritius, in concert with other producers and by the roadside (Table 3.12). Only 4.7% of agro-processors, on the other hand, export their products outside Mauritius.

Table 3.12: Types of sales outlets

Types of Sales Outlets	% of Cases
Farm gate	69.4
Market	42.3
Exhibition	36.0
Association	18.0
Supermarket	12.6
Hotel	12.6
Mauritius	8.1
Third person	8.1
Other producers	5.4
On roads	2.7
NHPA	1.8

Of those who sell their products in hotels, 21.1% do so through some form of informal buyer-seller accord, but no contractual agreements are involved.

A majority of agro-processors would like to sell their products in bulk or wholesale (93.2%), as this would increase their rate of turnover as well as their cash flow, thus enabling them to invest in raw materials and produce more. Furthermore, the idea of being able to sell all their products at one go, albeit at a lower price, seems very appealing. A few respondents (6.8%), on the other hand, find their production level too low to contemplate selling in bulk.

Three out of four agro-processors (75.9%) fix their selling price by imposing a mark-up onto the production cost, while some 20.4% use the prevailing market prices as indicators and make a rough estimation. Some 3.7% of respondents, on the other hand, resort to both practices.

The cost of production is generally calculated taking into account the cost of ingredients, packaging, labels, the time put in and transportation. Some respondents mentioned that they make a rough approximation.

Only 1 out of 2 agro-processors (53%) advertises their products. This takes the form of words of mouth in the majority of cases (90.7%). A few use more sophisticated means like exhibition (3.7%) or poster/advertising panel (5.6%) for marketing purpose. Other advertising methods include printing on labels, giving information to hotel clients and displaying products in local shops.

Lack of proper training and information on how to advertise restrain many respondents (47%) from advertising their products. Some agro-processors stated that they might have difficulty to respond promptly to a substantial increase in demand derived from advertising, owing to a lack the production capacity. Others find it to be a waste of resources to advertise their products because the market is too small.

Most respondents think that the taste and quality of their products are what attract customers mostly. The reasonable price charged and the uniqueness of the produce are also deemed to be important.

In spite of the fact that agro-processors are conscious that the products they manufacture are very common, they continue to produce the same products. The major reasons given by respondents to explain this state of affairs are listed in Table 3.13.

Table 3.13: Reasons for producing the same products

Reason	% of cases
Experience and know-how	87.3
Availability of raw materials	49.1
Uniqueness of the product	44.5
Existence of a clientele	37.3
Low investment	30.9
Simple technology required	23.6

Some mentioned that they cannot take the risk to go for other products as the money they get from selling the existing products is an important source of revenue.

However, the marketing of products is not problem-free. Four in 5 agro-processors believed that the price they fetch for their products are not very attractive, given that Rodriguans produce their own and are not willing to buy. Likewise, the competition prevailing in the sector is fierce (37.3%) and pushes many producers to cut down their prices. Some 76.4% of respondents perceived the market to be small, while 71.8% of respondents indicated that not all their products are marketable. Other difficulties faced by agro-processors relate to growing consumers' exigencies (12.7%) and delays by some customers, hotels in particular, to settle their bills (7.3%) in time.

There was strong support amongst agro-processors that sales can improve if there is better product presentation (91%), greater publicity (87.4%) and a common selling point for the products (73%). Respondents also mentioned that ways have to be found to expand the market for the products. They are, however, less optimistic that improved labelling (33.3%) will boost sales.

3.1.9 CLUSTERING OF AGRO-PROCESSORS

Almost 50% of agro-processors express willingness to form part of a group. The main reasons put forward in favour of clustering relate principally to the perceived benefits that can result (92.2%). Thus, some respondents stated that it is easier to share knowledge and experience or to obtain training and other facilities when being part of a group. Also, clustering is believed to be a means *par excellence* for improving competitiveness (52.9%) and, to a lesser extent, for overcoming the difficulties of working alone (14.6%) and for preventing socio-economic exclusion (3.9%).

The lack of willingness to come together on the part of agro-processors (51.3%) is explained by the rivalry attitudes and conflicts that characterise the sector, owing in part to increased competition (81.3%) (Table 3.14). Time constraints also deter them from joining a group. The experience of respondents from working in teams has resulted mostly in a lack of trust between partners (8.3%). However, ignorance of the potential benefits (10.4%) and the ability to cope by oneself (14.6%) are believed to be some other factors contributing to the lack of cooperation in the sector.

Table 3.14: Reasons for unwillingness to join a group

Reasons	% of Cases
Too much competition	81.3
Limited time	68.8
Able to cope	14.6
Unaware of benefits	10.4
Do not trust others	8.3

Nonetheless, 62.1% of agro-processors stated that cooperation exists in the sharing of information (78.3%), raw materials (34.8%) and equipment (20.3%), as well as making joint purchases (11.6%), sales (58%) and

production (2.9%). In a similar vein, cooperation is promoted through personal relationships and takes the form of financial contributions and help in finding clients.

3.1.10 TRAINING OF AGRO-PROCESSORS

Some 68.1% of respondents indicated that they have followed a training programme. Four in 5 of those trained are of the view that the training has been beneficial. The courses followed have helped them: to enhance their work skills (81.4%), to improve their technical know-how (42.9%) and the quality of their products (67.1%) as well as developing new products (50%). However, only a few reported that the training has been of great assistance towards improving their entrepreneurial skills or marketing abilities or techniques (Table 3.15).

Table 3.15: Respondents' perceived training benefits

Training benefits	% of Responses
Improve work	81.4
Improve quality	67.1
Develop new products	50.0
Improve know-how	42.9
Improve management	4.3
Improve marketing	2.9

The majority of those who have not followed any training indicated that they were not aware or given an opportunity to follow a training programme (88.5%) while a few mentioned that the timing was inappropriate (11.5%). Only 3.8% of the respondents indicated that they were not interested, as they thought that the courses were not so important.

There exists a high demand for training within the sector overall, with the majority of agro-processors expressing the desire to follow a course in

food production/preservation techniques (95%), packaging (82.4%), labelling (71.4%), hygiene/food safety/ quality (78.2%), entrepreneurial/business management (71.4%) and sales/marketing (60.5%). The respondents seem enthusiastic about learning new techniques and products, and professional ways of marketing their products and managing their businesses.

Agro-processors, in general, get information about training opportunities principally by words of mouth (63.3%) or radio (55%) and to a lesser extent from raw materials suppliers (17.4%), ministries/associations (12.8%) and advert panels (5.5%). In many instances, the NHPA (now SEHDA) has informed them through the phone.

Many respondents indicated that radio and television could be used to inform them about training being provided as well as to dispense training itself. It is also believed that training can have a more positive impact if it is delivered in Creole, if the timing is appropriate and if follow-up actions are taken, after the courses.

3.1.11 SUPPORT SERVICES FOR THE SECTOR

A number of institutions provide some type of support services to individuals, small businesses and entrepreneurs in Rodrigues. These include, amongst others, the Small and Medium Industries Development Organization (SMIDO), the Development Bank of Mauritius (DBM), the National Handicraft Promotion Agency (NHPA), the Human Resource Centre (HRC), the National Women Entrepreneurship Council (NWECC), the Ministry of Women's Rights, Child Development & Family Care (MWRCDFC), the Ministry of Commerce & Cooperatives (MoCC), the Commission for Agriculture (CoA) as well as Associations/Cooperatives.

According to the study, the majority of agro-processors are aware of these institutions, some of which are better known than others. Thus, the totality of agro-processors have heard about the DBM as opposed to 94.1%- the CoA and the MWRCDFC, 93.3%- the SMIDO, 92.4%- the NHPA, 89.9%- the MoCC, 78.2%- the HRC, 58%- Associations/Cooperatives and 56.3%- the NWECC.

Table 3.16 shows the institutions where the agro-processors are registered.

Table 3.16: Registration of agro-processors

Institution	% of Cases
NHPA	63.0
Associations/Cooperatives	28.6
DBM	21.8
CoA	21.0
SMIDO	11.8
NWECC	10.1
MWRCDFC	5.9
HRC	3.4
MoCC	1.7

The support received by respondents comes mostly from the NHPA (46.2%) and to a lesser extent the SMIDO (23.5%), DBM (22.7%), CoA ((21%), MoCC (21%) and Associations/Cooperatives (17.6%). These include field visits, talks on entrepreneurship, participation in exhibition, advice on expanding business and financial assistance.

Respondents were asked to indicate the type of help they would need to develop their business further. Some 73.9% indicated that they would require a loan. In most of the cases, this would be used to buy equipment (96.4%) or put the enterprise on more solid ground (77.4%) or improve the workplace (17.9%). On the other hand an overwhelming majority (96.6%) express the need for having greater information. The

information sought relates to the type machines to use (96.5%), the source of the equipment (96.5%) as well as source of raw materials (93.8%). Many respondents (79.8%) also emphasise the need for having training. The training solicited relates mainly to financial advice.

3.1.12 INNOVATION

Nearly 7 out of 10 agro-processors (68.1%) have tried to innovate or bring changes in their business. Figure 3.5 illustrates the different types of innovation done by agro-processors (**Plate 7, Appendix 13**).

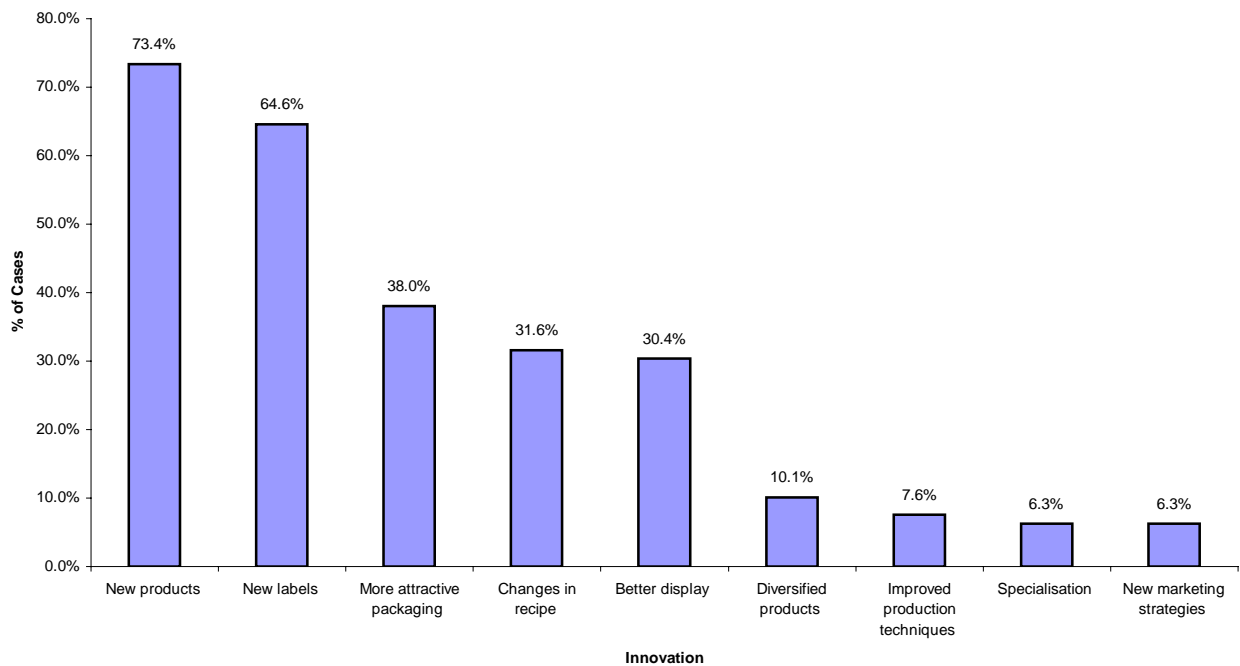


Figure 3.5: Types of innovation

For those who have never innovated (39.1%), lack of know-how, insufficient support and lack of finance are given as the main explanations (Figure 3.6).

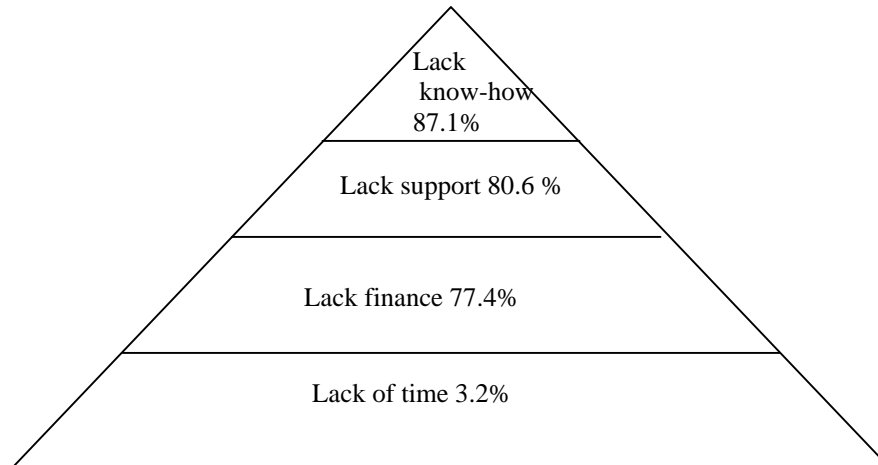


Figure 3.6: Reasons for not innovating

3.1.13 CONSTRAINTS AND SUGGESTIONS TO IMPROVE THE SECTOR

Table 3.17 illustrates the different constraints faced by the agro-processors. Availability of raw materials (78.3%) seems to be the major constraint.

Table 3.17: Constraints faced by agro-processors

Constraints	Responses	% of Cases
Raw materials	90	78.3
Financial	27	23.5
Labour shortage	27	23.5
Packaging	21	18.3
Space (sell,store etc.)	15	13.0
Marketing	13	11.3
Transportation	12	10.4
Equipment	3	2.6

A number of suggestions have been made by respondents (Fig. 3.8) for promoting the development of the agro-processing industry in Rodrigues,

the most important ones include organised marketing (36.6%), capacity building in terms of training and technical advice (31.3%), facilities for storage, equipment, etc (28.6%), space to produce and sell (25.9%) and finance (21.1%). Although the availability of raw materials constitutes the single most important bottleneck to the smooth development of agro-processing activities on the island, only 8% of responses point to the need to ensure reliability and regularity of supply of raw materials, as a means for the effective functioning of the sector.

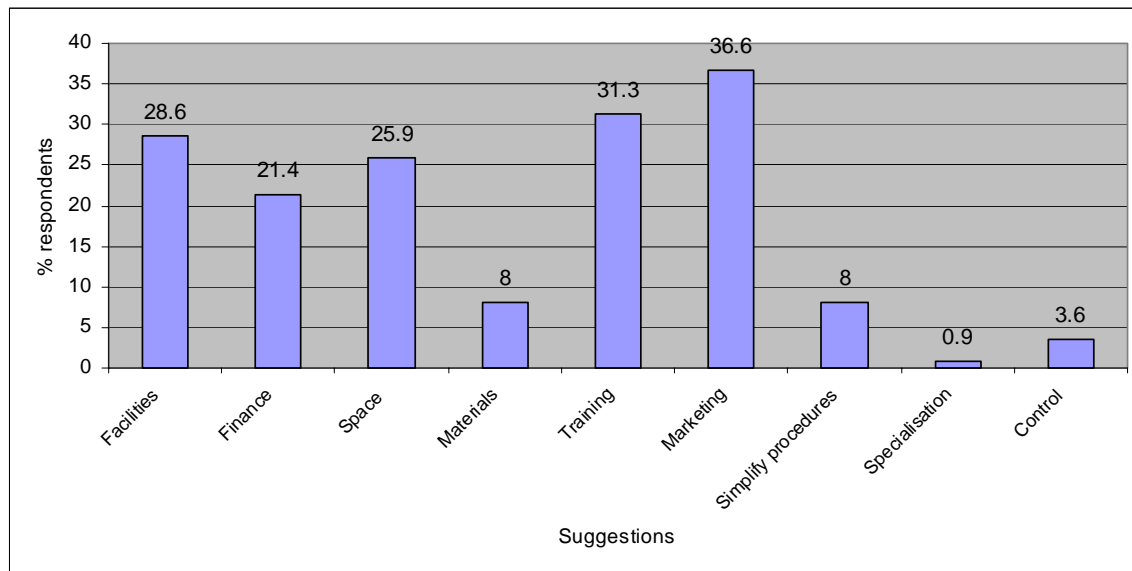


Figure 3.7: Suggestions to promote the development of the sector

3.1.14 FUTURE DEVELOPMENT

The near-totality of agro-processors expressed the wish to expand their business, both in terms of the volume produced (99.1%) and diversity of products (98.2%). The strategies they propose consist of increasing production, quality as well as better marketing strategies. The main reason for wanting to expand their businesses was to increase revenue. Only one respondent did not want to develop his activities further owing to financial problems and limited market.

3.1.15 RESULTS FROM SURVEY WITH ASSOCIATIONS

There are ten associations in Rodrigues involved in agro-processing and one member of the different associations was interviewed. Table 3.18 gives the list of associations and their dates of creation.

Table 3.18: List of associations in Rodrigues

Number	Association	Date of creation
1	Rodrigues Entreprendre aux Feminin	2001
2	Association Emeraude	1975
3	Etoile de L'Ouest	2005
4	Rodrigues Food Processing Multipurpose Cooperative Society	1997
5	Association Feminine Anse Quitor-Corail	1990
6	Association Feminine Montagne Goyave	1983
7	La Goute Creole	2003
8	Le Flamboyant	1992
9	Camilla Food Processing Cooperative Society	1989
10	Federation des Femmes Entrepreneurs Rodriguais	2004

The first association that was set up was Association Emeraude in 1975 and the most recent one is Etoile de l'Ouest, created in 2005. The number of members in the different associations varies from 5 to 293. Many of the members are full-time and permanent members. The most common requirement for membership in an Association is an entrance fee and monthly fee thereafter. The other desirable eligibility criteria are knowledge in processing and handicraft and possession of a Food Handlers' Certificate. The running of the Association is mainly done through monthly meetings, where work plans and problems are discussed. Participations in other activities such as exhibitions are also discussed.

As a member of an Association, facilities such as marketing of products in Port Mathurin, eligibility for training and financial help can be enjoyed.

The main activities of these associations relate mainly to the following:

- Joint marketing of products
- Participation in exhibitions and fairs
- Production of handicrafts and agro-products
- Organization of training programmes in the various economic activities
- Sharing information and knowledge
- Participation in high level meeting of the relevant Commissions' so as to be more in touch with policies and developments in the respective economic activities
- Exchange of ideas with other women entrepreneurs in Rodrigues, Mauritius and other countries
- Providing advice to its members as well as non-members.

The main reasons put forward by the members given for joining an association are to:

- share ideas
- participate in training and seminars
- have recognition from authorities
- benefit from loans and possible dividends
- be eligible for participation in micro-projects

Some of the main constraints faced by the members of associations are:

- Lack of raw materials
- No location for their centre
- Poor networking between associations
- Marketing problem
- Lack of finance
- Limited selling points
- Inadequate equipment
- Labelling problems
- Lack of training
- Low sales of products
- Poor storage facilities for excess raw materials and processed products
- Low participation from members.

Some suggestions put forward for encouraging people to form part of an association are the possibility to:

- share ideas and find solutions for 'day to day' problems
- have better marketing strategy
- provide loans
- have more relevant training
- demonstrate efficiency and effectiveness of association to lobby policy makers to improve the situation of the agro-processors.

SECTION 3.2: PROVISION OF SUPPORT SERVICES

3.2.1 OVERVIEW

There are currently 12 service providers that provide support to the small and medium enterprises (SME's), including agro-processing enterprises in Rodrigues. They can be broadly classified in two categories: Government sponsored institutions and externally funded institutions.

3.2.2 OBJECTIVES OF SERVICE PROVIDERS

The institutions surveyed have been set up in Rodrigues with specific purposes. Even though each of the service providers has different objectives, their main goal is to provide support to small and medium enterprises. Table 3.19 summarises the various objectives for each institution.

Table 3.19: The main objectives of service providers

Institutions	Objectives of Service Providers
<i>Government supported institutions</i>	
Industrial and Vocational Training Board (IVTB)	<ul style="list-style-type: none">• Provision of relevant training in the various economic sectors.• Training of young persons before employment
The Development Bank of Mauritius Ltd (DBM Ltd)	<ul style="list-style-type: none">• Provision of soft loans for emerging and existing entrepreneurs
Agro-Processing Unit (AGPU) {Commission for Agriculture, Food Production, Housing, Infrastructure, Plant and Animal Quarantine, Transport}	<ul style="list-style-type: none">• Provision of support and services to entrepreneurs for the production of safe and quality foods.
Small And Medium Industries Development Organization (SMIDO)	<ul style="list-style-type: none">• Promotion of development of SME• Promotion of export oriented SME
Trust Fund for The Social Integration of Vulnerable Groups (Trust Fund)	<ul style="list-style-type: none">• Financing of Micro enterprises in collaboration with DBM• Reduction of poverty by providing micro credits• Developing new strategies to reduce poverty• Integration/improving the quality of life of vulnerable groups

Table 3.19: (ctd)	
Institutions	Objectives of Service Providers
Health Office {Commission For Health, Prisons & Reform Institutions, Cooperatives & Fire Services}	<ul style="list-style-type: none"> • Inspection of buildings, sales outlets and environment • Approval of trade licenses • Provision of pre-market approval permits • Provision of building permits • Sampling of water
Commission De La Femme {Commission For Arts & Culture, Child Development, Family Welfare & Community Development, Women's Affairs, Library Services} (Commission De La Femme)	<ul style="list-style-type: none"> • Promotion of the development of woman entrepreneur through training and other activities • Helping in participation in forums • Revamping the entrepreneurial sector
Human Resources Centre {Commission For Education and others}	<ul style="list-style-type: none"> • Acting as a facilitator for the promotion of capacity- building in Rodrigues • Provision of career counselling services • Facilitating the linkage between requests for training offers • Provision of documentation and ICT resources to facilitate the training/learning process
National Handicraft Promotion Agency (NHPA)	<ul style="list-style-type: none"> • Promotion of handicraft development at the national and regional level • Provision of training and support services for the development of local craft works • Promotion of marketing and sale of handicraft products • Provision of documentation services
L'Atelier de Savoir	<ul style="list-style-type: none"> • Training of youngsters • Giving advice/guidance on employment and appropriate courses
International Donors	
International Fund for Agricultural Development- Rural Diversification Programme (IFAD – RDP) (1999-2006)	<ul style="list-style-type: none"> • Alleviation of poverty • Granting micro credits • Helping in the promotion of fishery and agriculture • Provision of training
Association Cooperative des Caisses Villageoises {Levé Deboute De Rodrigues Ltee}	<ul style="list-style-type: none"> • Alleviation of poverty

3.2.3 PROFILE OF SERVICES PROVIDED

These institutions provide different types of services to enterprises that can be broadly classified as technical, information, management and financial assistance. Table 3.20 presents a profile of these various services.

