



REPUBLIC OF MAURITIUS

NATIONAL AUDIT OFFICE

PERFORMANCE AUDIT REPORT

BOOSTING FOOD CROP PRODUCTION

Ministry of Agro Industry and Food Security

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NATIONAL AUDIT OFFICE

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CONTENTS

	Page
ABBREVIATIONS AND ACRONYMS	v
EXECUTIVE SUMMARY	1
CHAPTER ONE: INTRODUCTION	5
1.1 Food Security	5
1.2 Audit Motivation	5
1.3 Audit Objective	6
1.4 Audit Questions	6
1.5 Audit Scope	6
1.6 Audit Criteria	6
1.7 Audit Methodology and Sources of Information	7
CHAPTER TWO: DESCRIPTION OF THE AUDITED ACTIVITY	9
2.1 Vision and Mission of the Ministry	9
2.2 Strategic Plans	9
2.3 Roles and Responsibilities	9
2.4 Expenditure on Measures to Boost Food Crop Production	10
CHAPTER THREE: FINDINGS	13
3.1 Production of Food Crops (excluding fruits)	13
3.2 Developing Schemes and Subsidies	13
3.3 Budgeted and Actual Expenditure of Scheme and Subsidies	14
3.4 Schemes Administered and Managed by FAREI	15
3.5 Scheme Administered and Managed by SFWF	20
3.6 Schemes Administered and Managed by AMB	21
3.7 Land for Food Crop Production	24
3.8 Potato, Onion and Garlic – Case Examples	25
3.9 Research and Development	32
CHAPTER FOUR: CONCLUSION	33
CHAPTER FIVE: RECOMMENDATIONS	35
5.1 Developing Schemes	35
5.2 Developing a Proper Implementation Plan	35
5.3 Developing Indicators and Targets	35
5.4 Enhancing the Monitoring, Review and Evaluation Process	35
5.5 Land Availability	36
5.6 Measures to Control Total Cost of Production	36

	Page
TABLES	
1 Budgeted and Actual Expenditure on Measures to Boost Food Crop Production (excluding fruits) from January 2013 to June 2016	11
2 Food Crops Production (excluding fruits) 2012 to 2015	13
3 Schemes and Subsidies – Budgeted and Actual Expenditure – January 2013 to June 2016	14
4 Budget Estimates Since 2013 and Disbursement to Beneficiaries at 22 June 2016	15
5 Number of Beneficiaries Since 2013	16
6 Number of Beneficiaries and Quantity Lifted from 2012 to 2015	22
7 Amount Advanced and Still Owed by Beneficiaries of SPPS and OSPS as at 31 March 2016	24
8 Harvest, Production and Importation of Potatoes from 2012 to 2015	26
9 Harvest, Production and Importation of Onions from 2012 to 2015	27
10 Harvest, Production and Importation of Garlic from 2012 to 2015	27
11 Cultivated area in hectares- Island of Mauritius, 2012 – 2015	28
12 Imported and Local Onion Seeds Purchased and Sold	30
13 Cultivated Areas – Mauritius and Average Yield – 2012 to 2015	31

APPENDICES

I Examples of Measures Stated in Food Security Strategy Plan 2013-2015	39
II Schemes and Subsidies in the Non-Sugar Sector	41
III Production of Food Crops (Tonnes) - 2012 to 2015	43
IV Schemes and Subsidies (Budgeted and Actual Expenditures)	45
V Status on the Utilisation of the 13 Onion Curing Units as at June 2016	47
VI Research and Development	49

ABBREVIATIONS AND ACRONYMS

AMB	Agricultural Marketing Board
FAO	Food and Agriculture Organisation
FAREI	Food and Agricultural Research and Extension Institute
FSF	Food Security Fund
FSSP	Food Security Strategic Plan
GSPS	Garlic Seeds Purchase Scheme
MAIFS	Ministry of Agro Industry and Food Security
MCIA	Mauritius Cane Industry Authority
MoFED	Ministry of Finance and Economic Development
MSPA	Mauritius Sugar Producers Association
OCU	Onion Curing Unit
OSPS	Onion Seed Purchase Scheme
SFWF	Small Farmers Welfare Fund
SPS	Seeds Purchase Scheme
SPPS	Seeds Potato Purchase Scheme

EXECUTIVE SUMMARY

Mauritius is a net importing country as it does not have competitive advantage in foods, such as rice, cereals, meat and milk, and it will continue to depend on importation of these foods. It is also vulnerable to climate change. Government took initiatives to foster local production of foodstuffs so as to mitigate, in the short and medium term, the dependency of the country on imported food commodities. This was done through the development of Food Security Strategic Plans (FSSPs) wherein several measures were proposed for the crop sector with a view to increasing total food crop production.