Table 3.20: Services provided by the institutions

Institutions	<i>Services Provided by the Institutions</i>			
	<i>Finance</i>	<i>Training</i>	<i>Technical advice / Business planning / Project write up/ Guidance/ Counselling</i>	<i>Documentation /Information</i>
Government supported institutions				
IVTB		✓		
DBM Ltd	✓			
AGPU		✓	✓	
SMIDO		✓		✓
Trust Fund	✓			
Health office		✓		
Commission de la Femme		✓	✓	
Human Resources Centre	✓	✓	✓	✓
NHPA		✓	✓	✓
L'Atelier de Savoir		✓	✓	
International Donors				
IFAD – RDP	✓	✓		
Levé Deboute De Rodrigues	✓			

3.2.3.1 Main services offered

Finance

Finance is provided in the form of micro credits, loan facilities, grants and funding for training. The institutions that provide finance are DBM Ltd, SMIDO, Trust Fund, Human Resources Centre, IFAD – RDP and Association Cooperative des Caisses Villageoises under the Levé Diboute-EU programme. DBM Ltd finances new entrants or existing

entrepreneurs by allocating micro-credits and loan facilities. SMIDO, for example, offers 50% rebate on raw materials from Mauritius. The Trust Fund offers grants to recognized/organized groups of vulnerable families and micro-credit facilities. The Human Resource Centre provides funding for training. IFAD-RDP also provides funding to its clients for participating in fairs and exhibitions. The “*Association Cooperative des Caisses Villageoises*” offers micro-credits to start up new businesses.

Training

Training is offered by a number of institutions, namely IVTB, SMIDO, Health Office, Agro Processing Unit, Commission de la Femme, Human Resources Centre, NHPA, L’Atelier de Savoir and IFAD – RDP. L’Atelier de Savoir targets youngsters of 16 to 21 years. However, training for agro-processors is mainly carried out by the NHPA.

Technical advice and business planning

SMIDO is involved in business counselling and facilitation together with providing technical assistance. NHPA provides counselling and guidance; Human Resource Centre offers career guidance, L’Atelier de Savoir provides advice and guidance on employment and appropriate courses and the Commission de la Femme provides advice and guidance and general support to the sector.

Documentation

The SMIDO, Human Resource Centre and NHPA provide on-site documentation facilities to their clients.

3.2.4 SERVICES DEMANDED BY CLIENTS BUT NOT PROVIDED BY SUPPORT SERVICES

Table 3.21 summarizes the services requested by agro-processors. Unfortunately the institutions cannot entertain many of these, as they are not within their mandate. It is noted that financial assistance was the mostly demanded service.

Table 3.21: Types of services required by clients but not provided by service providers

Institutions	Services demanded but not provided
<i>Government supported Institutions</i>	
DBM Ltd	<ul style="list-style-type: none"> • Working capital/ equipment
Agro-Processing Unit	<ul style="list-style-type: none"> • Certification of products
SMIDO	<ul style="list-style-type: none"> • Financial facilities • Secretarial facilities
Trust Fund	<ul style="list-style-type: none"> • Mechanization • Macro-Credits • Marketing Facilities • Financial support for the pig sector • Equipment for fishing
Health office	<ul style="list-style-type: none"> • Licence to operate
Commission de la Femme	<ul style="list-style-type: none"> • Financial support • Writing up of project
NHPA	<ul style="list-style-type: none"> • Financial facilities
<i>International Donors</i>	
IFAD – RDP	<ul style="list-style-type: none"> • Individual projects for setting up small enterprises
EU- Léve Deboute Programme	<ul style="list-style-type: none"> • Request for more loans at the setting up of the enterprise

3.2.5 ELIGIBILITY CRITERIA

Table 3.22 shows the various eligibility criteria for clients who wish to avail of the facilities offered by the following institutions, to develop their business activities. Some institutions are quite liberal in provision of their services, as they do not have any eligibility criteria while others (e.g., DBM Ltd.) are more stringent as they require more than one eligibility criteria.

Table 3.22: Eligibility criteria for clients

Institutions	Eligibility Criteria
Government supported institutions	
IVTB	<ul style="list-style-type: none"> • NTC level 3 – Form 3 onwards • Hotel industry; food production – SC* • Certificate in computer applications- SC/HSC**
DBM Ltd	<ul style="list-style-type: none"> • Food Handlers' Certificate • Holder of a valid development permit and trade licence • Guarantee required for loan
SMIDO	<ul style="list-style-type: none"> • Registration required
Trust Fund	<ul style="list-style-type: none"> • Monthly Income less than or equal to Rs 6000
Health office	<ul style="list-style-type: none"> • None
Commission de la Femme	<ul style="list-style-type: none"> • None
Human Resources Centre	<ul style="list-style-type: none"> • None
L'Atelier de Savoir	<ul style="list-style-type: none"> • Age (between 16-25 years old)
NHPA	<ul style="list-style-type: none"> • None • Registration required for participation in fairs
Donors	
IFAD – RDP	<ul style="list-style-type: none"> • Low-income earner (Rs 3000) • No guarantee needed
Léve Diboute programme	<ul style="list-style-type: none"> • Age: less than 18 yrs • Monthly family income of less than Rs 2000 Head of the household

* School Certificate

** Higher School Certificate

The Health Office, Commission de la Femme, Human Resources Centre and NHPA are the institutions that do not impose any eligibility criteria for agro-processors to access their services. For those who want to participate in fairs, registration with SMIDO and NHPA is required. DBM Ltd requests a Food Handlers' Certificate, a valid development permit and guarantee before giving a loan. The Trust Fund, Association Cooperative des Caisses Villageoises and IFAD – RDP target mainly the most vulnerable groups and low-income earners.

3.2.6 CONSTRAINTS EXPERIENCED BY SERVICE PROVIDERS

The various constraints that the service providers face while performing their duties are indicated in Table 3.23.

Table 3.23: Major constraints faced by services providers

	Major Constraints Faced In Providing Services To Clients				
Institutions	Finance	Personnel	Administrative procedure	Communication	Other constraints
IVTB	✓	✓			<ul style="list-style-type: none"> • Insufficient Media Coverage • Lack of internet access
DBM Ltd					<ul style="list-style-type: none"> • Lack of provision of security or guarantee for loans • Meeting of prerequisite conditions for securing loan
Agro Processing Unit		✓			<ul style="list-style-type: none"> • Lack of training for personnel • Lack of equipment and infrastructure
SMIDO		✓			<ul style="list-style-type: none"> • Lack of space for documentation • Lack of internet access • Lack of transport Facilities
Trust Fund		✓	✓	✓	<ul style="list-style-type: none"> • Lack of active participation from recipients
Health office	✓	✓		✓	<ul style="list-style-type: none"> • Costly food tests • Sample of foods have to be grouped and accompanied by authorized officer for testing to Mauritius
Commission de la Femme				✓	
Human Resources Centre		✓			
NHPA		✓	✓		<ul style="list-style-type: none"> • Lack of transport Facilities
L'Atelier de Savoir	✓		✓		
IFAD – RDP			✓		
Léve Deboute programme	✓	✓			

3.2.6.1 Personnel

Eight institutions out of 12 pointed out that lack of staff is the major constraint that impedes them from providing services to their clients. More technicians, field officers and health officers are required.

3.2.6.2 Finance

Limited financial resource for staffing and logistics is another constraint faced by four out of the 12 institutions.

3.2.6.3 Administrative procedure

Three out of the 12 institutions mention lengthy administrative procedures as a constraint and this often discourages the potential beneficiaries (Trust Fund, NHPA and IFAD-RDP).

3.2.6.4 Internet Facilities

The unavailability of internet facilities and online libraries and slow internet's bandwidth (mentioned by the IVTB and SMIDO) limit access to information and limit the communication between institutions.

3.2.6.5 Transport Facilities

Another reason for the inability of service providers to effectively extend their services to their clients is the lack of transport facilities (SMIDO and NHPA) especially where site visits and follow up with processors need to be carried out.

3.2.6.6 Communication

Poor communication either between the institutions, or between the institutions and its clients, hinders the work of some service providers. The Health Office specifically mentioned about the poor communication facilities between Rodrigues and Mauritius. The low educational level of agro-processors is also often a barrier to effective communication.

3.2.6.7 Other constraints

Seven out of 12 service providers faced other problems such as: inadequate logistics, costly food tests, lack of equipment and inability of clients to provide security or guarantee for their loans.

3.2.7 SUGGESTIONS TO PROMOTE EFFECTIVENESS & SERVICES OF SUPPORT INSTITUTIONS

The majority of the service providers use the different forms of extension methodologies to promote their services. Radio and TV are the principal means for promoting their services followed by printed materials such as pamphlets, posters and the press. The other methods are mainly talks, trainings, exhibitions, open days, meetings with field officers and informal meetings on the field. The Human Resource Centre and Association Cooperative des Caisses Villageoises reported that they do not promote their services, as the institutions are well known. Table 3.24, illustrates the different ways that institutions promote effectiveness of support institutions and their services.

Table 3.24: Suggestions to promote effectiveness and services of support institutions

Institutions	Ways To Promote Effectiveness	Ways To Promote Services
Government supported institutions		
IVTB	<ul style="list-style-type: none"> • Organization of open days • Promotion through aggressive marketing in colleges, and orientation in Rotary club 	<ul style="list-style-type: none"> • Advertisements in Radio and Press (e.g. “Rodrigues en Question” for Agriculture) • Distribution of pamphlets
DBM Ltd	<ul style="list-style-type: none"> • Mobile DBM bank to reach public at large 	<ul style="list-style-type: none"> • Talks in colleges, school leavers • Advertisements in radio, • Participation in NHPA /SMIDO training • Distribution of pamphlets in food and agricultural fairs
AGPU	<ul style="list-style-type: none"> • Registration of agro-processors • Prevention of duplication of services / support offered by different institution 	<ul style="list-style-type: none"> • Informal meetings with group leaders • Advertisements in radio
SMIDO	<ul style="list-style-type: none"> • Recruitment of more staff • Acquisition of more transport facilities • Acquisition of more rapid internet facilities • Establishment of more communication from other support institutions • More collaboration with regional government 	<ul style="list-style-type: none"> • Advertisements in radio, press and TV • Distribution of pamphlets on different services • Provision of information during training sessions
Trust Fund	<ul style="list-style-type: none"> • Advertisements in TV and Radio • Broadcasting of success story of vulnerable recipient on TV • Regular meetings • Training of staff 	<ul style="list-style-type: none"> • Advertisements either in Radio, TV, Press or via press conferences • Distribution of pamphlets
Health office	<ul style="list-style-type: none"> • Recruitment of more staff • Regular training for staff 	<ul style="list-style-type: none"> • Advertisements in Radio • Holding of courses and visits at MOH office
Commission de la Femme	<ul style="list-style-type: none"> • Better dissemination of information • Recruitment of more staff • Acquisition of internet facilities 	<ul style="list-style-type: none"> • Advertisements in Radio • Meetings • Talks
Human Resources Centre	<ul style="list-style-type: none"> • Improvements of expertise in different fields • Provision of a career counsellor and a library officer 	<ul style="list-style-type: none"> • None as it is well known
L'Atelier de Savoir	<ul style="list-style-type: none"> • More financial assistance • Recruitment of more staff • Bigger and better Infrastructural facilities 	<ul style="list-style-type: none"> • Organization of Exhibitions, Expo-Vente • Organization of job fairs, open days • Advertisements in Radio, TV, and Youth Centres

Institution	Ways To Promote Effectiveness Of Support Institutions	Ways To Promote Services
NHPA	<ul style="list-style-type: none"> • Administrative decisions to be taken locally (NHPA to be attached to RRA) • Recruitment of more staff • Restructuration of unit - merging with SMIDO • Acquisition of more transport facilities • Creation of one-stop shop • Development of a shop for sales of packaging materials in collaboration with Agro Processing Unit 	<ul style="list-style-type: none"> • Holding of more training courses • Advertisements in Press and Radio (regular programmes) • Direct contact with field officers • Distribution of pamphlets
International Donors		
IFAD – RDP	<ul style="list-style-type: none"> • More follow-up to be carried out • Promotion through aggressive marketing • More training courses to be held 	<ul style="list-style-type: none"> • Advertisements in Radio and in Press • Promotion of the institution in Youth clubs/Groups and on the field
Léve Diboute programme	<ul style="list-style-type: none"> • More active participation of beneficiaries • More training and follow up to be carried out • Recruitment of more staff 	<ul style="list-style-type: none"> • Nothing special as it is well known

3.2.8 NETWORKING OF SERVICE PROVIDERS

All the institutions work alongside other service providers. NHPA and SMIDO are the organizations with which most of the service providers' network. NHPA and SMIDO collaborate in training and organization of fairs. The other institutions also network between themselves.

3.2.9 FOLLOW UP OF ACTIVITIES

All the institutions claim to follow-up the services provided. Follow-up is done through site visits, meetings, tracer studies, counselling, information sessions, evaluation of training sessions, inspection of products and documentation.

All the institutions, except IVTB, Human Resource Centre and L'Atelier de Savoir undertake regular site visits to their clients. The Human Resource Centre does an evaluation of training sessions. The Trust Fund and NHPA have regular meetings /debriefing sessions with their clients. IVTB conducts tracer studies for the whereabouts of their trainees. SMIDO and NHPA also do counselling and field visits. The Trust Fund has information sessions with its clients while the Health Office carries out site visits and inspection of products.

3.2.10 VIEWS OF SERVICE PROVIDERS ON THE SECTOR

3.2.10.1 Major constraints in the sector

The majority of the service providers perceived the following as major constraints:

- Seasonality of products and inadequate raw materials
- Lack of storage facilities for surplus of raw materials
- Lack of hygiene
- Insufficient packaging materials
- Lack of facilities for shelf-life determination and product testing
- Poor product presentation and labelling
- Lack of training
- Poor knowledge on financial management of business
- Delay to obtain permit to operate, which is needed for loan and land
- Poor marketing of the products mainly due to saturated market in Rodrigues
- Lack of infrastructure (water, roads)
- Lack of finance
- Lack of interest in the younger generation

3.2.10.2 Suggestion for improving the agro-processing sector

Table 3.25 summarises the suggestions that have been put forward by service providers to improve the agro-processing sector.

Table 3.25: Suggestions to improve the agro-processing sector

Constraints faced by Agro-Processors	Suggestions
Poor Hygiene and Product Quality	<ul style="list-style-type: none"> • Improvement of the quality of products • Standardisation of products • Development of a quality label • Production within norms • Enforcement of law on hygiene practices • Setting up of food testing facilities • Setting up of a standards bureau for Rodrigues
Marketing	<ul style="list-style-type: none"> • Promotion through marketing campaigns of products locally/ regionally/ internationally • Setting up of marketing agency to buy and sell all processed products • Tapping of the tourism industry as potential market • Building up of a market place according to norms • Scaling up of production to achieve economies of scale • Setting up of a 'distribution filière' to Mauritius
Training	<ul style="list-style-type: none"> • More training in relevant field • More follow-up on training courses • Setting up of a well equipped training centre • Training a new generation of agro-processors with certain basic education level
Professionalism	<ul style="list-style-type: none"> • Training to change attitude and mentality and to develop appropriate mindset
Infrastructure and institution	<ul style="list-style-type: none"> • Development of storage facilities for products • Provision of adequate and clean water • Creation of a one stop shop for agro-processors • More networking (intranet/internet) between support institutions • Creation of centralised processing units with appropriate equipment
Packaging materials	<ul style="list-style-type: none"> • Ensuring a regular supply of packaging materials

SECTION 3.3 (A) CONSUMER SURVEY OF VISITORS TO RODRIGUES

3.3.1 AWARENESS OF PRODUCTS

All the respondents (57) were aware of Rodriguan processed food products. In 71% of cases, they became familiar with these products while travelling to Rodrigues, while in 40% of cases, respondents knew of these products through “word of mouth”. The other means of awareness are shown in Table 3.26.

Table 3.26: Means of awareness for Rodriguan produce

Means of awareness	Responses	% of Cases
When travelling to Rodrigues	37	71.2
Family / Friends	26	50.0
Word of Mouth	21	40.4
Television / Radio	4	7.7
Newspaper	1	1.9

3.3.2 SOURCE OF PRODUCTS

Some 55.4% of respondents purchased food products manufactured in Rodrigues. Some of the reasons put forward by the 44.6% of the respondents who did not buy these products were that the same type of products was available locally in Mauritius and in Reunion Island; the products were not readily available, were too costly and that the quality of the products remained doubtful.

The majority of the respondents (81.1%) who bought the products did so in Rodrigues whilst only about 3% bought them in Mauritius. The other ways through which they obtained the products were as gifts from families travelling to Rodrigues (16.2%).

3.3.3 REASONS FOR PURCHASING PRODUCTS

Table 3.27 summarizes the main reasons motivating the respondents to buy these products. The good quality (78.6%), unique taste (71.4%) and affordable price (60.7%) of the products were major decisive factors.

Table 3.27: Reasons for buying the products

Reason	Responses	% of Cases
Good quality	22	78.6
Unique taste / product	20	71.4
Affordable price	17	60.7
Readily available	14	50.0
Presentation / Attractive packaging	8	28.6

3.3.4 TYPES OF PRODUCTS

Out of the 15 different types of products purchased by the respondents, “*Aigre Doux Limon*”, “*Achard Limon*” and “*Piment Confit*” were the most preferred ones (Table 3.28)

Table 3.28: List of products bought by respondents

Product bought	Number of Respondents
Piment Confit	19
Aigre Doux Limon	17
Achard Limon	13
Piment Ourite	9
Ourite Sec	7
Piment Aigre Doux	4
Limon Confit	2
Mazavarou Piment Vert	2
Poisson Salé	2
Saucisse	2
Ourite Grillée	1
Papaye Confit	1
Piment Limon et Gingembre	1
Piment Olive	1
Piment Tamarin	1

Some 75.6% of consumers preferred Rodriguan processed food products compared to similar ones available in Mauritius. The main reasons stated for their preference of Rodriguan processed food products over Mauritian products were:

- ❖ Freshness of products,
- ❖ Refined texture,
- ❖ Uniqueness of the product and taste,
- ❖ Absence of preservatives,
- ❖ A lower degree of spiciness and
- ❖ Bio-nature of foods.

3.3.5 PLACE OF PURCHASE

Table 3.29 shows the places where respondents purchased the products. More than 3 out of 4 travellers bought these from the market in Port Mathurin and stalls either along the road throughout the island or in the vicinity of Port Mathurin.

Table 3.29: Place of purchase for processed products

Place of purchase	% of Cases
Market in Port Mathurin	75.9
Stalls along the road through the island	55.2
Stalls in the vicinity of Port Mathurin	24.1
Directly from the producer	13.8
Hawkers	10.3
Mauritius market	6.9
Mauritius local shops	6.9
Mauritius supermarkets	3.4
Associations	3.4
Fairs/ Exhibitions	3.4

3.3.6 PRODUCT SATISFACTION

The majority of the interviewees were satisfied (95.5%) with the Rodriguan food products. Their degree of satisfaction ranged from “*very satisfied*” (78.6%) to “*satisfied*” (21.4%). However, there were a few consumers (4.5%) who were not satisfied with these products. The main reasons stated for their dissatisfaction were: bad experience with the products, unhygienic manufacturing practices, lack of labelling, no mention of expiry date and lists of ingredients, poor presentation of the products and presence of excessive colour and additives.

Some 90.7% of the respondents had no problems with Rodriguan processed food products. Those who had a problem stated that the products were too salty, poorly packed and presented.

3.3.7 PURCHASE CRITERIA

In the majority of cases, respondents verified closely the appearance of the product (77.5%) and the expiry date (70.0%) before buying the products. The other checks carried out were in respect of: the list of ingredients (52.5%), packaging (40.0%), manufacturing date (30%) and details in respect to the producer (27.5%).

3.3.8 IMPROVEMENTS IN PRODUCT QUALITY AND PACKAGING

In over 80 % of cases, respondents made several proposals for improving the quality of the products. These included appropriate labelling and better presentation of the products, mention of expiry date and the list of ingredients and adoption of hygienic practices during manufacture. Some 29.7% of them mentioned that the agro-processors should follow a standard recipe to improve their product quality and safety.

3.3.9 SUGGESTION FOR IMPROVING MARKETING OF PRODUCTS

Respondents made the following suggestions to improve marketing of these products:

- Advertising the products locally, nationally and abroad.
- Improving labelling and packaging.
- Displaying products in a more attractive environment.
- Improving the pricing mechanism.
- Increasing availability in supermarkets and shops.
- Producing consistent and good quality produce.
- Improving hygienic practices during manufacturing.
- Certifying the trueness of the Rodriguan products.
- Diversifying into new products.

3.3.10 OTHER COMMENTS

The consumers also made some general comments, which are as follows:

- Air tickets are becoming too expensive and thus a less attractive destination for tourists.
- Sale of more health-friendly products (reduced oil content).
- All agro-processors should be registered and a regulatory body should monitor their products.
- Product innovation should be brought about while keeping the uniqueness of the Rodriguan products.

SECTION 3.3 (B) CONSUMER SURVEY IN MAURITIUS

3.3.11 AWARENESS OF PRODUCTS

The majority of respondents, or some 189 out of 200, indicated that they were aware of Rodriguan processed food products. Table 3.30 shows the different channels through which respondents got to know about these products. 62.5 % learnt of them from family or friends, 44% through words of mouth, 40% from trade fairs, 26.6% from television/radio, and 20.1% from newspaper. Over 1 in 3 (35.9%) came into contact with the products while they visited the island.

Table 3.30: Means of awareness of Mauritian consumers

Means of awareness	Responses	% of Cases
Family and Friends	115	62.5
Word of Mouth	81	44.0
Trade fairs and Exhibitions	74	40.2
When travelling to Rodrigues	66	35.9
Television and Radio	49	26.6
Newspapers	37	20.1

3.3.12 SOURCE OF PRODUCTS

Nearly 22% of the respondents admitted not to have bought any processed food products from Rodrigues. The main reasons given were that similar local products were available, Rodriguan products were not readily accessible on the market, the products were costly and they had doubts about the quality of the products. A lack of awareness about the manufacturing processes and the hygienic practices also deterred them from purchasing Rodriguan products.

Most of the respondents (76%) who indicated having used Rodriguan processed food products obtained these in the form of gifts from families and relatives while visiting the island. The other means of obtaining the products were through purchases in Mauritius (54.5%) and Rodrigues (44.2%).

3.3.13 REASONS FOR PURCHASING PRODUCTS

The uniqueness of taste of the products was amongst the most important reason, which tempted respondents to buy Rodriguan products. Table 3.31 summarizes the other factors influencing the demand for Rodriguan products. In some cases, absence of preservatives and their rareness on the market were cited as reasons for purchasing the products.

Table 3.31: Reasons for buying the products

Reason	Responses	% of Cases
Unique taste/product	117	78.5
Good quality	53	35.6
Affordable price	45	30.2
Readily available	28	18.8
Presentation/Attractive packaging	8	5.4

3.3.14 TYPES OF PRODUCTS PURCHASED

Table 3.32 shows the type of processed food products bought by the consumers. The major products purchased were “*Aigre Doux Limon*”, “*Achard Limon*” and “*Piment Confit*”.

Table 3.32: List of products bought by Mauritian consumers

Type of Product	Number of Respondents	% of Cases
Aigre Doux Limon	82	41.0
Piment Confit	72	36.0
Achard Limon	65	32.5
Piment Aigre Doux	43	21.5
Ourite Sec	24	12.0
Piment Ourite	14	7.0
Ourite Grillée	7	3.5
Poisson Salé	1	0.5

3.3.15 PLACE OF PURCHASE

Table 3.33 shows the main purchasing points for consumers. The most important sale outlets for the Mauritian consumers were fairs, exhibitions, supermarkets and hypermarkets. Other purchasing sources were Rodriguans coming to Mauritius, friends and hawkers.

Table 3.33: Place of purchase

Place of purchase	Responses	% of Cases
Fairs and Exhibitions	58	40.6
Supermarket or hypermarket	57	39.9
Market stalls	48	33.6
Directly from the producer	37	25.9
Local shops	26	18.2

3.3.16 FREQUENCY OF PURCHASE AND CONSUMPTION

Some 84 respondents bought the products occasionally while 11 indicated having effected their purchases yearly, 8 monthly and 1 weekly. Overall, about 54% of respondents consumed the products occasionally (Table 3.34).

Table 3.34: Frequency of consumption of products

Frequency	Number of Responses	%
Occasionally	83	54.2
Once a week	15	9.8
Daily	15	9.8
Rarely	15	9.8
Twice a week	11	7.2
Thrice a week	9	5.9
More than thrice a week	5	3.3

3.3.17 LEVEL OF PRODUCT SATISFACTION

The majority of the respondents, or some 93% expressed satisfaction with the Rodriguan food products, of which 22.5% were “*very satisfied*” and 76.8% “*satisfied*”. Less than 1 %, in contrast, reported that they were not satisfied with the products.

For those who were not satisfied, the main reasons given were poor presentation of the product; lack of labelling, absence of expiry date and detail of ingredients. The presence of too much colour and additives, poor consistency and quality of product were also cited, though to a lesser extent.

Before buying the products, certain checks were performed by the consumers. The expiry date of the product and list of ingredients were cited as the main verifications carried out, in addition to the appearance, manufacturing date of the product and packaging (Table 3.35). The nutritional claim (30%), weight of the product (26.7%), as well as details of producer (20%) were also mentioned by respondents.

Table 3.35: Level of verification performed by the consumers

Level of Verification	Number of Responses	% of Cases
Expiry date	131	87.3
List of ingredients	111	74.0
Appearance	85	56.7
Manufacturing date	80	53.3
Packaging	60	40.0
Nutritional claim	45	30.0
Weight of product	40	26.7
Details of producer	30	20.0

Some 86% of respondents did not have any problem with Rodriguan processed food products. Those who had a bad experience indicated that the products were too salty or had a shorter shelf-life than that mentioned on the labels.

3.3.18 SUGGESTIONS TO IMPROVE PROCESSED PRODUCTS

Nearly 3 out of 4 (72.8%) interviewees were of the opinion that better presentation, appropriate labelling (65.3%) and adoption of a standard recipe (34%) to ensure consistency of products would attract more consumers. Some respondents also cited good hygienic conditions in respect of manufacturing, lower prices, use of better quality preservatives and the adoption of a trade mark can increase product sales.

About half of the consumers had a preference for the Rodriguan processed food products compared to similar ones from Mauritius. The reasons stated were the freshness of products, their more refined texture and better quality, uniqueness and taste of the products. Rodriguan processed foods were also perceived as being free from preservatives and 'bio' products.

3.3.19 SUGGESTIONS FOR IMPROVEMENTS IN MARKETING

A number of suggestions were made by the consumers to improve marketing:

- **Product advertisements in the media including the internet.**
- **Improving production of products**
 - Improvement of packaging materials (e.g. utilization of glass jars).
 - Creation of more attractive and appropriate labelling.
 - Engagement in large-scale production.
 - Adoption of modern processing techniques.
 - Regrouping agro-processors under one cooperative
 - Enhancement of SMEs capacity
 - Access to facilities, like bank loans, to Rodriguan producers.
- **Quality**
 - Enhancing the quality and safety of products.
 - Adoption of better hygienic practices during preparation of products.
 - Development of a Rodriguan label.
 - Implementation of ISO & HACCP standards.
 - Setting up of a testing and certification body.
- **Marketing**
 - Ensuring availability of products all year round.
 - Setting up of special sale outlets for Rodriguan products.
 - Development of a marketing strategy.
 - Development of an appropriate pricing mechanism.
 - Increasing awareness through international and national trade fairs.
 - Production of documentaries on the traditional methods of manufacture of typical Rodriguan foods.
 - Packaging of produce in different sizes of jars.
 - Increasing availability of Rodriguan products on the Mauritian markets

3.3.20 GENERAL COMMENTS

The respondents also made the following general comments:

- Diversification into animal based value-added products.
- Conduct of market surveys to assess consumers' needs.
- Expansion into new markets (e.g. Europe)
- Rodriguans have a culture of entrepreneurship but are reluctant to develop it, owing to a lack of motivation. The Government should work out appropriate strategies, where the best Mauritian and Rodriguan entrepreneurs can exchange 'know how' and skills in view of promoting a common platform for their products.

SECTION 3.3 (C) RESULTS AND DISCUSSION FROM SURVEYS IN SUPERMARKETS

From the survey carried out in eight supermarkets and hypermarkets in Mauritius, only two chains of supermarkets with several outlets in the island, sell Rodriguan processed food products. Lemon pickles, chilli paste and “piment confits” are the most popular Rodriguan products on sale. The explanation given by those supermarkets, which do not sell Rodriguan products, is that they have never been contacted by the Rodriguan agro-processors to sell their products.

For the two chains of supermarkets that sell Rodriguan processed food products, they sourced their supplies from intermediaries in Mauritius. However, the products are marketed under their own brand names. Information regarding the frequency and volume of sales was not provided, but it was reported that sales volumes are satisfactory. These supermarkets also claimed that they would like to expand their sales volume, so as to satisfy the increasing consumer demands for Rodriguan processed food products and concurrently helping the Rodriguan producers.

Some of the measures that have been proposed for the increased availability of the Rodriguan processed food products in the supermarkets are as follows: the development of an awareness campaign by producers through regular advertisements and free “*dégustation*”; Rodriguan producers should also contact the supermarkets and propose to them a variety of products at reasonable prices. The managers of the supermarkets are of the opinion that if they were provided with properly

labelled and readily available products at competitive prices, they would be keen to market and sell the Rodriguan products.

The supermarkets and hypermarkets represent certainly a big sales outlet for Rodriguan processed food products, given that the Mauritian consumers have a special liking for these products, as revealed in the consumer surveys. However, it is crucial that the Rodriguan agro-processors ensure a regular supply of these products and offer appropriate credit facilities to the supermarkets. In essence, a special marketing strategy should be adopted to result in a win-win situation, whereby both the chain of supermarkets and the Rodriguan producers benefit fully and maximise their profits.

SECTION 3.3 (D) RESULTS AND DISCUSSION FROM SURVEYS IN HOTELS

Questionnaires were posted to 60 AHRIM-registered hotels across the island, of which only eight responded. Five out of the eight hotels used processed food products from Rodrigues. The other hotels used mainly Mauritian products, as these are readily available locally. The main reason put forward by hotels for not using Rodriguan products is that their main suppliers did not distribute the products; further these were perceived to be more expensive. The most common Rodriguan products bought are *Piment Confits*, *Limon Aigre Doux*, salted fish, octopus and limes.

Those hotels that purchased Rodriguan products found these to be affordable and readily available, of good quality, having a unique taste and appealing to tourists. They usually obtained the products through wholesalers in Mauritius. Hotels also claimed that there was no preference for Rodriguan products compared with similar locally available ones. Preliminary checks in respect of the manufacturing/expiry dates, packaging, appearance of product, details of producer, list of ingredients, claims and weight were normally effected on the products prior to these being purchased by the hotels. Four out of five hotels expressed satisfaction with the Rodriguan products. One hotel, however, complained about lack of consistency in supply of the products. Nonetheless, they were willing to buy more products from Rodrigues because of their specific attributes. On the whole, hotels have never encountered any problem with Rodriguan products and are willing to purchase more processed food products from the Island, if they are properly labelled, better presented and are readily available on the local market at comparable prices with similar Mauritian/ imported products.

Respondents were of the opinion that, it would be a good initiative if the government could organize a full presentation and display of Rodrigues' variety of products at an exposition hall, for e.g., for the Hotel World Exposition Day. This would help create greater awareness of these exotic products worldwide. Rodriguan producers should also be encouraged to produce more diversified products using good manufacturing practices so as to enhance their standard of living.

CHAPTER 4

DISCUSSION

4.1 AGRO-PROCESSORS

4.1.1 BACKGROUND OF AGRO-PROCESSORS

Agro-processing is a sector that has existed since a long time in Rodrigues. Agro-processing activities are carried out mostly by women, as a means of income supplement. Although there has not been any perceptible change in the agro-processing landscape, a growing interest is noted, nonetheless, in the younger generation and those who have formal secondary education to engage in the sector. There are presently more than 1 in 2 agro-processors with less than five years of experience, attributed mainly to the incentives given to the sector, but also to the limited job openings available in the economy, in general.

4.1.2 TYPES OF PRODUCTS

The majority of the 32 products manufactured by the agro-processors are mainly from chilli, lime and local fruits, while animal-based products, albeit a few, are derived from octopus, pork and fish. The large range of processed products suggests that there is a demand for these types of products. Furthermore it also indicates the versatility in making use of raw materials that are available throughout the year.

4.1.3 RAW MATERIALS AND INGREDIENTS

All the raw materials used for processing are sourced locally, either from the backyard or from the farmers and the market. The main raw

materials are lime, chilli, octopus and pork. Major problems associated with raw materials of plant origin are: high prices, poor quality and seasonality of these crops. Most agro-processors claim that quality of the raw materials is important, whereby the presence of black spots on the surface and external bruising with respect to plant-based products and size and amount of fat for pork are the main indicators for assessing quality of the raw materials. Poor cultural practices and poor harvesting/post catch handling practices also result in poor quality of raw materials and hence could affect the quality of the final product. It is noteworthy that there is a market for some of the fresh products in Mauritius (Table 4.1) and this can limit the amount available to the local processing industry.

Table 4.1: Export of selected commodities to the Republic of Mauritius

Commodity	Year										
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Lime(Tonnes)	97	93	81	92	82	86	152	151	287	62	97
Chilli(Kg)	7,697	4950	235	1585	1250	645	820	924	1765	945	1350
Dry Octopus (Kg)	324	na	na	na	na	na	na	145	na	240	4507
Pigs (Unit)	2160	1637	836	444	65	23	8	1458	1711	638	93

na = not available.

Source: Central Statistics Office (2004)

The main ingredients like sugar, honey, salt, oil and spices, other than the raw materials, are obtained from local shops. A few processors reported that they encounter some difficulties to obtain specific ingredients like pectin, food colour, food additives and nitrites. This is explained by the low volume of demand for these ingredients and the absence of local agencies for import and sale of these ingredients.

However some processors import these scarce ingredients from either agencies in Mauritius or from their contacts in Reunion island.

4.1.3.1 Lime

Most of the lime produced originates from the backyard trees. These are fairly old trees and are subjected to few cultural and post harvest management. Lime can fetch very low prices in peak production periods (25 cents per unit), with the consequence that, in some cases, producers are not interested to harvest, leaving the fruits to rot (**Plate 8, Appendix 13**). On the contrary, in the off-season period, one lime can fetch up to Rs 3.00 per unit. Lime is grown mainly in the coastal areas and agro-processors located in those regions do not face any problem of supply. However, those located in the center of the island have to buy them at quite high prices. The harvesting technique and post-harvest management of lime also impact on the quality of the processed products. Usually, a stick is used to throw the lime on the ground, thus leading to internal bruising. The presence of thorns on the plant further affects quality; the produce is scratched or bruised during harvesting and thus has limited use in processing, or has a low market value. Fresh lime is also exported to Mauritius (Table 4.1) where they are sold at an average price of Rs 2.50 in the market.

4.1.3.2 Chilli

The most common chilli variety used for processing is the small chilli, called 'Piment Martin'. It fetches, in general, very high prices- an average Rs 300 per kg; more so, as there exists a strong demand for fresh chilli in Mauritius. Over the years, the area under chilli cultivation in Rodrigues has been decreasing; this fall in production is also reflected in the amount exported to Mauritius (Table 4.1). The existence of a lucrative

market for fresh chilli to Mauritius also influences the price of chilli and the availability of chilli for processing. In an effort to boost up production, the Agricultural Services has recently initiated pure stand cultivation of chilli. Concern has also been expressed about the genetic erosion of 'Piment Martin' germplasm, which might lead to a loss of its intrinsic characteristics. It has also been reported that some chilli products are adulterated. For example, big green chillies are imported from Mauritius at a very low price (Rs 75/kg) and processed into chilli paste, before being marketed as Rodriguan chilli. Pumpkin is also added to some of the chilli paste and chilli/lime paste. These practices impact negatively on the reputation of the sector.

4.1.3.3 Pork

Pig rearing is one of the major activities of the livestock sector. It is carried out as a backyard activity. Some of the live animals are exported to Mauritius for further processing. The Rodriguan pig is reputed for its lean meat and it is estimated that 10-15 % of pigs slaughtered in Rodrigues are used for production of processed products. There are however a small number of pork processors on the island.

The Rodriguan processed product "ham" and sausages are considered as delicacies, due to its special sensory appeal. However, the major constraints mentioned for the processing of pork were lack of land/space for expansion, difficulties for obtaining permits, price fluctuations, low availability of casings and high level of fat in the meat. All these factors can account for the small numbers of pork processors. The setting up of the slaughtering plant with hygienic norms will, undoubtedly, improve the sanitary conditions during processing and increase the market potential of this product. A "*farm to fork*" food safety approach can help in securing market in hotels and supermarkets in Mauritius.

4.1.3.4 Octopus

Octopus is produced domestically. Processing consists mostly of drying, freezing and pickling. The fresh products usually undergo primary processing such as cleaning. In many cases, the processing (drying/pickling) is done at the level of the fishermen themselves. Alternatively, the products are sold as frozen and subsequently dried by other agro-processors, who carry out further value addition by grilling them and packaging them in barquettes (*Ourite Grillé*) or by pickling them in a chilli paste (*Piment Ourite*).

4.1.3.5 Storage of raw materials

Seasonality, price and availability of some raw materials (lime, chillies) are constraints for improving production of processed products. With a view to circumvent these problems, most agro-processors preserve raw materials in vinegar or brine (yet another form of processing) for periods ranging from a few weeks to several months. Octopus and fish are dried or frozen for later use. Many agro-processors have reported a lack of storage facilities. There is infrastructure for cold storage at Citronelle. However it is not used for storage of surplus raw materials. Presently, the cold rooms are used to store jars. This facility can be renovated and made functional, for use by producers and processors.

4.1.4 MANUFACTURING PRACTICES

The food processing methods in Rodrigues make use of simple and low-cost technology, comprised of simple and inexpensive equipment (grinder, boiling pans, storage containers), which often have other uses in the house.

The salient features highlighted during manufacturing are:

- Use of a recipe (63%)
- Use of simple equipment
- Kitchen processing- no special room for processing
- Use of clean water (chlorinated/ treated water)
- Weighing of final products in a few cases

4.1.4.1 Use of a Recipe

Though a high proportion of the agro-processors stated that they follow a recipe for the preparation of the processed products, this does not necessarily mean that the products are manufactured in a consistent manner throughout the sector. From field visits and discussion, we understand that the ingredients, in many cases, are not weighed but used approximately. Such approximations of measures (spoon, drinking glass) can be made for home use products but for sale to customers, weighing of ingredients is important. Many of the agro-processors do not actually weigh the final products to be filled in the jars. They are just filled to the brim. Such practices would inevitably lead to production of inconsistent and substandard products that have been noticed during the survey and inspection of finished products. The Food Labelling Regulation specifies that the weight of the product should be mentioned on the label. Each agro-processor may have his/her own recipe for his/her products but the products from different agro-processors marketed under the same name, may have different recipes. During the study, we came across several products that bear the same product name but which were in fact different in terms of appearance and texture. For example, the product labelled as “*Piment Ourite*” existed in three different forms: ground octopus and chilli paste; octopus cube and

chilli paste; and irregular pieces of octopus and coarsely ground chilli, indicating the existence of a high level of inconsistency.

4.1.4.2 Preparation area

Ideally, a food entrepreneur should have a purposely-built plant. But this is rarely the case in many developing countries. Most of the food units visited in Rodrigues are within the owner's kitchen; in very few cases, in an area designated as a processing room. It is important that a special processing room is used only for the production of food products as this will reduce the risks of contamination. Equipment that has multiple uses may also increase the risk of product contamination. A processing unit should have adequate washing facilities, water storage facilities, limited insect and pet access. Most of these processing areas lack these amenities. The requirements for a proper layout of building and equipment have been detailed out in the Food Regulations 1999 Part V. Many agro-processors have expressed their wish to expand but they face lot of difficulties to obtain the required permits.

4.1.4.3 Equipment and level of technology

The major processing techniques used are preservation by sugar (jam, jelly, fruit paste), pickling (in vinegar (confit) or in spices (achard)), preservation in honey (aigre-doux), drying (dried fish and octopus), curing (ham), heat treatment and acid preservation (chilli paste). Most of the processing steps are carried out manually. Though sophisticated equipment are not required, production can be improved through the use of simple kitchen equipment like grinder, grater, drier, steriliser, balance. These will not only increase the speed of operations but will also contribute to production of consistent and quality products. Almost none of the processors had facilities for packaging (sealers) and labelling.

Some of the agro-processors have expressed their interest in acquiring equipment like fermentors, grinders and packaging machines but sourcing of these equipments remain problematic. Food processing equipment can be of different capacity and size. One of the problems which entrepreneurs face concerns the specificities of the equipment to be purchased e.g. cost, availability of equipment, spare parts, facilities for maintenance and repair, source to buy the equipment. Information on types and suppliers of equipment is not readily available. However such type of information can be readily made through the service providers who may have contact with local suppliers and other institutions (e.g., University of Mauritius and AREU) in Mauritius.

4.1.4.4 Water Quality

Water is used directly in some products (brines, syrup, juices) and it is also used for washing equipment, raw materials and jars. Though most of the agro-processors report that they use clean water (chlorinated, treated with chemicals), it is believed that the quality of the water is below required standards. In many areas, tap water is available on irregular basis and only for a few hours after days and weeks. Very limited facilities are available for storage of potable and non-potable water. Thus the water is collected and stored in tanks for further use. In many cases, the tap water is collected in the same tank used for rainwater collection. Furthermore, the tanks are not regularly cleaned, contributing to poor quality water. In cases where water is treated, the chemicals and the dosage used can represent health hazards, if they are not done according to norms.

4.1.5 PACKAGING MATERIALS

Food are mainly packed in glass jars (100g and 200 g) and to some extent *barquettes* and plastic containers. In the past, most of the products were packed in used containers of soft drinks, sauces and other food items. This impacted negatively on product shelf-life and product presentation and eventually marketing of the products. The NHPA has organised several courses that had a component on packaging. Agro-processors have also benefited a lot on presentation and packaging of products through their participation in fairs. There is now a fair degree of awareness on the importance of an adequate and attractive packaging. The increasing use of glass jars and “*barquettes*” has considerably improved product presentation and safety.

However, packaging materials are not produced locally and this represents a major problem for the food processors. In the past, a small number of the agro-processors came to Mauritius and purchased jars in small amounts, sometimes at high prices. Due to the acute shortage of jars, a few years back, the NHPA started bulk purchase of glass jars and “*barquettes*” and put them on sale to the agro-processors. This initiative encouraged most of the agro-processors to use jars and “*barquettes*”. This activity has now been shifted to the Commission for Agriculture.

However, a small proportion of the agro-processors are still using inappropriate containers and this is viewed as an area of concern for the sector for it can cause damage to the overall the reputation of Rodriguan products.

4.1.6 PRODUCT QUALITY AND SAFETY

Foods must be prepared in secure environment using clean machinery and utensils. People who handle food can also contaminate it and make it unsafe for consumption. The introduction of food safety hazards can occur at any stage of the food chain, right from the farm through the production plant and the catering service to the table of the consumers. Physical contamination of foods may occur due to presence of undesirable elements, wood, paper, rocks, human and animal. Chemical contamination may be the result of detergents, household disinfectant (javel) and pesticides.

4.1.6.1 Food Legislation

Food laws are made to protect consumers' health to protect against dishonesty by processors and also to provide a level-trading field for the players in the sector. There are laws in Mauritius governing the setting up and operation of food processing business. The Mauritian Food legislation is comprised of the Food Act 1998 and the Food Regulations 1999. The Food Act 1998 addresses the general principles like offences and penalties while the Food Regulations 1999 contain the detailed technical requirements like the compositional requirements of foodstuffs. Requirements for food hygiene and sanitation in relation to premises, equipment and personnel are also covered in the Food Regulations (Part V). The legislation is enforced by the Ministry of Health and Quality of Life (MOHQL). The permanent secretary from the MOH usually delegates the powers to the authorised officers who need to inspect food premises to ensure compliance with the food hygiene requirements as well as the public health law. They also have the power to prosecute for non-compliance to sanitary and food hygiene norms. Failure to abide by the

law may lead to fines by the authorities, seizures of products or close down of the business.

Anyone in the food business should be made aware of the food law but also needs to know where to get information relating to general food standards and specific standards for the food.

It is interesting to note that 55.5% of agro-processors surveyed claimed to be conversant with the Food Act 1998. However, this figure might not reflect the reality. The agro-processors may have heard about the Food Act 1998, mainly during training sessions, but they may have limited knowledge of its contents, due to the limited access to the document.

There is still a lot to be done for the implementation of the Food Act in Rodrigues. However, under the present set-up of the sector, its application may prove to be difficult. Most entrepreneurs use home-based facilities, which are not allowed in the Food Act. Since the enterprises do not have a permit and are not licensed, the Commission for Health does not have a good control over the agro-processing activities. According to the Food Act (1998), it is an offence to *“import, prepare, distribute, sell any food that is poisonous, that contains foreign matter, that is adulterated or that is unfit for human consumption”*. Thus, in Rodrigues, foods that are not considered to be fit for consumption and can pose a health hazard can be seized by the MOHQL. Since practically none of the enterprises are licensed, it was mentioned that contraventions cannot be taken. During inspections of food production premises, only advice is given to the people concerned by the sanitary officers.

If the laws were to be implemented, under the present circumstances, most of the entrepreneurs would not be able to continue with the

production of processed products in Rodrigues. A salient example is that many products from Rodrigues cannot be put on the Mauritian Market according to the Food Act (inadequacies in labelling, shelf-life determination, lack of pre-market approval). A more active participation of the MOHQL in the form of advice and training would help to improve the standard of the entrepreneurs.

Section 23 of the Food Regulations 1999 states that a pre-market approval permit has to be obtained in order to import or manufacture any food and information regarding the identity and composition of the food has to be declared. It is interesting that a few agro-processors have made a request for pre-market approval for some of the newly developed products.

Under the Food Act, only the Government Analyst Laboratory and the Candos Central laboratory are the official and recognised laboratory to test foods. In view of the huge amount of samples to be analysed for Mauritius, the process takes a long time. Also the samples need to be accompanied by a health inspector from Rodrigues, which renders the whole process of testing expensive. There are only three staff of the Health Inspectorate in Rodrigues and it is difficult for them to cover the whole island. This highlights the importance of having local food testing facilities in Rodrigues.

4.1.6.2 Food Handler's Certificate (FHC)

The law requires that all food handlers should possess a valid FHC when at work. The Food Handler's Certificate is obtained after 6 hrs of training given by a Health Inspector from the Health Authorities, followed by a medical examination of the food handler by a Government Medical Officer. This training, devised by the MOHQL, is delivered through the

use of visual aids and oral presentation. The modules covered are listed below.