The audit objective was to determine whether the measures taken by the Ministry of Agro Industry and Food Security to increase production of food crops (excluding fruits) as stated in FSSP 2013-2015 have been effective.

Key Findings

Production of Food Crop

In spite of the measures taken, total food crop production (excluding fruits) had decreased from 96,790 tonnes in 2012 to 83,004 tonnes in 2015, that is, by 14 per cent.

Developing Schemes and Subsidies

There was no data to support whether the Ministry had investigated extensively on the interest and commitment of small farmers/ group of farmers before coming up with the various Schemes to boost crop production. Moreover, no target had been set in respect of the number of beneficiaries under each Scheme.

The Ministry contended that informal meetings with the farmer's community were regularly carried out, and that it was difficult to set targets as the agricultural sector is dynamic.

Budgeted and Actual Expenditure of Schemes and Subsidies

For the period January 2013 to June 2016, total provisions made available for the Schemes and Subsidies were some Rs 278.8 million, whilst accumulated expenditure was some Rs 132.3 million, that is, some 47 per cent. In five Schemes, the amount paid out of the voted provisions was less than 50 per cent.

Response to the Schemes

➤ Sheltered Farming Scheme, Crop Nursery/ Curing Units Scheme and Rainwater Harvesting Scheme

The number of planters who took advantage from these Schemes during the period 2013 to 2015 stood at 32. Compared to the total number of planters in the country, estimated at 11,717 by the Food and Agricultural Research and Extension Institution (FAREI) for the three years 2013 to 2015, the percentage of planters who took advantage from the above Schemes was relatively low.

In June 2016, the number of beneficiaries for these three Schemes stood at 33, five and 31 respectively.

➤ *Post-Harvest Facility*

In 2013, the Ministry constructed the first post-harvest facility at Rouge Terre at a cost of some Rs 2.6 million on land acquired under the 1200A Mauritius Sugar Planters Association (MSPA) Scheme. From January 2014 to June 2016, FAREI incurred some Rs 1.2 million towards maintenance of the building, electricity bills and security services. During meetings of the Food Security Fund Management Committee held in November 2014 and June 2015, it was reported that the facility was not being extensively used by planters of Rouge Terre and that they were not interested to use the facility.

Consequently, the budgeted amount of Rs 3.5 million for 2014 and Rs 1.75 million for the period January to June 2015 for the construction of additional post-harvest facilities were not spent.

➤ *Purchase of Agricultural/ Processing Equipment (Crop Sector) Scheme*

Planters are encouraged to acquire farm machinery/ equipment to mechanise their production system and also venture in food processing or other value-added activities. However, the Ministry did not have any strategy on mechanisation. Also, no separate budget was provided for this Scheme with respect to food crops. As at June 2016, some three and a half years after the development of FSSP 2013-2015, 83 farmers had taken advantage of the Scheme, and grant amounting to some Rs 3.4 million was disbursed by FAREI

➤ *Compost Subsidy Scheme*

The Compost Subsidy Scheme was launched on 30 January 2013. As at 31 December 2013, 434 applications were received though the number of registered planters was 5,137, representing eight per cent only. Out of the Rs 40 million budgeted in 2013, only Rs 9.44 million were spent, that is some 23.6 per cent

The Scheme was thus reviewed and launched in May 2014 to render it more accessible to planters. As at 31 December 2014, the number of applications received increased to 2,858. For the period January to June 2015, only the pending applications of 2014 were being entertained due to production constraint of compost on the supplier's side. During period 2014 to June 2016, a sum of Rs 52.5 million was budgeted, and Rs 34.5 million spent, representing some 66 per cent. During the same period, 4,668 tonnes of compost were delivered to 3,461 planters.

The last survey on the efficiency of the Compost Subsidy Scheme carried out in 2016 by the Small Farmers Welfare Fund highlighted that, overall, the compost performed well. However, due to lack of information about the content and usage of the compost, farmers encountered certain difficulties, such as burnt seeds and crop growth ceased at seedling stage, which ultimately discouraged them from using it.

➤ *Seed Purchase Scheme*

The Seed Purchase Scheme, which comprises the Seed Potato Purchase Scheme, the Onion Seed Purchase Scheme and the Garlic Seed Purchase Scheme, aims, among others at boosting the production of potatoes, onions and garlic. For the period January 2009 to June 2015, some Rs 47 million were injected in a Revolving Fund managed by the Agricultural Marketing Board (AMB). In 2014, two of the Schemes pertaining to onion and garlic were reviewed whereby a grant element of 10 per cent was introduced. Planters were also eligible to a subsidy of Rs 50/kg on the selling price of local garlic seeds. Despite the fact that the Scheme was made more attractive to planters, their response with respect to the lifting of seeds was still low. For instance, the volume of potato seeds lifted decreased from 748 tonnes in 2012 to 458 tonnes in 2015, and that of onion seeds also showed a declining trend from 363 kg in 2012 to 271 kg in 2015.