Module 1	Bacteriology, Food poisoning causes and consequences, prevention of contamination and food hygiene
Module 2	Personal Hygiene; Cleaning and disinfections; Pest control
Module 3	Waste disposal; Food storage and Temperature control; Penalties; offences; notices and orders

About 60.5% of the agro-processors in Rodrigues possess a Food Handler's Certificate (**Plate 9, Appendix 13**). Since Year 2000, the health inspectors have played an active role in the training of about 300 food handlers on a yearly basis. Although there is a high level of trained food handlers, many of them often disregard good hygiene practices during their production process as revealed during the survey work. It is thus important that the attitude and behaviour of these agro-processors are changed so that they implement the knowledge acquired. This would definitely improve the hygiene level. Given the appropriate training, the food handler will have a greater level of understanding, thus implying that there will be lesser need for supervision.

4.1.6.3 Personal Hygiene

Food Regulation (1999) states that the personnel should maintain clean clothing, hands, fingernails and nails. Most of the processors seem to be familiar with the basic elements of food hygiene but it is equally important that they are fully implemented. The majority of the agro-processors have claimed that hygiene is the main precautions they take to ensure safety and quality of the products. However personal hygiene is one element of food hygiene and sanitation. The place where foods are

manufactured, the conditions of the equipments used, the quality of the ingredients used may all impact on the quality and safety of the food.

4.1.7 PRODUCT LABELLING

Labels provide consumers with information about the identity and nature of product, its composition and its ingredients, where it was produced, and how long it can be kept and under what conditions. In Mauritius, the Food Act 1998 and the Food Regulation 1999 (Part-1 Food Composition and Labelling) are the major tools for control of labelling of foods. Besides, there is the MS 30 standard which is also a mandatory standard which sets down the requirements for the labelling of pre-packaged food. It has been developed by the Mauritius Standards Bureau and is enforced by the Ministry of Trade and Commerce. This standard is now being reviewed by the Mauritius Standards Bureau. The legal Metrology (pre-packaged commodities) Regulation 1994 under the legal Metrology (Amendment) Act 1994 also set out certain requirements concerning food labelling.

Some of the requirements for pre packaged foods in The Food Composition and Labelling Regulations (1999) are shown below:

A label should state among other requirements the following:

- The name of the food and/or the brand name.
- Presence of edible fat or oil and the source of this fat(animal/fat)
- A list of the ingredients
- Country of origin
- Name and address of the manufacturer or packer
- Expiry date
- Date of manufacture
- The chemical, common name, EEC serial number and type of food additive (when additives are used)
- Lot identification
- Net weight or volume of the food
- Where the food contains beef or pork, or its derivatives or lard, a statement as to the presence in that food of such beef or pork, or its derivatives or lard
- Where the food contains edible gelatine, a statement as to the presence in that food of such gelatine and the common name of the animal from which gelatine is obtained

About 77% agro-processors label their products with the name of the food and the name and address of the manufacturer - the most common information provided. This practice is regarded as an important step towards increasing the marketability of these products. However, there are still over 20% agro-processors who do not label their products and yet these products are put on sale. On the other hand, only about 54% of the agro-processors provide an expiry date on the label. This is an area

of concern, as the consumers do not have any clue on the shelf-life of these products. The expiry dates are either handwritten or typed on a sticker, which is then affixed on the container. This in itself is an infringement to the law as it stipulates that it has to be embossed directly on the container or printed on the label. The use of stickers can lead to tampering with the labels. In fact during the study, a few agro-processors reported that they have replaced the original sticker for expiry date with a new sticker with a new date, when it has expired. This is a highly risky practice, as it can pose serious health hazards. The intention of date marking is to provide a guide to consumers on the shelf-life of a food in terms of food quality. In some cases, it may also indicate how long a food can be expected to be safe.

One of the major problems associated with labelling is the high costs of labelling and lack of facilities for production of labels at an affordable cost. There is only one company that produces labels in Rodrigues. At present, many agro-processors source out their labels from Mauritius and some have adopted very nice presentation and labels. The NHPA had organised training on design of food labels and such courses need to be given on a regular basis with appropriate follow-up to both existing and new entrants in the sector.

4.1.8 SHELF-LIFE DETERMINATION

Most of the agro-processors who determine the shelf-life of their products give an indication of the shelf-life of the product on the labels. The technique of shelf-life determination is very empirical as the agro-processors rely on their experience to determine the shelf-life. Although there has been no report of major problems associated with spoilage or food poisoning, this does not imply the absence of such problems. Firstly, most of the customers use the products outside Rodrigues thus if

problems of shelf-life did occur, the information is not conveyed back to the producers in Rodrigues. Another factor could be that the products are processed in small quantities and are sold in relatively short time and this minimises the chances of detecting shelf -life problems.

The experts for the NEPAD/FAO project have recommended the setting up of a Food Laboratory for testing the products. This will be well accepted, as most agro-processors and service providers have stated that the setting up of a food lab will help to improve product quality and safety.

4.1.9 TRAINING OF AGRO-PROCESSORS

Training and skill development of entrepreneurs in any type of businesses are vital ingredients for the successful development of their enterprises. In this context, a number of courses have been mounted by the various supporting institutions, the main one being NHPA, to upgrade the skills of the agro-processors. There is ample evidence from the survey to demonstrate that these courses have been beneficial in enhancing their knowledge in food preservation techniques (e.g., pickling, preparation of sugar-based products) and of the importance of food hygiene and quality, including personal hygiene.

In many instances, some agro-processors have complained that the level of the courses was not suitable as they already had prior knowledge on the subject matter. Indeed the study has shown that the agro-processors have different level of competence and knowledge in food processing. This is bound to create different level of interest during the training courses. It is, therefore, essential that the training institutions make appropriate choice of trainees and develop training programmes that match the level of competence and knowledge of the agro-processors. In addition, the

timing of the course, as well as the choice of trainers, must to be carefully chosen. This would ensure that the training programmes are relevant, have the desired impact and success and attain a larger group of agro-processors.

Over the past years, many school leavers have been trained in some aspects of food preservation techniques. However, many of them have not been able to set up their own agro-processing enterprise. There could be several possible reasons for this: firstly they were not fully aware of the opportunities and mechanisms that exist to start up an enterprise and secondly, the nature of the courses was probably not sufficient to allow them to engage into such activity.

The study has shown that no training courses have been run for the raw materials producers to sensitise them on the importance of producing good quality raw materials for processing. This aspect is particularly important for the primary producers to understand the processors' needs in terms of quality and grades. This would certainly encourage them to produce quality raw materials and forge stronger linkage.

However, with the increasing emphasis being given to this sector, there would be a need for new courses to address emerging training needs that would arise with further development of the sector. Some of the potential areas that were identified in the project, where training would be required are business and entrepreneurship skills and financial planning. The concepts associated with marketing such as market segmentation and designing sales and marketing strategies to meet specific niche market are poorly understood by the agro-processors. In this context, SEHDA can run training courses in these areas for the small and medium entrepreneurs in Rodrigues.

One of the other possible avenues through which training can be offered is via the use of radio. Through this media, a larger proportion of the agro-processors can be targeted and the delivery of training can be done at a relatively low cost.

In future, it is therefore crucial that the main support institutions in Rodrigues work in close collaboration to mount new training programmes that would create the necessary impact and achieve their intended goals. It is also important that appropriate mechanisms are developed to ensure a proper follow-up of the trainees and assist them in implementing what they have learned.

4.1.10 MARKETING OF PRODUCE

Most of the agro-processed products are sold by the agro-processors themselves and there is no key institution involved in marketing of these products. There is a very low number of intermediaries in the marketing chain. This particular marketing arrangement is advantageous for the agro-processors, as they can capture almost 100% of the price (minus cost of production) instead of a smaller percentage had it been sold to an intermediary.

There are several sale outlets through which these products are sold. They are mainly scattered in the Port Mathurin area, especially within the vicinities of the market place and the stalls at the bus station. This is expected, as these are places where most economic activities and some tourism activities are carried out. In some cases, many customers buy directly from the producers' stalls on roadsides near their place of residence, while travelling around the country or during visits organized by tour operators and hotels. There are also a few producers who have established such a solid reputation for their products that these are sold

at home, without having to place a stall or signpost at their place. Thus, the sales of these products are scattered all over the island with Port Mathurin representing the largest sales outlets. On the other hand, fairs and exhibitions in either Mauritius or elsewhere represent other major sales outlets. These events have also helped producers to understand how important are product quality, appearance, packaging and other allied factors in satisfying consumer demand and increasing sales volume.

For successful sales, it is necessary that consumers are made aware of the products through proper advertising. Advertising serves many purposes and the process of advertising may take different forms. In this study, advertising takes the form of words of mouth in the majority of cases but there are no planned strategies to advertise their products. In fact, these products have never been advertised through a mass/broadcast medium. However, over the past years, a number of events (Fairs and Exhibitions, TV programmes, Rodriguan Food Week, in-flight brochure advertising) have also been organized by the authorities to increase the public awareness for these products. This has inevitably given a wide publicity to Rodriguan products. In addition, with the increased influx of travellers to Rodrigues, such products are most likely being promoted among their relatives and friends, on return to their country of origin.

Altogether, the combined effects of the above factors have caused an increased awareness and demand for these Rodriguan products over the past years. Unfortunately, there are very limited places whereby the Mauritian consumers could purchase these produce once the fairs are over or when they have returned back from the island.

Under the present set up most of the agro-processed products originate solely from the producers perceived needs of the market. However, modern marketing requires that it is more important to understand the requirements of the market if sales are to progress. Thus, it is essential that knowledge about customers' preferences and dislikes are available to the processors. Presently little research is done to document customers' requirements for these products. However, given the present marketing arrangement, it is expected that they do get direct feedback from their customers on their likes and dislikes. But the lack of proper market information is viewed as a serious bottleneck, for further expansion of the market.

With this current marketing channel structure (e.g., geographically dispersed sales outlets), a large proportion of visitors to Rodrigues may have missed on opportunities to purchase these products. In this context, one of the strategies that could boost sales and promotion of these produces is to build a central shop with all the necessary amenities and facilities that would allow them to work in a more environmentally friendly atmosphere, to display their produce in a fashionable and attractive manner and avoid frequent transfer of the produce for their place of residence and hence preserve the quality and safety of the produce.

Many past studies on the marketing of Rodriguan products have highlighted the urgent need to set up a centralized authority/institution to develop an efficient marketing system. In this context, the RRA has created a Trade and Marketing Agency that will be operational in 2006. The setting up of this Agency will inevitably create an enabling environment for marketing and advertising these products and alleviate some of the above-mentioned problems. However, the shift towards a market-based institution (i.e., setting up of the agency) does not

necessarily guarantee a net gain to the processors. They would be required to operate under a new set up which would imply changes in their production pattern to benefit from this new institutional arrangement and regulations. This would be only possible if the agro-processors organize themselves in associations or cooperatives and appropriate mechanisms are set up by the agency to sensitise them on these pertinent issues.

4.1.11 PRICE SETTING MECHANISMS AND COST OF PRODUCTION

One most important aspect for a business to make profit is to produce at the lowest cost possible. The reason for determining the costing is to be able to price the products favourably and make a good profit. The study has revealed that many of them do not estimate their cost of production. Such situation will prevent them to set competitive prices for their products. In fact this is reflected in the wide range of prices for the same type of products. This lack of costing is regarded as a serious constraint in raising sufficient profits for further scaling up of their enterprise. In this survey, it was not possible to calculate a proper cost of production as it was difficult to get all the cost estimates. In fact, most of the entrepreneurs do not have a proper record keeping system such as financial records, production records and sale records. These are vital records, for even a small business, for monitoring and evaluating their business progress. An important aspect that was also revealed during the study is the non-existence of financial planning for most of the entrepreneurs. However it is essential for the agro-processors to have an idea of how money comes into a business, where it is at any time and where it goes.

Many of the agro-processors have complained about the low prices of their products. This could be partly due to the fact that many of them

sell more or less the same type of products. Under such circumstances, the general tendency among the agro-processors is to fix a price level based on the general prevailing market price, without due consideration to their true cost of production. This way of setting price could eventually lead to low profitability. Nonetheless it is worth mentioning that these prices are more or less the same for similarly rival products produced in Mauritius.

4.1.12 EXPORT POTENTIAL OF PRODUCE

Despite it is widely claimed that the Rodriguan agro-processed products are preferred for their unique intrinsic qualities and exotic nature, these qualities are nevertheless regarded as insufficient to be solely used as a marketing tool for promoting these products into the high quality markets in Europe or elsewhere. The regulatory environments that are in place in these countries with respect to product quality, food safety and phytosanitary measures represent serious obstacles to successfully market these products in these countries. This export potential could nevertheless be harnessed if there is a paradigm shift in the current manufacturing practices and adoption of appropriate measures to ensure compliance with the standards in the export countries.

On the other hand, given the present level of awareness for these products among the Mauritians, these products would easily penetrate the local market and thus expand the agro-processors sales. Some Mauritian entrepreneurs are already engaged in bulk purchase directly from the agro-processors (500 jars per week) and sell them in some local shops and mini markets in Mauritius. However, it could not be confirmed whether these produce are promoted as Rodriguan products or are just sold under a new brand name. This would be an interesting piece of data to get, as it would provide another measure of the popularity of these

produce. Furthermore, the issue of increasing competitiveness with other similar locally produced and imported products available in the Mauritian should be borne in mind.

Although the majority of the processors prefer to sell their products in bulk, it was found out that most of them would be unable to do so because of their small production capacity and the unavailability of raw materials in sufficient quantity. These are therefore serious barriers for expansion of the present market. In fact, during our in-depth interviews, some agro-processors reported that they were not able to satisfy large demands from known food distributors in Mauritius.

4.1.13 RODRIGUAN LABEL

The creation of a Rodriguan label is one of the steps that have been proposed by the RRA as a means to promote Rodriguan products and to ascertain its authenticity against adulterated Rodriguan products. This certification by a mark or brand name will certainly increase consumer confidence in the products and hence can be a useful marketing tool. It will encourage producers to adopt appropriate manufacturing practices in order to meet the requirements for award of the label. However, it would also mean that some producers who fail to satisfy the required norms would still find their products being marketed. This could seriously disadvantage those producers as they may have difficulty in selling their products or they could simply be wiped out of the economic chain. Hence, an appropriate mechanism for the award of the label should be worked out in collaboration with the agro-processors so that all of them could benefit from this policy decision of creating a label.

4.1.14 COOPERATIVES AND ASSOCIATIONS

From literature, there is a vast amount of information on the crucial role cooperatives and associations play in developing smallholder agricultural and food enterprises in many parts of the world. In the present Rodriguan agro-processing structure, there is a number of women associations that has been formed since 1975. They are located in the different regions of the island. Their main objectives are to share knowledge, provide technical and financial assistance to their members. It is noted that none of these associations are fully engaged in agro-processing as their members are also involved in other economic activities such as sewing and handicrafts. Lately, a new association called FORUM has been created and it groups women entrepreneurs, in a wide range of economic activities. Its main objectives are to share information and help the entrepreneurs to specialise in their respective fields. In contrast to the other associations, FORUM plays a key role in facilitating communication among the many support institutions involved in the small-scale food processing sector. This can ensure that timely and fast decisions are taken for this particular sector. Moreover, many members realize that this way of networking can achieve more than they could on their own.

In view of the prominence this sector is being given by the authorities, it is believed that these groups need to be strengthened (e.g., by bringing in new members) so that they play a greater role in determining the needs of the industry and lobby for policies beneficial to small-scale production units. In addition, their respective roles need to be clearly defined so as to avoid unnecessary duplication of activities and objectives among the various groups.

However, the agro-processors have given different views on the benefits of forming or joining a cooperative. In fact, 50% of the agro-processors are not willing to form part of a group or cooperative. This lack of willingness could be associated with their previous bad experiences (e.g., weak management, mistrust, lack of member loyalty) they had in working together. On the other hand, it is interesting to note that there are 50% who are keen to form part of a cooperative or an association. These core groups of people are therefore the ones that the authorities should work with to create food processing cooperatives. Their strong willingness to work in groups will be one element for the success of the cooperative. At a later stage, these groups could serve as model to the others.

With the launching of the school feeding programmes project in the various schools of the island, a few cooperatives has been formed to group the agro-processors. It was noted that in this particular case, many of agro-processors in these targeted regions have willingly become a member of the cooperative. This evidence demonstrates that if the benefits are readily seen or explained, the agro-processors will work in groups. This shows that it is important that appropriate campaigns are carried out to popularize the benefits of groupings and ensure their success.

With the new impetus being given to the sector, it is believed that these associations/cooperatives will play a more active and greater role in spearheading the development of this sector. Also, with the setting up of a Trade and Marketing Agency, consolidation of their groupings would provide them with more market power. Thus it is important that new emphasis is given to the processors to encourage them to join a cooperative or an association.

4.1.15 INNOVATION STRATEGIES

Over the past decade, Rodriguan agro-processors have innovated in some way or another to produce better or more products. These innovation which include better product packaging and labelling, display, product diversification among others, have certainly increased consumer confidence and greater acceptance for these products. There is ample evidence to show that the drive for innovation has been brought after their participation in training courses and/or in international and national fairs where that may have gathered new ideas to bring innovation in their enterprises. However, it is argued that effects of innovation will not occur if there are no strong linkages or interactions with other partners in the production chain such as suppliers, consumers, and others.

4.1.16 AWARENESS ABOUT SUPPORT SERVICES

Interestingly, the agro-processors are aware about the different support institutions that are present in Rodrigues to assist enterprises. The institutions that are widely known by the agro-processors are mainly NHPA and SMIDO. In fact, it is noted that a large number of them are registered with NHPA through which they have received training in food processing and other related topics. However, despite the existence of other institutions such as SMIDO, very few of the agro-processors are registered with them. Similarly, only a small number have benefited from the incentives of DBM, though almost 75% have indicated that they require loans to further develop their agro-processing business. However the lack of collaterals and development permit/licence may have prevented them to seek financial assistance from the bank. This is viewed as a serious barrier for further development of the sector. There is also a high demand for information with respect to type and source of

equipment and training matters. In fact, none of the above institutions support exclusively the agro-processing industry. There is, thus, a need to develop special counters in these institutions to deal exclusively with this sector.

4.2 SERVICE PROVIDERS

There are currently several service providers that back up the agro-processing activities in Rodrigues. The services offered can be broadly classified as follows: financial assistance, technical and information support and training.

4.2.1 FINANCIAL ASSISTANCE

Financial assistance, technical and managerial advice are generally the most solicited services, but the former occupies top most priority amongst agro-processors and the one that is deemed not sufficient. This is viewed as a major constraint for business growth and improvement. Despite the fact that several financing schemes exist, the conditions attached to them, such as high interest charges, guarantees and collaterals in the form of land titles, deter the agro-processors to apply for such loans. On the other hand, the small-scale entrepreneurs are often perceived as having low management/business skills, and carrying high risks by financial institutions, thus resulting in high transaction costs in recovering debts in case of defaults. These factors, consequently, tend to act as major deterrents to financial institutions for providing loans to agro-processors. The donor institutions (e.g., IFAD) have also focused mainly on the provision of micro-credits for working capital, which does not allow investment in equipment and infrastructural facilities.

It is, accordingly, pertinent that there is an adjustment and up-scaling in the size of loans being provided to the small-scale food processors. Special schemes should also be introduced, which relax conditions attached to loans such as the need for collateral security, thus allowing for easier and faster access to credit facilities.

Government policy is, thus, crucial if these small-scale producers are to be regarded as seedbeds for the enhancement of local entrepreneurs in Rodrigues. With the setting up of the RRA, a new impetus is being given to this sector. Furthermore, with the recent development in the allocation of land and industrial permits/entitlements, it is expected that there will be new operators entering in the sector, while existing ones will expand. In the 2006 Budget speech, the Minister of Finance announced several user-friendly credit facilities and tax holidays that could be applied to Rodrigues also.

4.2.2 TECHNICAL AND INFORMATION SUPPORT

Several of the support institutions provide technical advice, general guidance and information on the sector. SMIDO (now SEHDA) and “The Commission de La Femme” help entrepreneurs in the preparation of their business plans. However, the majority of processors interviewed do not know how to plan their business or carry out feasibility studies. This is a serious obstacle to the development of a thriving small-scale food-processing sector. The recent setting up of the ‘*Unité de L’Entrepreneuriat*’ by the RRA is a laudable initiative to boost up the sector. It aims at providing a ‘one-stop shop’ to help entrepreneurs in their business endeavour. In parallel, the setting up of the “Agro Processing Unit” under the aegis of the Commission for Agriculture, to provide the necessary technical support and assistance in the sector, goes in the right direction. However, these units need to be appropriately equipped and staffed, to be able to provide an efficient and effective service to the agro-processors.

There are currently no institutions that provide services in the areas of advertising, market information and promotion to the small-scale food processors. Promotion of the products has been done on an ‘*ad-hoc*’

basis at fairs and by the Mauritius Tourism Promotion Authority. It is believed that more efforts should be undertaken towards marketing, to allow the agro-processors to better compete in an open market. It is also hoped that the setting up of the Rodriguan Trade and Marketing Agency, would ensure the sustained growth of this sector in Rodrigues, by providing marketing assistance and also initiating appropriate market research.

4.2.3 TRAINING OF AGRO-PROCESSORS

Most of the service providers impart some sort of training to the agro-processors. However, the training sessions are often disjointed and this often leads to duplication. In many cases, there is no follow-up; with few processors putting in practice what they have learned. Consequently, there is a need for service providers to collaborate closely, in view of developing concerted and comprehensive training programmes that are relevant to the sector. It would also be helpful to assess the experience of the different service providers in respect of the courses offered. This would help to develop best-practice models for the small-scale agro-processors. More efforts should be made to include entrepreneurship and management training in future courses for agro-processors. This will ensure the acquisition of core skills for the future young workforce wishing to join the sector.

4.2.4 CONSTRAINTS EXPERIENCED BY SERVICE PROVIDERS

There are many constraints that service providers face in the delivery of services to their clients in general. The most common constraint is a lack of suitably trained personnel and this can explain the lack of follow-up and site visits. Some service providers have limited financial resources, which impede the provision of quality service to their clients. Unless the

relevant authorities address these constraints, the effectiveness of services to the sector will suffer.

4.2.5 EFFECTIVENESS OF SERVICE PROVIDERS

One of the striking features of the support services in Rodrigues is that there is no proper coordination of responsibilities relating to the small-scale food-processing sector. There are too many agencies sharing the same tasks (for e.g. training and general information)

The roles of the various support services need to be redefined in order to improve the quality of their service and eliminate duplication. Though, most of the institutions have an informal kind of network, the need for them to collaborate more closely in a formal manner so as to increase the efficiency of their services, is more than ever felt. However, the constraints experienced by these institutions equally deserve to be urgently addressed. Finally, it is important to take heed of the specificities and realities of the island when devising new schemes for this category of entrepreneurs that will create the necessary enabling environment for the development of the industry.

4.3 CONSUMER SURVEYS

The majority of the respondents came into contact with Rodriguan processed food products, while travelling to Rodrigues, through family or friends and by '*word of mouth*'. Although these have surely helped to create greater awareness of these products, it is felt that there is still a large number of local consumers who ignore their existence. Given that these kinds of promotion are mostly casual, there is need for a more formal approach for arousing awareness for Rodriguan products, through more aggressive promotional campaigns and marketing strategies.

The uniqueness of the products, in particular, their taste is the major criterion that tempts respondents to purchase the products. This is understandable, as Rodrigues has established a reputation for its traditional agro-industrial products.

Many consumers do not buy Rodriguan products, as similar produce are available in Mauritius from established agro-processors at competitive prices. The higher prices of Rodriguan products, their limited supply, as reflected in the survey with supermarkets whereby only two chains of supermarkets sell the products, as well as uncertainty regarding their quality also affect their demand. The agro-processors need to revisit their production methods and pricing policies so as to render their products more attractive and competitive and instil confidence in consumers.

A high preference for '*Piments Confit*', '*Achard Limon*' and '*Aigre Doux Limon*' has been observed in the two consumer studies in Mauritius and Rodrigues. The popularity of these products is also reflected in the surveys with the agro-processors (Section 1) and also supermarkets (Section 3(III)) and hotels (Section 3(IV)). Highly appreciated by many, such recipes, including other less well-known ones, hold very good

prospects for production at larger scale and for increasing their market shares, provided they are produced in accordance with international norms and standards.

It is interesting to note that the majority of respondents, both in Rodrigues and in Mauritius are satisfied with the Rodriguan food products. This high level of satisfaction clearly indicates that the Rodriguan agro-processing industry has some positive features that can be harnessed for further development. However, improvement in manufacturing practices, product presentation and labelling would contribute to that endeavour.

In all cases, it is observed that consumers perform preliminary checks on the appearance, list of ingredients and expiry date before purchasing the products. With the wide product choice available to them, this is to be expected. It is, therefore, essential that the agro-processors adhere to strict criteria, in order to make their products more marketable. They must be made aware of the consumers' needs and exigencies, through regular campaigns in Rodrigues, to enable them to withstand competition in the open market.

In Rodrigues, the majority of the respondents buy the products from the market in Port Mathurin, whilst in Mauritius consumers have limited access, through mainly fairs, exhibitions, and some supermarkets. The place of purchase is predefined to the accessibility and availability of the products. Port-Mathurin, being the commercial centre of the island where most economic activities are concentrated, is consequently the focal point where consumers can obtain their products directly from the producers.

Respondents were of the opinion that several steps could be taken to boost up the sector. One of the major suggestions for improving the quality of the processed food products include: appropriate labelling, better presentation and manufacturing practices. The agro-processors need to take these suggestions urgently and try to meet consumer exigencies.

4.4 GENERAL DISCUSSION ON THE AGRO-PROCESSING SECTOR

The agro-processing sector of Rodrigues has progressed steadily from preservation for home consumption to sales or exchange of products to neighbours and eventually to tourists visiting the island. Nonetheless, it has remained predominantly on a micro-scale, using traditional methods of processing. The agro-processing food enterprises are small, mainly family-owned and managed by women, in quest for additional income to cater for family needs.

Rodrigues has established quite a reputation for its traditional agro-industrial products, both locally and in international fairs. In the same vein, numerous promotional campaigns are being carried out to create a greater awareness for Rodriguan processed products.

Over the last decade, the food processing sector has undergone significant changes in terms of types, variety, quality, and presentation of products. Since its creation in January 2002, the Regional Government has devised ways and means to develop the sector. Recently, the authorities have commissioned several studies, namely the *NEPAD/FAO, Bankable Investment project Report (2005)* and the *Vakakis International S.A/CIRAD (Beehary Panray, 2004)*, with a view to map out a development strategy for the sector.

However, the sector still suffers from low productivity, lack of quality control, a dearth of capital and skills, insufficient good quality raw materials and inputs and poor manufacturing practices, which constitute serious stumbling blocks to further development. This renders the sector under the prevailing circumstances, noncompetitive.

Although Rodriguan products have the potential for export to overseas markets, there are still many outstanding challenges to overcome. With the growing concerns about food safety and quality, it is imperative that these products are manufactured under stringent hygienic conditions and in accordance with national and international norms of food safety and quality. The agro-processors have to adopt hygienic codes of practices, standards as well as preventive measures in order to produce quality and safe products. Minimum requirements to ensure food safety are Good Manufacturing Practices (GMP)/ Good Hygienic Practices (GHP) which are set out in the Food Regulation 1999. Improper adherence to procedures may be the root cause of product inconsistency and poor quality.

Rodrigues urgently needs a phased training programme, which focuses, in the short term on hygiene and sanitation, GMP, GHP, shelf-life determination and other requirements, as set out in the Food Act (1998) and Food Regulations (1999). These training programmes will help agro-processors to increase their current level of understanding on food hygiene and become more conscious of the crucial role food quality plays in the success of a food enterprise. However, it is equally essential that an appropriate follow-up mechanism be implemented after the training, so as to ensure that the knowledge gained is put into practice. This implies that better quality and safer products will be produced, in more hygienic conditions, so as to easily find a place on the Mauritian/regional markets. The Hazard Analysis Critical Control Point (HACCP) is

a food safety system that aims at a higher quality level than GMP/ GHP and it is not yet mandatory in our laws. But HACCP may be a requirement of the importing country. In a second phase, a sensitisation programme on HACCP can be mounted. Agro-processors who want to export their products on the international markets can implement an HACCP system.

The status of the processing units should be regularised through licenses and appropriate permit. This will allow Health Inspectors to enforce the law and act as a deterrent for bad practices in the sector.

Manufacturing must also be carried out under controlled conditions and in a specified sequence of operations to achieve consistent, quality and safe products. Process control is required on materials, production process and equipment used to manufacture the products. In many cases, not all the agro-processors have access to capital, to invest in special processing and quality assurance equipment such as a pH meter, refractometer and other essential equipment. Such lack of appropriate tools may prevent them to have a good control over the processing conditions.

The NEPAD/FAO Report (2005) recommended the setting up of a Food Laboratory and the *Vakakis International S.A/CIRAD study (Beehary Panray, 2004)* proposed the creation of the Rodriguan Label. The RRA has adopted the principle of creating the Rodriguan Label and it is also planning to set up the Food Laboratory by 2007. The Food Laboratory and the Rodriguan Label will definitely encourage agro-processors to adopt proper manufacturing and hygienic practices, in view of producing quality and safe products, along prescribed norms. This will increase consumers' confidence in both the local and overseas markets. Shelf-life

determination is quite empirical; the food laboratory can help processors to determine the shelf-life of their products in scientific way.

The marketing and distribution systems, including product promotion and market information systems, are not properly organized. The enterprises do not have sufficient knowledge of existing and potential market opportunities in the region. There is no relevant trade information for those entrepreneurs who wish to expand and export.

These micro-enterprises may find it difficult to compete with rival products that may be better packed, have uniform quality and are less expensive. More so, given that many are unable to supply regular orders to retailers or intermediaries, looking for a guaranteed supply and consistent quality products. These factors altogether seriously constrain the producers to tap a larger market.

With the establishment of a Trade and Marketing Agency as proposed in both the *NEPAD/FAO (2005)* and the *Vakakis International S.A/CIRAD (Beehary Panray, 2004) reports*, it is envisaged that a proper marketing of the agro-processed products will be made. It will correct some of the market failures and develop appropriate price mechanism that can boost the development of the sector.

The decision to create an Agro Processing Unit within the Commission for Agriculture is a very timely decision. This unit is expected to play a crucial role in sustaining the development of the sector by providing, *inter alia*, access to information on food processing, labelling, packaging, and ingredients, regular training courses in sanitation, basics of safe food processing, marketing, assistance in meeting regulatory requirements, source of information on emerging food science issues of concern: food safety and technical support in terms of research, product

development, and the development of appropriate processing technologies suited for Rodrigues.

The institutional and regulatory framework plays a critical role in facilitating enterprise development. The roles of the various support services need to be redefined, whilst improving their support and at the same time, reducing duplication of services.

In the new budget 2006/2007, several incentives have been devised for the small-scale entrepreneurs, from which the agro-processors can benefit to develop their enterprises.

From the 2006/2007 Budget, the following quotes have been taken, which bear relevance to and purport to revitalize the SMEs. These measures could also be applied in Rodrigues:

1. *"We are reviewing SME support and financing programmes to nurture businesses from birth to adulthood when they should be able to fend for themselves using commercial financing and tools."*
2. *"We will offer equity participation through an Empowerment Fund that will be operational in July. The Empowerment Fund will provide equity of Rs 300,000 to Rs 3 million. By sharing risk not only do we empower the entrepreneur, but Government will improve the sustainability of the programme. This means that we will be able to help launch at least twice as many successful entrepreneurs as in past programmes."*
3. *"This is why DBM will need to operate a special window until the SME has enough credibility to get commercial bank financing. The first window will intervene on behalf of Government to offer below market financing and quasi-equity. Government will provide the required subsidies to operate the first window and closely monitor the effectiveness of the programmes. This window will offer micro-credit financing for loans of Rs 50,000 or less, quasi-equity to starting entrepreneurs for sums up to Rs 300,000. It may also offer some of the existing*

- programmes after an evaluation of effectiveness that will result in consolidation of successful schemes.”*
4. *“The Small Enterprises and Handicraft Development Authority (SEHDA) will, therefore, work with newly registered entrepreneurs to provide them support services for the first few years. This will include preparing a business plan to secure financing from the first DBM window; assistance in filing statutory returns and complying with regulations for health, fire and environment; following up the implementation of the business plan; and offering advice to address problems. To achieve this objective about 200 participants in the Graduate Scheme will be trained in project evaluation, project implementation evaluation, and enterprise assessment. These Graduates will then operate as consultants to SEHDA to support entrepreneurs.”*
 5. *“Enterprise Mauritius will adopt a similar model to support the expansion and restructuring of existing SMEs to enable them to mobilize equity from the Empowerment Fund.”*
 6. *“To show our commitment to the democratisation of the economy through the creation of new wealth by emerging entrepreneurs, we are introducing a special tax holiday scheme for small businesses. A tax holiday for a period of 4 years will be granted to small enterprises converted into companies and which register for the first time with Income Tax. The aim is to promote new start-ups and also encourage businesses to move out of the informal sector”*
 7. *“The aim is to promote new start-ups and also encourage businesses to move out of the informal sector”*

With proper advice, financial, technical and institutional support, appropriate training, favorable government policies, it is believed that some of agro-processing units in Rodrigues can expand, thereby shifting their current scale of operation from a “kitchen” or “backyard” based processing to a semi-industrial enterprise. These emerging entrepreneurs will inevitably act as role model and potential drivers for other agro-processors. This will also provide opportunities for job creation.

CHAPTER 5

SWOT ANALYSIS OF THE AGRO-PROCESSING SECTOR

5.1 STRENGTHS

5.1.1 Use of local agricultural raw materials

All the raw materials used for food processing are sourced locally, either from the backyard or from the farmers. The raw materials have intrinsic characteristics (e.g., lime, chilli), which are claimed to be unique in taste and other sensorial qualities.

5.1.2 Good reputation of the products

Rodrigues has an established reputation for its traditional agro-processed products. Over the years, the Rodriguans have developed exclusive recipes for its main exotic products.

5.1.3 Use of simple technology and equipment for the products

Rodrigues can capitalize on the low-cost technology required for production of processed products. This offers the possibility to expand without too much investment in equipment and qualified personnel.

5.1.4 Presence of support structure

Several support institutions offer services to the small and medium enterprises, that include finance, training, marketing, technical advice and documentation.

5.1.5 New thrust to the agro-processing sector

Since the setting up of the Rodrigues Regional Assembly, the Commission for Agriculture has sponsored several studies to develop appropriate strategies for the modernization of the island agriculture and agro-processing sector. The creation of the Agro-processing Unit under the Commission for Agriculture is a laudable initiative.

5.1.6 Training of Agro-Processors

Training is a regular feature and several training programmes have been organised by the relevant support institutions to upgrade the knowledge of the agro-processors in manufacturing practices, food hygiene and safety and entrepreneurial skills.

5.1.7 Existence of a pool of experienced agro-processors

Agro-processing has existed since a long time in Rodrigues. This knowledge has been passed on to successive generations. This has created a pool of skilled and experienced people.

5.2 WEAKNESSES

5.2.1 Insufficient supply and high prices of raw materials

Due to seasonality of raw materials and drought periods, there is an inadequate supply of raw materials leading to disruption in the production chain and high prices.

5.2.2 Poor quality of raw materials

Poor cultural/husbandry practices and poor harvesting/post-catch/slaughter handling practices often result in poor quality of raw materials, which affects the consistency and quality of the final product.

5.2.3 Inconsistent quality of processed products

Lack of control during manufacturing practices (individual recipe, approximate weighing) leads to products that are inconsistent.

5.2.4 Inappropriate manufacturing conditions

No special area is designated for processing. Use of the kitchen and equipment for different purposes can increase the risk of food contamination.

5.2.5 Inappropriate packaging materials and labels

Products are still being packed in used containers and are inappropriately labelled.

5.2.6 Difficulties to get specific ingredients & technical information

Some specific ingredients, technical information on equipment and chemicals are not readily available.

5.2.7 Low production capacity

Most, if not all, enterprises are home based. Lack of appropriate equipment for mass production and insufficient raw materials limit the production capacity.

5.2.8 Absence of a proper marketing plan

The marketing, information and distribution systems are not properly organized. Marketing of the products are mainly carried out by the individual agro-processors.

5.2.9 Overseas and niche markets

Though Rodriguan exotic products have an established reputation, there is still limited research to assess consumers' preferences and market demand for such products.

5.2.10 Inadequate technical support for the agro-industrial sector

To date, there is no institution that provides technical support (product development and testing, research, shelf-life determination) to the agro-processing sector.

5.2.11 No follow up on training

Though several training courses have been organized, no appropriate follow-up mechanism has been initiated

5.2.12 Delays to obtain permit

There are lengthy procedures for approval of permits for construction or expansion of a food processing unit.

5.3 OPPORTUNITIES

5.3.1 Development of the tourism industry

The tourism sector has developed considerably over the past years, and represents a major market for the Rodriguan agro-processing industry.

5.3.2 Development of agricultural production

The Commission for Agriculture is developing a plan to revitalize the agricultural sector.

5.3.3 Setting up of a food laboratory

The setting up of the Food laboratory will help to encourage the agro-processors to adopt proper manufacturing and hygienic practices, to produce quality and safe products.

5.3.4 Creation of a Trade and Marketing Agency

With the establishment of a Trade and Marketing Agency, it is envisaged that an efficient marketing system of agro-processed produce will emerge.

5.3.5 Demand for 'bio-products' and opening of niche markets

There is a potential for export, with globalisation and the opening up of niche markets internationally, for ethnic and organic products. A high demand exists for products from Rodrigues.

5.3.6 High potential for generating income and employment

With the new thrust given by the Government to the small-scale enterprises, the agro-processing sector represents a potential for creating employment and generating income

5.4 THREATS

5.4.1 Competition with rival products

With an increasing number of new entrepreneurs being engaged in agro-processing in Mauritius and the importation of similar products (e.g., pickles, jam), it is feared that the Rodriguan Products may face fiercer competition on the Mauritian market.

5.4.2 Natural disasters

Drought and cyclonic conditions are regular features that affect the availability and quality of raw materials.

5.4.3 Adulteration and poor quality products

Some adulterated products are found on the market. This, together with the presence of poor quality products threatens the reputation of Rodriguan products in general.

5.4.4 Decline in production of raw materials

Due to adverse climatic conditions, pests and diseases and a loss of interest of the younger generation in Agriculture, over the years, production of raw materials used for processing in Rodrigues, has drastically declined, with consequential increase in prices.

5.4.5 Export market for raw materials

The existence of a lucrative export market for fresh lime, chilli, octopus limit the availability of raw materials used for processing.

CHAPTER 6

RECOMMENDATIONS

6.1 INTRODUCTION

The challenges facing the Rodriguan small-scale food processing sector need to be understood in its proper context, given the country's unique characteristics and features. Agro-processing is viewed as an important sector for the Rodriguan economy as it contributes to employment creation and has linkages with the economy, especially the agricultural and fisheries sectors. It is, therefore, essential that appropriate support are given to the various stakeholders to enhance their competitiveness and efficiency.

In this context, a series of cross cutting recommendations are being proposed. The overall objective is to put in place a system that can effectively remove the existing constraints and create an enabling environment for the sustained development of the agro-processing sector.

Although several previous reports have proposed a series of measures to boost up the agro-processing sector in Rodrigues, none of them have adopted a holistic approach to address the problems. They have rather only analysed the sector subsystem components. An integrated approach which encompasses all the relevant subsystems and their interrelationships and constraints needs to be adopted, in order to make valid recommendations.

It is, thus, imperative that for a successful and thriving agro-processing sector in Rodrigues, the sector must have at least reckoned some of the following key features:

- Ensuring the proper harvesting, transportation and distribution of the raw materials.
- Establishment of strong linkages between the primary producers and processors to ensure regular supply of raw materials.
- Production and presentation of products that meet the expectation of the consumers.
- Establishment of an efficient mechanism for the promotion and sales of the agro-processed products on the main markets.
- Enhancement of the support services offered to this sector

6.2 OPERATIONALISATION OF RECOMMENDATIONS

In this context, a framework consisting of the different sub-systems of the sector is being proposed. The recommendations rest on the underlying assumptions that each subsystem must work in a synergistic and cooperative manner to drive the successful development of the sector. This approach would ensure that no major bottlenecks are encountered at any level of the agro-processing system for its development. The overall framework, under which the recommendations are being proposed are described below.

6.2.1 DESCRIPTION OF THE FRAMEWORK

This framework (Fig. 4.1) shows the main actors and their linkages in the agro-processing chain. It is envisaged that such a framework could both stimulate the production of raw materials, ensure an efficient system of harvesting and processing of raw materials into quality processed food products for both the local and export markets. This framework is built around the following components:

- **Primary Production**
- **Production of processed products**
- **Product safety and quality**
- **Marketing**
- **Support services**

It encompasses the primary producers, the processors and the various support institutions such as AGPU, The TMA and shows how these various stakeholders are interlinked.

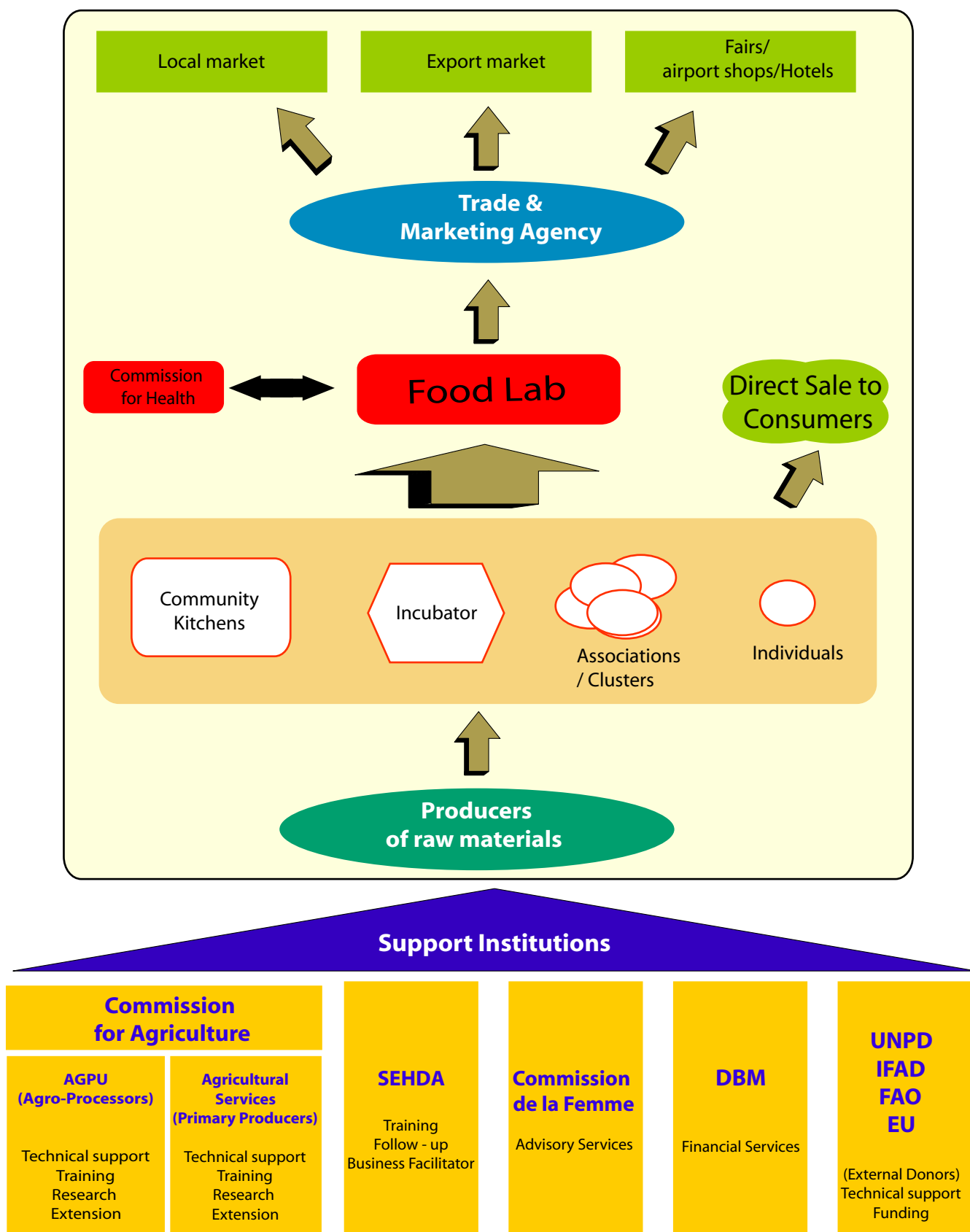


Figure 4.1: Conceptual framework for the agroprocessing sector in Rodrigues

In any economic activity, it would be impossible to have a homogenous set of entrepreneurs. It, therefore, proposes that the agro-processors can exist in different types of production units, which are scattered all over the island. Thus the agro-processors can group themselves in associations or clusters, form part of either incubators or community kitchens or simply exist as individual entrepreneur. These various production units can use several marketing channels to sell their products. In some cases, they may prefer to sell directly to the consumers while others would prefer to ensure their product quality through the food laboratory and then use the facilities or incentives provided by the Trade and Marketing agency to sell their products in both the local and regional markets and fairs. These products will be eligible for the Rodriguan label.

These production sites should then be closely monitored in their development plans by the relevant institutions. In this context, the newly set up AGPU will have to play a crucial role in providing training, technical support, and other allied services and serve as a link with the other support/ financial institutions such SEHDA, and DBM. These institutions are vital components of the framework, as they will provide the necessary financial facilities and incentives for developing the sector. In order to ensure production of quality products, it would be essential to set up the food lab, as a key priority. The Trade and Marketing agency will also play an important role for marketing the processed foods of the various agro-processors. The food lab will provide a direct service to the various producers, working in close collaboration with the AGPU and the TMA. And finally for the successful implementation of the whole framework, it is proposed that the development plans of the various stakeholders are monitored by a steering committee set up by the RRA.

6.3 RECOMMENDATIONS

Based on the above framework, the recommendations are grouped under the following components.

- A. Improving raw materials production
- B. Boosting production of processed products
- C. Improving quality and safety of products
- D. Strengthening the Support Institutions
- E. Development of policy for the sector

6.3.1 IMPROVING RAW MATERIALS PRODUCTION

Backward linkages between producers and agro-processors

Rodrigues' agro-processing sector's linkages with other small-scale productive sectors are almost non-existent and growth of the small-scale sector has, therefore, been rather divorced from the rest of the economy. The agro-processors should develop or reinforce linkages with the agricultural producers and animal farmers so as to ensure a regular supply of raw materials at competitive prices.

Raw material production

The successful development of the agro-processing sector undoubtedly relies on a regular supply of raw materials from different sources. In view of the expected high demand for quality raw materials in the sector, it is therefore proposed that appropriate measures are taken to boost up the production of the main raw materials, so as to sustain the overall progress of the sector. These measures could include aspects on proper crop husbandry, proper crop management, proper disease control, use of

appropriate varieties, efficient irrigation systems, intensive cultivation of selected crops, feeding plans for pigs, improved animal husbandry techniques.

It is also proposed that appropriate post-harvest handling techniques are popularized via leaflets and awareness campaigns among both the producers and agro-processors. The Agricultural Services can be called upon to empower the crop producers and farmers in better cultivation/animal husbandry practices and post-harvest/post-slaughter/post-catch techniques.

6.3.2 BOOSTING PRODUCTION OF PROCESSED PRODUCTS

Setting up of food processing incubators and commercial kitchens

Regulations prohibit commercial food processing in domestic kitchens and require small processors to operate under hygienic conditions in approved building and with equipment that meets legal requirements. Given that the setting up of a production unit and its associated equipment can be very expensive, it is proposed that at least one incubator preferably located around Citronelle, and at least one community kitchen be set up in each of the five zones. The agro-processors can use these facilities either as individual or as members of associations, cooperatives or clusters. The design and set up will be according to the required legislation.

The incubator can nurture the small-scale entrepreneurs by providing rental space, shared administrative services, and technical assistance at an affordable price. It can also be viewed as a place where new and/or

early stage businesses can operate and be prepared for long-term success.

The community kitchens can operate as a shared-use kitchen; a relatively inexpensive rental facility that can assist individuals, local growers, and producers in the creation and packaging of food products. It can be operated by cooperatives and the kitchen clients can be charged only for the time that they use the facility. Processors can also benefit from the technical knowledge of others using the kitchen incubators, particularly those with extensive food processing, marketing, and business experience. The members can also benefit from loan facilities.

6.3.3 IMPROVING THE QUALITY AND SAFETY OF PRODUCTS

In order to compete in regional markets, it is vital that quality and safe products are produced. It is, therefore, essential that appropriate food standards akin to those specific produce are developed. Through the expected expansion of the agro-processing sector, product-testing facilities need therefore to be set up. The *NEPAD report* recognized the key role to be played by a Food Lab, in improving standards. This facility is critical if Rodrigues is to become competitive in exporting processed products, as it will increase consumer confidence and create an immediate and significant impact on improving standards.

The Food Lab needs to be equipped with the necessary resources including equipment, human resource, technological skills and sufficient funds. The lab should be able to carry out scientific analysis of processed agricultural products and should be able to provide microbiological, chemical and physical testing facilities for the raw materials, processed products and potable water. Shelf-life of products can also be determined in the lab.

In addition, the following training courses are being proposed to improve quality and safety of foods:

- (1) Five half-day workshops (equivalent) on hygiene: Good Manufacturing Practices, personal hygiene, sanitation and cleaning, and labelling to all agro-processors.
- (2) Five half-day workshops (equivalent) to those who have followed the above training on food quality and safety: food standard, food hazards, introduction to HACCP and case studies.
- (3) Five half-day workshops (equivalent) workshop on shelf-life studies and simple product testing.

6.4 SUPPORT SERVICES DEVELOPMENT

The government policy is presently laying emphasis on the development of SMEs including the agro-industries, as a priority. The existing institutions that are dedicated to small-scale companies are involved with all types of manufacturing companies including agro-industries. None of the service providers are specifically geared towards small-scale food processors. The development of small-scale food processing would be more effective if there were dedicated sections in the various support institutions for this sector. There is a need to prepare an inventory of available support services and assign an organization like the AGPU/SEHDA to maintain such a database. The database should cover information like available credit lines and their conditions, information services, lists of consultants. In the long run, a Wide Area Network (WAN) between different actors in the field of small scale food processing would surely contribute to proper flow of information. Thus the following scenario is being proposed:

6.4.1 ROLE OF THE COMMISSION FOR AGRICULTURE

The Commission will act as the driver of the sector through its various departments.

Agro Processing Unit (AGPU)

The AGPU should be the focal point for furthering the development of the sector. It should be staffed by personnel with a good knowledge and experience of agro-processing. The staff should also be trained in developing policies for small-scale food processing and quality management. Donor support could assist in this direction. Field assistants should also be trained to do onsite follow-up with the agro-processors on-site. Training programmes for agro-processors could be developed by AGPU, in collaboration with other institutions like, UOM and AREU, SEHDA, to promote technological application and business development, with a view to increasing management capacity and developing entrepreneurial spirit and drive. AGPU will also need to assist potential entrepreneurs in product development, design and layout, as well as equipment acquisition for those who wish to upgrade their technology and to also carry out applied research.

Food Laboratory

The Food Lab can be attached to AGPU. Processors should be sensitized of the importance of food safety, standards and testing of products. Producers who wish to obtain the Rodriguan label for their products should channel their requests through the food laboratory. This lab can also work in close collaboration with the MOHQL. A special memorandum of understanding can be made between the MOHQL and

the Commission of Agriculture, so that the MOHQL can use the facilities from the Food lab in Rodrigues.

Capacity Building

Capacity building in the agro-processing sector and its related fields are of vital importance for the successful development of the sector. It is, therefore, crucial that the main training institutions in Rodrigues work in partnership, for the planning and implementation of new training programmes. The main areas for training are as follows:

- Food and Personal Hygiene
- Food Safety and Quality
- Packaging and Labelling
- Financial Management
- Entrepreneurial skills
- Crop/Animal Husbandry
- Post-Harvest Technology

It would be desirable that AGPU becomes the main training institution. This unit could then mount training programmes in collaboration with other institutions such as the Human Resource Centre, AREU, SEHDA, University of Mauritius (UOM) and others. Nevertheless, it is proposed that a training needs analysis for the sector be undertaken to identify the potential areas of training.

It is also recommended that, in the medium term, the AGPU produces in collaboration with the UOM, a comprehensive agro-processing training manual, in French or Creole, which could include topics such as:

- Processing Techniques
- Quality Assurance Control
- Food Hygiene
- Packaging and Labeling
- Basic Food Microbiology
- Marketing
- Product Development
- Support services

Agricultural services

This section will be called upon to play an important role in training farmers and producers on improved productivity and quality products. The staff will be required to research and develop innovative, yet appropriate, technologies for improving supply and quality of raw materials.

Storage facilities

The cold rooms located at Citronelle can be upgraded to store surpluses of raw materials and processed products. Producers/processors can be made to pay a nominal fee for using this facility.

6.4.2 ROLE OF THE TRADE AND MARKETING AGENCY

The setting up of a Trade and Marketing Agency in Rodrigues will undoubtedly create the necessary environment for stimulating production of processed foods by developing an efficient marketing and pricing system for the various types of processed foods. Although the pricing system would depend a lot on market forces, it would be central

in addressing the current price fluctuations and variations and ensuring greater stability in prices. This would also guarantee that those producers remain competitive *vis-à-vis* similar products in both the local and regional markets.

The TMA will have to develop close relationships and partnerships with the producers to schedule production. It is also proposed that the agency works in close collaboration with the forthcoming food laboratory to ensure compliance with the Food standards and quality control programmes. It could also oversee the provision of labels and packaging materials.

Although in the short term, the TMA may focus on promoting the marketability of these products in the traditional markets, it is proposed that the Agency carries out market research at both the local and international levels, to identify niche markets and establish formal protocols, for sales in those markets. Finally the TMA should adopt an aggressive strategy in its different markets.

6.4.3 SEHDA

With the merger of the SMIDO and the NHPA into SEHDA, a new synergy in the small business sector is expected. The SEHDA provides support to potential and existing small entrepreneurs, to enable them to start new enterprises or improve their existing businesses. For the Rodriguan agro-processors, the existing schemes should help the sector enormously. The '*Caravanne de L'entrepreneuriat*' is also a good initiative, whereby the service providers get into closer contact with their clients. It is proposed that an aggressive sensitization programme is undertaken in Rodrigues by the SEHDA and that all its services become available promptly to Rodriguan entrepreneurs.

6.5 POLICY MATTERS

Publication of a White Paper

The development of the agro-processing sector should be backed by appropriate policies measures at the level of the RRA. It is therefore recommended that a white paper on this sector be developed to elaborate on the various strategies for the development of the sector. The paper should also define in clear terms the role of the various actors in the sector.

Strengthening credit markets for financing and investment.

The role of micro-financing is crucial in this regard and the government should be actively involved at this level. For example, it should consider extending duty drawbacks on imports of equipment and inputs and packaging materials used by the agro-processors.

Small companies are discouraged from applying for incentives by the complicated bureaucracy involved (many documents, feasibility studies) in the process despite the presence of incentives and financial benefits for investment. Financing mechanisms will need to be created to facilitate SME's access to finance. If this system is well implemented, it could make a useful contribution to the rapid growth of these small companies. Procedures for access to credit should be simplified. Innovative credit procedures should be implemented for micro- and small-scale companies, as well as rapid procedures for registering companies.

Agro-processors need also to regroup themselves in the form of associations, clusters/cooperatives, to improve their situation. Service

providers could then provide facilities to them, which would, in turn, monitor their members, thereby reducing the risks faced by the support institutions. In other words, members could act as co-guarantors and loans staggered amongst members. Also as a group, their ability to lobby decision makers on issues of importance and interest would be stronger.

New Business Environment

The new business environment created by the coming into effect of the Business Facilitation Act, as from 01st October 2006, is another positive development for making the Republic of Mauritius, a nation of entrepreneurs. Prompt issue of the building and land use permits (BLP) will surely bring positive results for the sector. An interesting feature of the new environment is that small-scale enterprises/ businesses that are carried out at home without modification of the dwelling do not require a BLP, provided they satisfy the following criteria:

- ❖ Daily vehicle movement to site is limited. There is no adverse external nuisance.
- ❖ Loading & unloading not disruptive to amenity of the residential area.
- ❖ Operator of enterprise resides on the premises.
- ❖ Adequate parking is available.
- ❖ All materials can be safely stored on site.

Most of the agro-processors in Rodrigues fall in the exempt category above and this would revitalize the sector. It is only hoped that these measures in Mauritius will trickle down quickly to the Rodrigues.

6.6 RELEVANCE AND USEFULNESS OF THE STUDY

It is envisaged that adoption of the multi-pronged approach on which the recommendations are based will be beneficial to the various stakeholders in the Rodriguan Agricultural processing sector and the Rodriguan economy.

These recommendations are broad concepts upon which the relevant authorities can act so as to formulate appropriate strategies and policies for the development of the sector. It will ensure that the entrepreneurs adopt appropriate manufacturing techniques and hygienic practices to produce safe and quality products for the consumers. The improved productivity will also lead to higher earnings for the entrepreneurs and improve their quality of life.

At the same time, the increased development of the sector will boost the primary agricultural production of raw materials and supply the producers with quality raw materials.

With the sustained development of the sector, agricultural production is expected to be boosted thereby providing the necessary raw materials for processing. At the same time, through its multiplier effects, these would contribute to reduce unemployment and alleviate poverty in Rodrigues.

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8.0 APPENDICES

APPENDIX 1

LIST OF KEY INFORMANTS

ASSOCIATIONS		
Number	Name	Profession/Institution
1	Mrs Augustin Roussety	President Forum (FFER)
2	Mrs Martin Marguerite Marie	President FER (East)
3	Mrs Mireline Regauffe	President FER (Centre)
4	Mrs Jeanne D'Arc Chair	President FER (Sud)
5	Mrs Anna Arlette Hypolite	President FER (Nord)
6	Mrs Marilyn Pierre Louis	President FER (West)
7	Mrs Françoise Baptiste	President "Rodrigues Entrepreneur Au Féminin"
8	Mr Felicite Michel	President FACER
9	Mr Maximilien J. Louis	Member FACER
10	Mrs Liseby Azie	Manager FACER
11	Mrs. M.L. Augustin Roussety	FORUM
12	Mrs. M. Gaspard	Centre des Femmes
13	Mrs. A. A. Hypolite	Groupe Artisans Malabar
14	Mr. B. Jolicoeur	Association Tourisme Vert de L'île Rodrigues
15	Mr. D. Meunier	Association of Diary Farmers
16	Mr. P. Draper	CARECO
17	Mr Maryo Flore	Agricultural Services

RODRIGUES REGIONAL ASSEMBLY		
Number	Name	Profession/Institution
1	Mr. Louis Serge Clair	Chief Commissioner
2	Mr. J. Daniel Speville	Deputy Chief Commissioner
3	Mr Jean Paul Colin	Departmental Head of Handicraft; Trade; Commerce and Licensing, Consumer Protection; Youth and Sports
4	Mr. B. Jugoo	Departmental Head of Agriculture; Food production; Housing; Infrastructure including Highways and roads and Public buildings and Utilities; Plant and animal quarantine; Transport
5	Mr Rousseau	Departmental Head of Arts and Culture; Child development; Community development; Family Welfare; Women's Affairs; Library Services
6	Mr Periasamy	Commission of co-operatives, fire services; health (administration); prisons and reform institutions
7	Mr Seebaluck	Commission of co-operatives, fire services; health (administration); prisons and reform institutions
8	Mrs. M. Perrine	Commission for Arts and Culture; Child development; Community development; Family Welfare; Women's Affairs; Library Services

9	Mrs. Riviere	Commission for Handicraft; Trade; Commerce and Licensing; Consumer Protection; Youth and Sports
10	Mrs. Felicite	Commission for Labour and Industrial Relations and Social Security
11	Mr. P. Louise	Rodrigues Chamber of Commerce of Commerce and Industry
12	Mr Davis Hee Hong Wye	Former Departmental Head
13	Mr Jean Claude Pierre Louis	Chief Island Secretary

AGRICULTURAL SERVICES		
Number	Name	Profession/Institution
1	Dr (Mrs.) A. Gungoosing Bunwaree	SAO
2	Mr C Davilla	Agricultural Services
3	Ms. J. Allas	SO
4	Mr. W. Roussety	FA
5	Mr. J. Felicite	SO
6	Mr. R. B. Agathe	AgSO
7	Mr. G. Perrine	AgSO
8	Mr. A.K. Bunwaree	SIDPR

SERVICE PROVIDERS		
Number	Name	Profession/Institution
1	Mrs. K. Faikoo	SEHDA
2	Mr. Tremplin	DBM
3	Mr. W. Emilien	Association Cooperative Des Caisses Villageoises (Léve Deboute De Rodrigues Ltee)
4	Mrs P Sooprayen- Kwet On	Program Manager, IFAD
5	Mr Tolbize	IVTB, Hotel Schools

AGRO-PROCESSOR		
Number	Name	Profession/Institution
1	Mrs. B. Larose	Mange Tout
2	Mrs. C. Raboude	Les Flamboyant
3	Mrs. M. Begue	Les Capucines
4	Mrs. J. Marianne	Café marron
5	Mrs. M.J Perrine	Emeraude/ Calypso
6	Mrs. M.A. Emilien	Camelia
7	Mrs. R. Cupidon	Le Goute Creole
8	Mr. B. Clair	Le Solitaire
9	Mrs. L. Perrine	Agro-processor
10	Mrs. D. O. Leopold	Agro-processor
11	Mrs. M. Pierre Louis	Agro-processor
12	Mrs. I. Samois	Agro-processor
13	Mrs. E. Rose	Agro-processor
14	Mrs. M. Commarmond	Agro-processor
15	Mrs. P. Potiron	Agro-processor
16	Mrs. A. Agathe	Agro-processor

17	Mrs. Y. Begue	Agro-processor
18	Mrs. M. J. C Perrine	Agro-processor
19	Mrs. R. Clair	Agro-processor
20	Mrs. M. Samois	Agro-processor
21	Mr. R. Meunier	Agro-processor
22	Mrs. C. Tolbize	Agro-processor
23	Mrs. M.A Milazar	Agro-processor
24	Mrs. M.A Collet	Agro-processor
25	Mme D. Speville	Agro-processor
26	Mr Victorin Prudence	Lime Produce
27	Mr Bradley Etienne	Pork Processor
28	Mr Tive Spéville	Pork Processor
29	Mr Booluck	Calypso

APPENDIX 2

LIST OF AGRO-PROCESSORS BASED ON PRODUCTS

CROP BASED PRODUCTS		
Number	Name of agro-processor	Location
1	Albert Noella	Baie Aux Huitres
2	Collet Liney Patricia	Baie Topaze
3	Gladysse Rivière	Camp Du Roi
4	Meunier Anne Ah Song	Camp Du Roi
5	M.Faniella Marianne	Citron Montagne Cabris
6	Niole Florina	Dans Bébé
7	Rosemary Azie	Dans Bébé
8	Irenza Samois	Deux Goyaves
9	Legentille Jocelyne	Eau Vannée
10	Bégué Sylvianne	Grand Baie
11	Raphael Irena	Grand La Fourche Corail
12	Marie Nelie Rose Allas	La Ferme
13	Ludimie Allas	La Ferme- Citadelle
14	José Rousetty	La Ferme- Pistache
15	Perine Marie Rose Willima	Maréchal
16	Atlas Marie Lourdes	Mont Plaisir
17	Comarmond	Montagne Bois Noir
18	M Perrine Balip	Mont Lubin
19	Armand Nadeze	Nassola
20	Baptiste M. Thérèse	Nassola
21	Marie Louise Agathe	Nassola
22	Rachelia Cupidon	Nassola
23	Manan Marie Danielle	Petit Gabriel

24	Marie Claisse Prudeuse	Plaine Corail- Anse Quitor
25	Pierre Louis Josiana	Pompée
26	M. Rosemary Clair	Port Sud Est
27	Clemencia Ravina	Roche Bon Dieu
28	Emilien Benjamine	Roche Bon Dieu
29	Anna Arlette Hypolite	Soupir
30	Sabrina Manor	Sainte Famille
31	Begué Louse Ginette	Sygangue
32	Merline Samoisy	Sygangue
33	Anique J.Louis	Tammes
34	Narma Elysee	Terre Rouge
35	Marie Frisline	Trèfles
36	Maryamme Ravina	Trèfles
37	Geraldine Prosper	Trèfles

ANIMAL BASED PRODUCTS		
Number	Name of Agro-Processor	Location
1	Claudora Emilien	Anse Baleine
2	André Margaret	Anse Enfer, Mourouk
3	Angelina Jolicoeur	Anse Enfer, Mourouk
4	Marie Lourdre Clair	Anse Enfer, Mourouk
5	Angelique Lacruche	Anse Enfer, Mourouk
6	Christianne Clair	Anse Enfer, Mourouk
7	Gaspard Jeanette	Anse Enfer, Mourouk
8	Lima Casimir	Anse Enfer, Mourouk
9	Philoména André	Anse Enfer, Mourouk
10	Thomas Stephenson Licette	Anse Enfer, Mourouk
11	Nicole Agathe	Anse Enfer, Mourouk

12	Rolande Leong- Hin	Baie Malgache
13	Tive Speville	Batatan
14	Jean Paul Dundee	Batatan
15	Stephano Ravina	Brulé
16	Levique Debaye	Cascade Jean Louis
17	Suzette Milazar	Eau Claire
18	Polimon Jean Maurice	Mont Lubin
19	Marie Jeanne D'arc Edourd	Parc Tortue
20	Samoisy Jeuril	Petit Gabriel
21	Bradley Ethienne	Pointe Canon
22	Guy Wong	Port Mathurin
23	Jean -Claude St Pierre	Songe
24	Josette Constant Perrine	Trèfles

CROP AND ANIMAL BASED PRODUCTS		
Number	Name of Agro-Processor	Location
1	Emilen M. Sylvie	Anse Baleine
2	M. Claire Emilien	Anse Baleine
3	Marie Josée	Anse Baleine
4	Marie Iverze Clair (Association Femme Entrepreneur)	Anse Enfer, Mourouk
5	Pamela Claire (Association Femme Entrepreneur)	Anse Enfer, Mourouk
6	Marie Ann Clair	Anse Enfer , Mourouk
7	Nalda Larcher	Anse Enfer, Mourouck
8	Philoméne Clair	Anse Enfer, Mourouck
9	Annette Legentil	Anse Quitar
10	Prolande Leong-HIN	Baie Malgache
11	Aliette Grandcourt	Baie Topaze
12	Augustin M.Blaizie	Camp Baptiste
13	Plaiche Chantal	Camp Du Roi
14	Léveque Debaye	Cascade Jean Louis
15	Lucuce Prosper	Citron Donis
16	Marie Therese Raboude	Citron Donis
17	Marie Georgette Rose Martin Jolicoeur	Coromandel
18	Chantale Raboude	Deux Goyaves
19	Raphael Marie Jeanne	Eau- Vannée
20	Leoplold M. Dona Oblasse	Grand La Fourche Corail
21	Albert Antonella	Grand Montagne
22	Casimi Octovie	Gravier
23	Agathe M.Aimée	Latanniers

24	Augustin Marie Philomène	Latanniers
25	France Perrine	Latanniers
26	Cet André	Le Choux
27	Louis L'anne D'arc	L'Union
28	Anne Marie (Association Femme Entrepreneur)	L'Union
29	Marguerite Speville	Malartic
30	Josiane Speville	Montagne Bois Noir- Bassin Martin
31	Francois M. Arlege	Pointe Monnier
32	Casimir Chantale	Palissade
33	Raphaël	Palissade
34	Marie Ange Et Jessie Emilien	Pallisade
35	Nauda Edouard	Parc Tortue
36	Duchesse Severy	Petit Gabriel
37	Mr Jaigal Boolanck (Jean)	Petit Gabriel
38	Leong-Hin Oomawtee	Pointe La Guele
39	Ilette Joilicoeur	Pompée
40	Noellette Azor	Port- Sud Est
41	Leonita Perrine	Remir (Citron Donis)
42	Ravina Taileiuza	Roche Bon Dieu
43	Evenor Marie Clarise	Solitude
44	Collet Rosedelim	Soupir
45	Horteuse Florine	Soupir
46	Marie Anne Collet	Soupir
47	Yolande Begué	Soupir
48	Pevette Potiron	Tammes
49	Babet Andeese	Trèfles
50	Marie Paul Legentil	Trèfles

51	Prosper Mirella	Trèfles
52	Ravina Antoinette	Trèfles
53	Oliva Ravina	Trèfles
54	Enterprise Ste Famille, Magdalena Emilien	Sainte Famille

Note: Details of four agro-processors are incomplete and therefore not incorporated in the frame.

APPENDIX 3

SURVEY OF THE AGRO-PROCESSING SECTOR OF RODRIGUES

Date: / /

Questionnaire no.:

A. PROFILE OF AGRO-PROCESSORS

A.1 Name of enterprise/ person:

A.2 Phone no.:

A.3 Address:

A.4 Please fill in the following table

Gender	Age groups (years)	Marital status
Male <input type="checkbox"/>	< 16 <input type="checkbox"/> 41 – 50 <input type="checkbox"/>	Single <input type="checkbox"/>
Female <input type="checkbox"/>	17 – 25 <input type="checkbox"/> 51 – 60 <input type="checkbox"/>	Married <input type="checkbox"/>
	26 – 40 <input type="checkbox"/> >60 <input type="checkbox"/>	Widow <input type="checkbox"/>

A.5 Highest level of education attained

Not attended school ☐ Primary Level (completed) ☐
 Primary Level (not completed) ☐ Secondary Level ☐
 (mention which form:)
 Tertiary Level ☐ Vocational ☐
 Others

A.6 For how long are you running your enterprise?

< 1 yr ☐ 1 – 2 yrs ☐ 3 – 5 yrs ☐ 6 – 8 yrs ☐ 9 – 10 yrs ☐ > 10 yrs ☐

A.7 Do you run your enterprise on a:

Full-time basis	Part-time basis	If part-time, please specify main economic activity
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A.8 How is the enterprise managed?

Self-run ☐ Family-run ☐
 In association with other processors ☐
 Company ☐
 Others

A.9 Please fill in the table below

	No. of persons working in the enterprise	
	Permanent basis	Temporary basis
Hired		
Family		

A.10 Why did you start this activity? (No Prompting/ Multiple Answers)

- | | | | |
|---------------------------------|--------------------------|-------------------------------|--------------------------|
| To earn a living | <input type="checkbox"/> | To supplement monthly income | <input type="checkbox"/> |
| To continue family business | <input type="checkbox"/> | Availability of raw materials | <input type="checkbox"/> |
| Influence of the local industry | <input type="checkbox"/> | Market demand | <input type="checkbox"/> |
| Training and skill in the field | <input type="checkbox"/> | Entrepreneur motivation | <input type="checkbox"/> |
| Leisure activity | <input type="checkbox"/> | | |

Others

A.11 What are the major constraints that impede the proper running of your enterprise?

.....

A.12 Can you please specify what incentives and facilities are needed for the development of agro-industries in Rodrigues?

.....

B. TYPES OF PRODUCTS

Table 1: Please fill in the table below

Name of processed products	Years of experience in manufacturing	Average Quantity sold/ month (specify units)

B.1 What are the most commonly sold products? (list a maximum of 4)

1 3
2 4

C.1 CHARACTERISTICS OF RAW MATERIALS

Raw Materials	Cost(Rs./ kg)	
	In season	Out of season

C.1.1 How do you buy your raw materials?

In bulk ☐ Regularly but in small quantities ☐

C.1.2 Where do you obtain your raw materials?

1. Directly from own garden/ orchard ☐
2. Buy directly from producers/ neighbours/ planters ☐
3. Buy at market place ☐

Others.....

Of all the options listed above, what is your most important source of raw materials?

(Please circle by referring to C.1.2)

1. 2. 3. 4.

C.1.3 If you purchase raw materials, which criteria determine the choice of your suppliers?

Criteria	Ranking (In order of importance)
Ready availability of raw materials	
Price of raw materials	
Quality of raw materials	
Geographical proximity (region)	
Others	

**C.1.4 Please indicate the extent of problems you face with raw materials (Prompting/
Multiple Answers)**

Factor	No problem	Moderate problem	Serious problem
High cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seasonality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insufficient quantity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not readily available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Climatic conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Others

C.2 STORAGE OF RAW MATERIALS

Raw materials	Length of storage (days, weeks, months)	How are raw materials stored?	Where are raw materials stored?

C.3 CHARACTERISTICS OF SPECIFIC INGREDIENTS USED FOR PROCESSING

Ingredients (pectin, additives, colours)	Source	Problems associated with ingredients

D. MANUFACTURING PRACTICES

D.1 What is your main processing activity and what are the equipment used?

Main processing activity	What equipment do you use?	Have you purchased any specific equipment?		What other equipment do you wish to acquire?
		Yes	No	
Pickling <input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
Sugar preservation (Jam-making, Aigre-Doux, Pate à Fruits) <input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
Drying <input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
Curing <input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
Others		<input type="checkbox"/>	<input type="checkbox"/>	

D.2 Do you follow a standard recipe for making the product(s)? Yes ☐ No ☐

D.2.1 If yes, please state the source of the recipe

Traditional recipe ☐ Own recipe ☐
 From training courses ☐
 Others

D.3 Where do you process your products?

Own kitchen ☐ Special production area at home ☐
 Common production area (e.g. Mange-Tout) ☐
 Others

D.4 What is your source of water?

Source of water	
Chlorinated tap water	
Non-chlorinated tap water	
Rainwater	
Others	

D.5 Do you treat your raw materials before processing? Yes ☐ No ☐

IF NO, SKIP TO QD.6

D.5.1 If yes, please specify how

.....

D.6 Do you treat water during processing? Yes ☐ No ☐

IF NO, SKIP TO QD.7
D.6.1 If yes please specify how

.....
D.7 How do you fill your jars or containers?

Weighing of content ☐
 Full to the brim ☐
 Others

D.8 Please indicate to which extent the following factors affect manufacturing of your products (Prompting/ Multiple Answers)

Factor	No problem	Moderate problem	Serious problem
Electricity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Limited space of production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Waste disposal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insufficient ingredients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Labour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others			

D.9 How do you think you can improve on your manufacturing practices?

.....

E. PACKAGING

E.1 What kind(s) of packaging material(s) do you use?

Kinds of packaging materials	<u>Reason(s)</u> for choice* of packaging materials	Preferred size of packaging material according to product	Reason(s) for size preference

***Please fill in the above table:**

1 = Cheap
2 = Ease of filling
3 = Availability
4 = Size convenience
5 = Process requirement
6 = Better presentation

E.2 Where do you purchase your packaging material(s)?

Packaging materials	Source	Any problem associated with packaging materials

E.3 How do you overcome problems associated with packaging materials?

.....
.....

F. PRODUCT QUALITY & SAFETY

F.1 What precautions do you take to ensure safety and quality of your product(s)?

.....
.....

F.2 Do you treat your packaging materials? Yes ☐ No ☐

F.2.1 If yes, please fill in the table below

Packaging materials	Please specify how the treatment is carried out
Glass jars	
Bottle	
Plastic	
Others	

Shelf-life

F.3 Are you aware that each product has a particular shelf-life? Yes ☐ No ☐

F.3.1 If yes, do you determine the shelf-life of your product(s)? Yes ☐ No ☐
IF NO, SKIP TO QF.3.4

F.3.2 If yes how do you determine the shelf-life?

.....
.....

F.3.3 What is the shelf-life of your product(s)? (List a maximum of 5)

Products	Shelf-life

F.3.4 If no, please state reasons why you cannot determine shelf-life of your products

Don't know how to determine ☐ Don't have facilities to determine ☐
 Already aware of the shelf-life ☐

Others

F.4 How do you ensure that your product is consistent?

	Rank in order of importance
Follow a standard recipe	
Weigh amount of ingredients/ raw materials added	
Use of standard size of jars	
Follow norms of hygiene	
Others	

F.5 How are the finished products stored?

.....

F.6 Do you control quality of your product(s)? Yes ☐ No ☐

F.6.1 If yes, please specify how

.....

Problems and constraints

F.7 What are the problems associated with the quality and safety of your product?

.....

F.8 Do you have any suggestion(s) on how you could improve product quality and safety?

.....

Food regulations

F.9 Are you aware of the Food Act 1998?

Yes ☐ No ☐

F.9.1 If yes, how did you become aware?

Training courses ☐ Radio ☐ Ministries ☐
Others

F.10 Do you possess a Food Handlers Certificate:

	Year of obtaining certificate
Yes <input type="checkbox"/>	
No <input type="checkbox"/>	

G. LABELLING

G.1 Do you label your product(s)?

Yes ☐ No ☐

IF NO, SKIP TO QG.1.4

G.1.1 If yes, please give reason(s)

.....
.....

G.1.2 What information do you mention on your label? (No Prompting/ Multiple Answers)

Name of product <input type="checkbox"/>	Name of producer <input type="checkbox"/>
Address of producer <input type="checkbox"/>	Contact number of producer <input type="checkbox"/>
Manufacturing date <input type="checkbox"/>	Expiry date <input type="checkbox"/>
List of food ingredients <input type="checkbox"/>	Weight of product <input type="checkbox"/>
Others	

G.1.3 How do you design your labels?

.....
.....

G.1.4 If no, please state why you don't label your product(s)

.....
.....

G.2 What is the source and average cost of labels?

Source	Cost of label (per unit)
Self-made	
Contract-out	
Others	

G.3 What kind(s) of problem(s) do you encounter for making the labels? (Prompting/ Multiple Answers)

Cost of labelling is expensive	<input type="checkbox"/>	Design of labels	<input type="checkbox"/>
Late deliveries	<input type="checkbox"/>	Lack of labelling facilities	<input type="checkbox"/>
Others			
.....			

G.4 What do you think should be done to encourage appropriate labelling of products?

.....

.....

.....

G.5 If the authorities provide you with a Rodriguan label, would you agree to follow specific procedures (hygiene, quality control, indicate source of ingredients and raw materials) for manufacturing practices?

Yes ☐ No ☐

G.5.1 If no, please specify why

.....

.....

H. MARKETING & MARKETING CHANNELS

H.1 Where do you sell your products? (No Prompting/ Multiple Answers)

Markets (Bazaar)	<input type="checkbox"/>	Local Supermarkets/ Shops	<input type="checkbox"/>
Hotels/ Auberge	<input type="checkbox"/>	Exhibition/ Fairs	<input type="checkbox"/>
Direct selling to consumers (Farm gate)	<input type="checkbox"/>	NHPA	<input type="checkbox"/>
Sales outlets at association premises	<input type="checkbox"/>		
Road side	<input type="checkbox"/>	Mauritius	<input type="checkbox"/>
To other producers	<input type="checkbox"/>	Middlemen	<input type="checkbox"/>
Others			

To whom do you sell your products in Mauritius?

.....

H.1.1 Do you export your products apart Mauritius? Yes ☐ No ☐

IF NO, SKIP TO QH.2

H.1.2 If yes, please state products and country

.....

.....

H.2 What are your major sale outlets? (List a maximum of 3)

1. 3.

2.

H.3 If you sell to hotels, do you have any particular contract with them? Yes ☐ No ☐

IF NO, SKIP TO QH.4

H.3.1 If yes, please specify what kind of contract

.....
.....

H.4 Would you like to sell in bulk? Yes ☐ No ☐

IF NO, SKIP TO QH.4.2

H.4.1 If yes, what benefits would you derive by selling in bulk?

.....
.....

H.4.2 If no, please give reasons

.....
.....

H.5 How do you determine the cost of your product?

.....
.....

H.5.1 How do you fix the selling price?

Cost plus profit ☐ Local market rate ☐
Others
.....

H.6 Do you promote your product(s)? Yes ☐ No ☐

IF NO, SKIP TO QH.6.2

H.6.1 If yes, how do you promote the products?

Word of mouth ☐ Participation in fairs ☐ Signboards ☐
Others

H.6.2 If no, why don't you promote your product?

.....
.....

H.7 According to you, what are the main features of your products that attract customers?

.....
.....

H.8 Why do you still produce the same type of product(s)? (Prompting/ Multiple Answers)

Low cost of investment	<input type="checkbox"/>	Uniqueness of product(s)	<input type="checkbox"/>
Ready availability of raw materials	<input type="checkbox"/>	High demand of product(s)	<input type="checkbox"/>
Technological know-how	<input type="checkbox"/>	Low level of technology	<input type="checkbox"/>
Others		

H.9 What kind of problem(s) do you face to sell your products? (Prompting/ Multiple Answers)

Not all products are sold	<input type="checkbox"/>	Low price of products	<input type="checkbox"/>
Limited markets	<input type="checkbox"/>	Too many competitors	<input type="checkbox"/>
Late payments by hotels	<input type="checkbox"/>	Product does not meet standard norms	<input type="checkbox"/>
Higher demand for high quality products	<input type="checkbox"/>		
Others			

H.10 Do you have any suggestion(s) on how marketing of the products could be improved? (Prompting/ Multiple Answers)

Common shops	<input type="checkbox"/>	Better presentation	<input type="checkbox"/>	Promotion of products	<input type="checkbox"/>
Training on marketing	<input type="checkbox"/>				
Others					

I. CLUSTERING

A cluster is a close grouping of similar activities growing together

I.1 Would you like to be part of a cluster? Yes ☐ No ☐
IF NO, SKIP TO QI.2.2

I.1.1 If yes, please state reason(s) (Prompting/ Multiple Answers)

Due to benefits obtained	<input type="checkbox"/>	It is the best way to be more competitive	<input type="checkbox"/>
Cannot manage on its own	<input type="checkbox"/>	To avoid social and economic exclusion	<input type="checkbox"/>
Others			

I.1.2 If no, please state reason(s) (Prompting/ Multiple Answers)

Time constraints	<input type="checkbox"/>	Do not trust others	<input type="checkbox"/>
Competitive mentality	<input type="checkbox"/>	Can manage on its own	<input type="checkbox"/>
Benefits are not recognised	<input type="checkbox"/>		
Others			

I.3 Is there any cooperation between you and competitors? Yes ☐ No ☐
IF NO, SKIP TO QI.3.2

I.3.1 If yes, what are the activities involved in this cooperation? (Prompting/ Multiple Answers)

Sharing of information and knowledge	<input type="checkbox"/>	Technological transfer	<input type="checkbox"/>
Research and development activities	<input type="checkbox"/>	Sharing skills	<input type="checkbox"/>
Joint marketing	<input type="checkbox"/>	Joint production	<input type="checkbox"/>
Joint purchase of raw materials	<input type="checkbox"/>		
Others			

I.3.2 If no, why don't you co-operate with competitors?

.....
.....

J. TRAINING

J.1 Have you ever followed any particular training courses? Yes ☐ No ☐
IF NO, SKIP TO QJ.3

J.1.1 If yes, please fill in the table below

Training Modules	Year of Training	Place of Training	Organiser(s)
Food processing/ preservation techniques			
Food Hygiene/ Safety/ Quality			
Food Packaging/ Labelling			
Marketing			
Entrepreneurial and business skills			
Others			

J.2 Have the courses been useful to you? Yes ☐ No ☐

J.2.1 If yes, in what way(s) have the program(s) been helpful to you?
(No Prompting/Multiple Answers)

Acquire better working skills	<input type="checkbox"/>	Improve technological know-how	<input type="checkbox"/>
Help to improve product quality	<input type="checkbox"/>	Improve marketing techniques	<input type="checkbox"/>
Develop new products	<input type="checkbox"/>	Develop entrepreneur skills	<input type="checkbox"/>
Others			

.....

J.2.2 If no, please specify reason(s) why courses were not useful? (No Prompting/Multiple Answers)

There was a language barrier	<input type="checkbox"/>	Level of course was not appropriate	<input type="checkbox"/>
It was too technical	<input type="checkbox"/>	Course was not well-organised	<input type="checkbox"/>
No award obtained after attending course	<input type="checkbox"/>		
Others			

.....

J.3 If no, please state reason(s) why you did not follow any course? (No Prompting/Multiple Answers)

Inappropriate time	<input type="checkbox"/>	Not aware that course was being run	<input type="checkbox"/>
Training venue was too far	<input type="checkbox"/>	Did not have the required qualification	<input type="checkbox"/>
Lack of interest	<input type="checkbox"/>	No follow-up	<input type="checkbox"/>
Others			
.....			

Future training requirements

J.4 In which areas would you like to follow courses in the future?

Others

Future training requirements

J.4 In which areas would you like to follow courses in the future?

Training courses	Details
Food processing/ preservation techniques <input type="checkbox"/>	
Food packaging <input type="checkbox"/>	
Food labelling <input type="checkbox"/>	
Food quality/ safety/ hygiene <input type="checkbox"/>	
Entrepreneur and business skills <input type="checkbox"/>	
Marketing <input type="checkbox"/>	

Others

J.5 What are your principal sources of information (exhibition, fairs, packaging materials, labelling) pertaining to the sector?

Word of mouth	<input type="checkbox"/>	From suppliers of raw materials	<input type="checkbox"/>
From newspaper	<input type="checkbox"/>	Ministries & Associations	<input type="checkbox"/>
Radio	<input type="checkbox"/>		
Others			

J.6 How can radio and television be useful to improve training?

.....

.....

J.7 According to you, what can be done to improve training?

.....

K. SUPPORT

Support bodies	Awareness		Are you registered with the support body?		Date of registration	Have you ever benefited from support schemes?		If yes, please give details on support services	If no, please state reasons for not seeking support
	Yes	No	Yes	No		Yes	No		
SMIDO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
Development Bank of Mauritius (DBM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
National Handicraft Promotion Agency (NHPA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
Human Resources Center	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
National Women Entrepreneurship Council (NWECC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		

Support bodies	Awareness		Are you registered with the support body?		Date of registration	Have you ever benefited from support schemes?		If yes, please give details on support services	If no, please state reasons for not seeking support
	Yes	No	Yes	No		Yes	No		
Ministry of Women's Rights, Child Development and Family Care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
Ministry of Commerce & Co-operatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
Commission of Agriculture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
Associations/ Cooperatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
Others									

K.1 What types of assistance do you require from the support institutions and other agencies for the further development of your activity? (Prompting/ Multiple Answers)

Assistance	Services required
Loans	<div>To start up enterprise <input type="checkbox"/></div> <div>To purchase equipment <input type="checkbox"/></div> <div>To upgrade premises <input type="checkbox"/></div> <div>Others</div> <div>.....</div>
Information	<div>Type of machinery <input type="checkbox"/></div> <div>Source of equipment <input type="checkbox"/></div> <div>Source of supply of raw materials <input type="checkbox"/></div> <div>Services available to the sector <input type="checkbox"/></div> <div>Market information <input type="checkbox"/></div> <div>Others</div> <div>.....</div>
Training	<div>Advice on financial matters <input type="checkbox"/></div> <div>Others</div> <div>.....</div>
Others	

L. INNOVATION

L.1 Do you try to bring about innovation in your enterprise? Yes ☐ No ☐

IF NO, SKIP TO QL.1.2

L.1.1 If yes, what innovations have you brought? (Prompting/ Multiple Answers)

Modification of recipe <input type="checkbox"/>	New product(s) on the market <input type="checkbox"/>
Design of label <input type="checkbox"/>	Presentation of packaged product <input type="checkbox"/>
Upgrade manufacturing practices in terms of technology and equipment	<input type="checkbox"/>
New business strategy (specialisation of product)	<input type="checkbox"/>
Diversification of products	<input type="checkbox"/>
Change market strategy	<input type="checkbox"/>
Others	
.....	

L.1.2 If no, what is preventing you from innovating?

Lack of knowledge	<input type="checkbox"/>	Lack of finance	<input type="checkbox"/>
Lack of know-how	<input type="checkbox"/>	Lack of motivation	<input type="checkbox"/>
Did not find it important	<input type="checkbox"/>	Lack of time	<input type="checkbox"/>
Others			
.....			

M. FUTURE DEVELOPMENT

M.1 Would you like to expand your activity further? Yes ☐ No ☐
IF NO, SKIP TO QM.2

M.1.1 If yes, please state reasons

.....
.....

M.1.2 How would you like to expand your activity?

Increase quantity of products you are currently processing	<input type="checkbox"/>
Increase production by producing a variety of products	<input type="checkbox"/>
Others	

M.2 If no, please state reasons

Limited markets	<input type="checkbox"/>	Financial problems	<input type="checkbox"/>
Availability of raw materials	<input type="checkbox"/>	Availability of ingredients	<input type="checkbox"/>
Others			
.....			

APPENDIX 4

CHECKLIST WITH ASSOCIATIONS

A. BACKGROUND

A.1 Nom:.....

A.2 Numero de Telephone:

A.3 L'adresse:

.....

A.4 Date de création:

A.5 Années d'opération:

A.6 Raisons pour créer l'association

.....

.....

A.7 Activités de l'association

.....

.....

A.8 Nombre de membres

	Nombre de membres dans l'association	
	Permanent	Temporaire
Plein temps		
Temps partiel		

A.9 Critères pour affiliation

.....

.....

A.10 Intérêts pour affiliation

.....

.....

A.11 Facilités offerts aux membres

.....

.....

A.12 Le fonctionnement de l'association

.....

.....

A.13 Bannes problèmes association gagné

.....

.....

A.14 Ki kapave faire pou encourage banne dimoune regrouper en association?

.....

.....

A.15 Ki kapave faire pou développe banne associations?

.....

.....

A.16 Ki bane motivations et facilités bizin pou développement secteur agro-alimentaires dans Rodrigues?

.....

.....

APPENDIX 5

LIST OF SERVICE PROVIDERS

Institution
Industrial And Vocational Training Board (IVTB)
The Development Bank Of Mauritius Ltd (DBM Ltd)
Agroprocessing unit -- (Commission for Agriculture, Food Production, Housing, Infrastructure, Plant And Animal Quarantine, Transport)
Small And Medium Industries Development Organisation (SMIDO)*
Trust Fund for The Social Integration of Vulnerable Groups
Health office (Commision Of Health, Prisons & Reform Institutions, Co-Operatives & Fire Services)
Commission De La Femme (Commission for Arts & Culture, Child Development, Family Welfare & Community Development ,Women's Affairs, Library Services)
Human Resources Centre
National Handicraft Promotion Agency (NHPA) *
IFAD – Rural Diversification Programme
Association Cooperative des Caisses Villageoises (Léve Deboute De Rodrigues Ltee)
L'Atelier De Savoir
Unite De L'entrepreneuriat

* SMIDO and NHPA have now merged to form SEHDA

APPENDIX 6

CHECKLIST FOR SUPPORT INSTITUTIONS

1. Name of institution:

.....

2. Categorisation of institution

Government supported institutions	
Member-oriented service organisations	
Corporate institutions	
Donors (e.g. IFAD)	
Regulatory bodies	
Other institutions	

3. Date of implantation:

4. Branches in Rodrigues

.....

.....

5. Opening hours

.....

.....

6. Objectives and Mandate

.....

.....

7. Registration fees/ Amount

.....

.....

8. Capacity in terms of resources and output

8.1 Source of finance

.....

.....

8.2 Personnel

.....

.....

8.3 Logistics (e.g. Transport, office etc..)

.....

.....

9. Types of services/incentives/support offered to agroprocessors

.....

.....

10. Major eligibility criteria for supporting clients (e.g financial position, membership, company, guarantee etc)

.....

.....

11. Beneficiaries of Schemes

Types of services	No of people who have benefited from services

12. Other services demanded by clients but not provided under our mandate (state frequency of these demands)

.....

.....

12.1 Why were the services demanded not provided?

.....

.....

13. Major constraints faced in providing services to clients

.....

.....
14. What can be done to promote the effectiveness of support institutions?

.....
.....
15. How do you do to promote your services? (e.g. radio, press, pamphlets etc)

.....
.....
16. Is there any kind of networking with other support institutions?

.....
.....
17. Are there any follow-up done when support has been provided?

.....
PERCEPTION ON AGROINDUSTRIAL SECTOR

18. What are the major constraints faced by agroprocessors in Rodrigues?

.....
.....
19. What do you think can be done to improve the agroprocessing sector in Rodrigues?

APPENDIX 7

CONSUMER SURVEY – RODRIGUES

1. Are you aware of processed food products from Rodrigues? Yes ☐ No ☐

1.1 If yes, how did you become aware? (Multiple Answers)

Word of mouth <input type="checkbox"/>	Trade fairs/ exhibitions <input type="checkbox"/>
Newspaper <input type="checkbox"/>	When travelling to Rodrigues <input type="checkbox"/>
Television/ Radio <input type="checkbox"/>	Family/ friends <input type="checkbox"/>
Others	

2. Have you ever bought any processed food product from Rodrigues? Yes ☐ No ☐

If yes, complete SECTION A, otherwise answer Q3

3. Why didn't you buy the products? (Multiple Answers)

Not readily available locally <input type="checkbox"/>	Not sure of its quality <input type="checkbox"/>
Costly <input type="checkbox"/>	Same products available locally <input type="checkbox"/>
Others	

SECTION A

4. Where did you obtain the product(s)? (Multiple Answers)

Buy product(s) in Mauritius	<input type="checkbox"/>
Gifts from families when travelling to Rodrigues	<input type="checkbox"/>
Buy product(s) during visit in Rodrigues	<input type="checkbox"/>
Others	

5. Why do you buy the products? (Multiple Answers)

Unique taste/ product <input type="checkbox"/>	Presentation/ Attractive packaging <input type="checkbox"/>
Affordable price <input type="checkbox"/>	Good quality <input type="checkbox"/>
Readily available <input type="checkbox"/>	
Others	

6. Please fill in the table

Products bought	No. of jars/ bottles/ packs bought at a time (specify units of quantity)	Cost (Rs.)/ unit
Aigre-Doux Limon		
Piment Aigre-Doux		
Piment Confits		
Piment Ourite		
Ourite Sec		
Ourite Grillée		
Achard Limon		

6.1 List 3 major products that you prefer

.....

7. From where do you usually buy the products? (Multiple Answers)

Mauritius	Rodrigues
Markets <input type="checkbox"/>	Markets in Port Mathurin <input type="checkbox"/>
Local shops <input type="checkbox"/>	Stalls in the vicinity of Port Mathurin <input type="checkbox"/>
Supermarkets <input type="checkbox"/>	Stalls along the road through the island <input type="checkbox"/>
Fairs/ Exhibitions <input type="checkbox"/>	Directly from the producer <input type="checkbox"/>
	Fairs/ Exhibitions <input type="checkbox"/>
	Hawkers <input type="checkbox"/>
	NHPA shop, Airport <input type="checkbox"/>
	Associations <input type="checkbox"/>
Others	

7.1 If you buy from Rodrigues, list the 2 most important sources

.....

.....

8. How often do you buy the product(s)? (Multiple Answers)

Weekly ☐ Monthly ☐
Yearly ☐ When I visit Rodrigues ☐

Others

9. Are you satisfied with the Rodriguan processed food products? Yes ☐ No ☐

If no, skip to 9.2

9.1 Please rate your degree of satisfaction

Very satisfied	Satisfied	Not satisfied

9.2 If no, why aren't you satisfied? (Multiple Answers)

Lack of labelling (no expiry date, no list of ingredients) ☐
Poor presentation of product ☐
Too much colour and additives present ☐
Product is of poor consistency and quality ☐
Bad experience with products ☐
Unhygienic manufacturing practices ☐

Others

10. What do you verify when buying the product(s)? (Multiple Answers)

Manufacturing date ☐ Expiry date ☐
Packaging ☐ Appearance ☐
Details of producer ☐ List of ingredients ☐
Nutritional claims ☐ Weight of product ☐

Others

11. How do you think Rodriguan processed food products could be improved?

(Multiple Answers)

Agroprocessors should follow standard recipe ☐
Appropriate labelling (expiry date, list of ingredients etc...) ☐
Better presentation of the products to attract consumers ☐
Adoption of hygienic practices during manufacture ☐

Others

12. Have you ever had any problem with Rodriguan processed food products?

Yes ☐

No ☐

If no, skip to Q13

12.1 If yes, please specify

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

13. Do you have any preference for Rodriguan processed food products compared to similar ones from Mauritius or abroad? (e.g. achard from Mauritius compared

to achard from Rodrigues)

Yes ☐

No ☐

13.1 If yes, please state reason(s) for preference for Rodriguan processed food products

.....
.....

GENERAL

14. What could be done to improve marketing of Rodriguan products?

.....
.....

15. Any other comment(s)

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.....

**THANKING YOU FOR YOUR COOPERATION IN FILLING
THE QUESTIONNAIRE**

APPENDIX 8

CONSUMER SURVEY QUESTIONNAIRE -MAURITIUS

SECTION A

1. Are you aware of processed food products from Rodrigues? Yes ☐ No ☐

1.2 If yes, how did you become aware? (Multiple Answers)

Word of mouth <input type="checkbox"/>	Trade fairs/ exhibitions <input type="checkbox"/>
Newspaper <input type="checkbox"/>	When travelling to Rodrigues <input type="checkbox"/>
Television/ Radio <input type="checkbox"/>	Family/ friends <input type="checkbox"/>
Others	

2. Have you ever bought any processed food product from Rodrigues? Yes ☐ No ☐

If yes, complete SECTION A, otherwise answer Q3

3. Why don't you buy the products? (Multiple Answers)

Not readily available locally <input type="checkbox"/>	Not sure of its quality <input type="checkbox"/>
Costly <input type="checkbox"/>	Same products available locally <input type="checkbox"/>
Others	
.....	

SECTION A

4. Where do you obtain the product(s)? (Multiple Answers)

Buy product(s) in Mauritius	<input type="checkbox"/>
Gifts from families when travelling to Rodrigues	<input type="checkbox"/>
Buy product(s) during visit in Rodrigues	<input type="checkbox"/>
Others	

5. Why do you buy the product(s)?

Unique taste/ product <input type="checkbox"/>	Presentation/ Attractive packaging <input type="checkbox"/>
Affordable price <input type="checkbox"/>	Good quality <input type="checkbox"/>
Readily available <input type="checkbox"/>	
Others	

6. Please fill in the table

Products bought	No. of jars/ bottles/ packs bought at a time (specify units of quantity)	Cost (Rs.)/ unit
Aigre-Doux Limon		
Piment Aigre-Doux		
Piment Confits		
Piment Ourite		
Ourite Sec		
Ourite Grillée		
Achard Limon		
Others		

7. From where do you usually buy the products? (Multiple Answers)

Market stall ☐ Supermarkets/ Hypermarkets ☐
Local shops ☐ Fairs/ Exhibitions ☐
Directly from producer in Rodrigues ☐
Others

8. How often do you buy the product(s)?

Weekly ☐ Monthly ☐ Yearly ☐ Occasionally ☐
Others

9. What is the frequency of consuming the product(s) in general?

Once a week ☐ Twice a week ☐ Thrice a week ☐
More than thrice a week ☐ Daily ☐ Occasionally ☐
Rarely ☐
Others

10. Are you satisfied with the Rodriguan processed food products? Yes ☐ No ☐

If no, skip to Q10.2

10.1 Please rate your degree of satisfaction

Very satisfied	Satisfied	Not satisfied

10.2 If no, why aren't you satisfied? (Multiple Answers)

- Lack of labelling (no expiry date, no list of ingredients) ☐
- Poor presentation of product ☐
- Too much colour and additives present ☐
- Product is of poor consistency and quality ☐
- Bad experience with products ☐
- Unhygienic manufacturing practices ☐
- Others

11. What do you verify when buying the product(s)? (Multiple Answers)

- | | |
|--|--|
| Manufacturing date <input type="checkbox"/> | Expiry date <input type="checkbox"/> |
| Packaging <input type="checkbox"/> | Appearance <input type="checkbox"/> |
| Details of producer <input type="checkbox"/> | List of ingredients <input type="checkbox"/> |
| Nutritional claims <input type="checkbox"/> | Weight of product <input type="checkbox"/> |
| Others | |

12. How do you think Rodriguan processed food products could be improved? (Multiple Answers)

- Agroprocessors should follow standard recipe ☐
- Appropriate labelling (expiry date, list of ingredients etc...) ☐
- Better presentation of the products to attract consumers ☐
- Others.....
-

13. Did you ever have any problem with Rodriguan products? Yes ☐ No ☐

If no, skip to Q14

13.1 If yes, please specify

.....

.....

14. Do you have any preference for Rodriguan processed food products compared to similar locally ones in Mauritius or abroad? (e.g. achard from Mauritius compared to achard from Rodrigues) Yes ☐ No ☐

14.1 If yes, please state reason(s) for preference for Rodriguan processed food products

.....
.....

GENERAL

15. What could be done to improve marketing of Rodriguan products?

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.....
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16. Any other comment(s)

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**THANKING YOU FOR YOUR COOPERATION IN FILLING
THE QUESTIONNAIRE**

APPENDIX 9
UNIVERSITY OF MAURITIUS
FACULTY OF AGRICULTURE

SURVEY ON RODRIGUAN PRODUCTS - SUPERMARKETS

KINDLY FILL IN THIS THREE PAGED QUESTIONNAIRE

1. Do you sell processed food products from Rodrigues? Yes ☐ No ☐

If yes, skip to SECTION A

If no, why don't you sell these products from Rodrigues?

.....
.....

SECTION A

A1. Source of products sold. Please fill in the table

Types of products sold	Source(directly from Rodrigues, fairs/ exhibitions, intermediaries in Mauritius)

A2. How do you rate your sales volume of Rodriguan products?

Very satisfied	Satisfied	Not satisfied

A3. Would you like to increase your current sales volume?

Yes ☐ No ☐

A3.1 If yes/ no, please specify

.....
.....

A4. Did any Rodriguan producer contact you to sell their products? Yes ☐ No ☐

If no, skip to QA5

A4.1 If yes, did you ever refuse to sell any of their products and if so why

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

PERCEPTION ON QUALITY

A5. Are your customers satisfied with the Rodriguan products? Yes ☐ No ☐

If no, skip to QA5.2

A5.1 How do you rate the level of satisfaction of your customers with respect to Rodriguan products?

Very satisfied	Satisfied	Not satisfied

A5.2 If no, why are you not satisfied?

Lack of labelling (no expiry date, no list of ingredients) ☐
Poor presentation of product ☐
Too much colour and additives present ☐
Product is not consistent ☐
Others

A6. How do you think Rodriguan products could be made available to supermarkets?

.....

.....

.....

.....

.....

MISCELLANEOUS

A7. Would you sell processed products from Rodrigues if they are properly labelled, and are readily available on the local market at comparable prices with similar Mauritian / imported products? Yes ☐ No ☐

A7.1 If no, please specify

.....

.....

A8. Any other comment(s)

.....

.....

.....

.....

.....

THANKING YOU FOR YOUR COOPERATION IN FILLING THE QUESTIONNAIRE

APPENDIX 10
UNIVERSITY OF MAURITIUS
FACULTY OF AGRICULTURE

SURVEY ON RODRIGUAN PRODUCTS - HOTELS

KINDLY FILL IN THIS FOUR PAGED QUESTIONNAIRE

1. Do you use processed food products from Rodrigues? Yes ☐ No ☐

If yes, skip to SECTION A

If no, why don't you use these products from Rodrigues?

.....
.....

SECTION A

A1. Please fill in the table

Types of products	Quantity purchased	Cost(Rs.)/ unit

A2. Why do your hotel purchase these products?

Unique taste/ product	<input type="checkbox"/>	Presentation/ Attractive packaging	<input type="checkbox"/>
Affordable price	<input type="checkbox"/>	Good quality	<input type="checkbox"/>
Readily available	<input type="checkbox"/>	Tourist demand	<input type="checkbox"/>

Others

A3. Where do you usually obtain these products?

Market stall ☐ Supermarkets/ Hypermarkets ☐
Fairs/ Exhibitions ☐ Directly from producer in Rodrigues ☐
Wholesaler in Mauritius ☐

Others

A4. How often do you buy the product(s)?

Weekly ☐ Monthly ☐ Yearly ☐ Occasionally ☐

Others

A5. Do you have any preference for Rodriguan products with respect to similar locally produced ones? Yes ☐ No ☐

A5.1 If yes, please state reason(s) for preference

.....
.....

A6. What do you verify when buying the product(s)?

Manufacturing date ☐ Expiry date ☐
Packaging ☐ Appearance ☐
Details of producer ☐ List of ingredients ☐
Claims ☐ Weight of product ☐

Others

A7. Are you satisfied with the Rodriguan products? Yes ☐ No ☐

If no, skip to QA7.2

A7.1 Please rate your degree of satisfaction

Very satisfied	Satisfied	Not satisfied

A7.2 If no, why are you not satisfied?

Lack of labelling (no expiry date, no list of ingredients)

☐

Poor presentation of product

☐

Too much colour and additives present

☐

Product is not consistent

☐

Others

A8. Do you intend to buy more products from Rodrigues? Yes ☐ No ☐

A8.1 If no, please state reason(s)

.....
.....

A9. How do you think Rodriguan products could be improved?

Agroprocessors should follow standard recipe

☐

Appropriate labelling (expiry date, list of ingredients etc...)

☐

Better presentation of the products to attract consumers

☐

Others

.....

A10. Did you ever have any problem with Rodriguan products? Yes ☐ No ☐

If no, skip TO QA11

A10.1 If yes, please specify

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

A11. How do you rate the level of satisfaction of your clients with respect to Rodriguan products?

Very satisfied	Satisfied	Not satisfied

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MISCELLANEOUS

A12. Would you purchase processed products from Rodrigues if they are properly labelled, and are readily available on the local market at comparable prices with similar Mauritian / imported products? Yes ☐ No ☐

A13. Any other comment(s)

.....

.....

.....

.....

.....

**THANKING YOU FOR YOUR COOPERATION IN FILLING THE
QUESTIONNAIRE**

APPENDIX 11

WORKSHOP

**UNIVERSITY OF MAURITIUS/ COMMISSION FOR PUBLIC
INFRASTRUCTURE, AGRICULTURE, WATER RESOURCES,
TRANSPORT / MAURITIUS RESEARCH COUNCIL**

***TITLE: “AN APPRAISAL OF THE SMALL-SCALE AGRO-INDUSTRIAL SECTOR
IN RODRIGUES”***

VENUE: HUMAN RESOURCE CENTRE, MALABAR

DATE: WEDNESDAY, 10TH MAY 2006

Objectives of workshop

The main objectives of the workshop were to

- (1) Disseminate the preliminary results
- (2) Validate them through thematic group discussions
- (3) Get an update on new information or development that may have occurred since the end of the survey in July 2005.

Organisation of Workshop

55 folders containing pen, pencil, writing pad and name tags were distributed to each participant. The RRA has provided the following facilities

1. Venue
2. Audiovisual facilities
3. Invitation to local participants
4. Catering for the participants

The programme plan and the list of participants are shown below. The Deputy Chief Commissioner, Mr D. Speville, gave an address at the

opening ceremony of the workshop. The meeting was co-chaired by the SAO of the Agricultural Services and the Departmental Head for the Commission of Agriculture.

Outcomes of workshop

Most of the results were welcomed by the participants and the relevant authorities present recognised that these set of data could help them to develop strategies for the sector.

The focused group discussions and interactions with the various stakeholders have helped the research team to:

- Gather additional information that could throw more light on the results.
- Propose achievable recommendations given the special circumstances under which the agroprocessors operate
- Identify some areas of the survey where more information were required so as to get a clearer picture of the sector
- Get an update on past and present measures that the RRA has taken to revitalise the sector

Programme plan

Time	Programme
08.15 – 08.45	Registration of Participants
08.45 – 09.05	OPENING CEREMONY
08.45 – 09.05	Address by Departmental Head, Commission For Public Infrastructure, Agriculture, Water Resources, Transport - Mr. B. Jugoo Address By Deputy Chief Commissioner - Mr. J.D. Speville
	PRESENTATION OF FINDINGS & GROUP DISCUSSIONS
09.05 - 09.50	Salient features of the Agro processing Sector in Rodrigues Presentation of findings (I): Mrs. D. Goburdhun
09.50 – 10.15	TEA BREAK
10.15 – 10.40	Presentation of findings (II): Mr. K. Boodhoo
10.40 – 11.10	Presentation of findings (III): Dr. A.Ruggoo
11.10 – 11.20	Summing up of findings
11.20-11.30	Groups Formation Briefing of Groups
11.30 – 12.15	Thematic Group Discussions
12.15 – 13.00	LUNCH
13.00 – 14.15	Thematic Group Discussions (<i>Continuation</i>)
14.15 – 14.30	TEA BREAK
14.30 – 15.30	Presentation by Groups
14.30 - 14.40	Group I “Current Status of the Agro Processing Sector”
14.45-14.55	Group II “Support Services and Training
15.00-15.10	Group III “Regulations / Safety / Quality”
15.15-15.25	Group IV “Marketing issues”
15.30-15.40	Group V “Production/ Supply of Raw Materials”
15.40 – 16.00	Summing up and Concluding remarks

List of Participants

ASSOCIATIONS		
Number	Name	Associations
1	Mrs. M.L. Augustin Roussety	FORUM
2	Mr. P. Draper	CARECO
3	Mrs. M. Gaspard	Centre des Femmes
4	Mrs. A A Hypolite	Groupe Artisans Malabar
5	Mr. B. Jolicoeur	Association Tourisme Vert de L'île Rodrigues
6	Mr. D. Meunier	Association of Dairy Farmers
7	Mrs. M.J Perrine	Emeraude/ Calypso

RODRIGUES REGIONAL ASSEMBLY		
Number	Name	Profession
1	Mr. J. Daniel Speville	Deputy Chief Commissioner
2	Mr. B. Jugoo	Departmental Head of Agriculture; Food production; Housing; Infrastructure including Highways and Roads and Public buildings and Utilities; Plant and Animal Quarantine; Transport
3	Mrs. M. Perrine	Commission for Arts and Culture; Child development; Community development; Family Welfare; Women's Affairs; Library Services
4	Mrs. Riviere	Commission for Handicraft, Trade, Commerce and Licensing, Consumer Protection, Youth and Sports

AGRICULTURAL SERVICES/SIDPR		
Number	Name	Occupation
1	Dr (Mrs.) Aartee Gungoosing Bunwaree	SAO of the Rodrigues Agricultural Services
2	Ms. J. Allas	SO
3	Mr. J. Felicite	SO

4	Mr. R. B. Agathe	Ag. SO
5	Mr. G. Perrine	Ag. SO
6	Mr. A.K. Bunwaree	SIDPR
7	Mrs. E. Hanoomanjee	SIDPR
8	Mr. R. Ramchurn	SIDPR
9	Mrs. S. Ratacharen	SIDPR
10	Mr. K. L. Yee Tong Wah	SIDPR

AGRO-PROCESSORS	
Number	Name
1	Mrs. M.A. Emilien
2	Mrs. R. Cupidon
3	Mrs. M. A Pierre Louis
4	Mrs. E. Rose
5	Mrs. M. Commarmond
6	Mrs. P. Potiron
7	Mrs. A Agathe
8	Mrs. M. Samois
9	Mr. R. Meunier
10	Mrs. C. Tolbize
11	Mrs. M.A Collet
12	Mr. R. Meunier

APPENDIX 12

LIST OF PRODUCTS

Name of Product	English Name
Pickles	
Achard Ail	Garlic Pickle in spices
Achard Bilimbi Longue	Starfruit Pickle in spices
Achard Fruit Cythère	Golden Apple Pickle in spices
Achard Jamallac	Jamalac Pickle in spices
Achard Mangue	Mango Pickle in spices
Achard Oignon	Onion Pickle in spices
Achard Papaye	Pawpaw Pickle in spices
Archard Margoze/Ourite	Bitter gourd and octopus Pickle
Archard Ourite	Octopus Pickle in spices
Carambol Achard	Star Fruit Pickle in spices
Sugar Based Products	
Ananas Confiture	Pineapple jam
Bilimbi Crystallised	Crystallised Bilimbi
Fraise Confiture	Strawberry jam
Goyave Confiture	Goyava Jam
Pamplemousses Crystalisee	Crytallised Grapefruit
Papaye Confiture	Pawpaw Jam
Lime Based Products	
Limon Achard	Lime Pickle in spices
Limon Aigre-Doux	Sweet and Sour Lime
Limon Confit	Lime in Vinegar
Limon Piment	Lime and Chili Paste
Chili Based Products	
Piment Ourite	Octopus and Chili Paste
Piment Confit	Chilli in Vinegar

Piment Confit Mixed With Limon	Chilli and Lime in Vinegar
Piment Crevette	Shrimp and Chili Paste
Piment Limon Rouge Vert	Chilli in lime paste
Piment Mangue	Mango and chili Paste
Piment Ourite Margoze	Octopus and Bitter gourd Chili Paste
Piment Papaye	Pawpaw and Chili Paste
Piment Tamarin	Tamarind and Chili Paste
Mazavarou Rouge Vert	Chilli Paste (Red)
Piment Tamarin et Crevette	Shrimp and tamarind in chili Paste
Piment Vert Ecrasé	Chilli Paste (Green)
Animal Based Products	
Poisson Salé	Salted fish
Saucisses	Sausages
Saucisses Grillé	Grilled Sausages
Mazavarou Crevette	Shrimp mixed with chili paste
Mazavarou Ourite	Octopus mixed with chili paste
Ourite Grillé	Grilled Octopus
Ourite Sec	Dried octopus

Plate 1: Face-to-Face Interviews



Plate 1a: Interviewer with agro-processors



Plate 1b: Interviewer with associations



Plate 1c: Briefing sessions with interviewers

Plate 2: Workshop in Rodrigues



Plate 2a: Workshop with stakeholders in Rodrigues



Plate 2b: Presentation of findings

Plate 3: Variety of processed products



Plate 3a: Processed plant products



Plate 3b: Dried Octopus

Plate 3: Variety of processed products



Plate 3c: Processed pork

Plate 4: Packaging materials



Plate 4a: Inappropriate packaging materials



Plate 4b: Glass jars

Plate 4: Packaging materials



Plate 4c: Plastic containers



Plate 4d: Pack of jars for sale

Plate 5: Labelling



Plate 5a: Handwritten and absence of date marking



Plate 5b: Incomplete labelling

Plate 6: Sale of products



Plate 6a: Farmgate



Plate 6b: Port-Mathurin market

Plate 6: Sale of products



Plate 6c: On road-sides



Plate 6d: Specialised shops

Plate 7: Product Innovation



Plate 7a: Innovation in new product

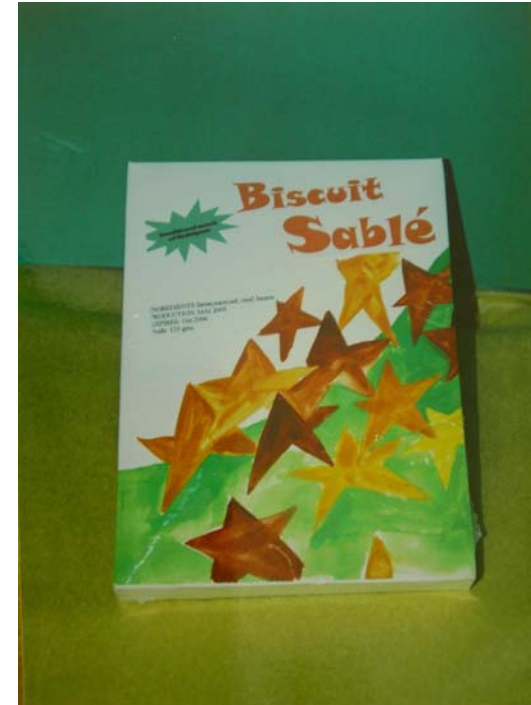


Plate 7b: Innovation in packaging and presentation I

Plate 7: Product Innovation



Plate 7c: Innovation in packaging and presentation II



Plate 7d: Innovation in packaging and presentation III

Plate 8: Post Harvest Losses



Plate 8: Lime left to rot under tree

Plate 9: Food Handler's Certificate



Plate 9: Renewal of Food Handler's Certificate