Mauritius Sugar Producers Association (MSPA) Land

Government signed an agreement with the ex-MSPA in 2008, whereby corporate planters who were members of the Association were to provide land in favour of the State over the period 28 April 2008 to 31 December 2017. The land would be used for the needs of the State for agricultural, housing and other social purposes.

In 2008-2009, 727 arpents (some 248 hectares) of the land were earmarked for food crop farming. However, as of June 2016, some 18 months prior to the expiry of the MSPA agreement, about 333 arpents (114 hectares) of land for food crop have yet to be obtained. The delay in obtaining land for onward distribution to planters, among other factors, was having a negative impact on production.

We were made to understand that, all the MSPA land earmarked for agricultural purposes would be obtained by end of December 2017.

Land Preparation

Government provides assistance and empowers planters through a programme of land consolidation/ preparation, such as clearing, ripping, harrowing, tilling, derocking (fine and coarse) on State Land. For the period January 2013 to June 2016, Rs 140 million were provided for, and only some Rs 60 million, that is, 43 per cent, were spent.

Strategic Crops: Potato, Onion and Garlic

The self-sufficiency level for potato was not stated in FSSP 2013-2015. However, it stood at 58 per cent in 2015 compared to 95 per cent in 2012. An additional production of 5,000 tonnes of potato was targeted in 2015. However, the production showed a decline of 20 per cent, that is, from 20,442 tonnes in 2012 to 16,427 tonnes in 2015.

As for onion, a production target of 8,000 tonnes, representing a self-sufficiency level of 50 per cent for 2015 was set in FSSP 2013-2015. However, this target was not achieved as production reached only 6,898 tonnes in 2015.

The self-sufficiency level for garlic stagnated at 5 per cent during the same period, compared to the target of 10 per cent, equivalent to a production of 200 tonnes.

Conclusion

Weaknesses in the measures, along with the effect of the changing climatic conditions hindered the attainment of food crops production target set.

During the period 2013-2015, the Ministry spent some Rs 110 million on Subsidies, Schemes and Research, and some Rs 189 million revolved in the Seed Purchase Scheme. Despite these investments, the actual production of food crops (excluding fruits) showed a decreasing trend from 2012 to 2015.

Panoply of measures was proposed for food crops, including strategic ones. These measures had varying response rate during 2013-2015, and thus impacted on the achievement of the stated objectives, leading to, in most cases, funds provided in the Budget for the measures earmarked to be underspent.

Various Schemes and Subsidies have not been adequately formulated in terms of targets and indicators. This did not facilitate the monitoring and reviewing of their implementation.

Key Recommendations

Developing Schemes

Prior to developing new schemes and incentives to boost local production, the Ministry has to investigate extensively on the interest and have the commitment of small planters/ group of planters so that realistic objectives and budget are set.

Developing Indicators and Targets

The Ministry should develop indicators and targets, taking into consideration the specificity of the agricultural sector, to be used as benchmark for measuring the output for each proposed actions in a strategic plan. This will facilitate close monitoring, review and evaluation of the measures in the Strategic Plan.

Land Availability

Land, as a factor of production, is of great importance for the planting community. In addition to the ex-MSPA land, other sources of land should be explored. As far as the ex-MSPA land is concerned, the Ministry should ensure that all agricultural lands earmarked under the agreement between Government and ex-MSPA are obtained by 31 December 2017.

Summary of Ministry's Reply

The Ministry has taken cognizance of the amended draft Performance Audit Report and has no further comments to make thereon.

CHAPTER ONE

INTRODUCTION

This Chapter broadly describes the food security problem, as well as the motivation behind carrying out this audit assignment. It also describes the audit objective, scope and the criteria and methodology used in carrying out the audit.

1.1 Food Security

According to United Nations Food and Agriculture Organisation (FAO), food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. Recently, the World Bank reported that the world needs to produce at least 50 per cent more food to feed 9 billion people by 2050. However, climate change could cut crop yields by more than 25 per cent. Currently, the land, biodiversity, oceans, forests and other forms of natural capital are being depleted at unprecedented rates. Unless the world changes the way it grows food and manages its natural capital, food security, especially for the world's poorest population, is expected to be at risk.

Mauritius is a net importing country, whereby around 75 per cent of the food requirements are being imported annually. Hence, it is vulnerable to the above risk. As Mauritius does not have competitive advantage in foods, such as rice, cereals, meat and milk, it will continue to depend on importation of these foods. On the other hand, close to 100 per cent self-sufficiency is achieved for fresh vegetables and tropical fruits, except for off-season imports of selected vegetables such as potato, onion and garlic.

Total agricultural products imported, including livestock and fisheries, increased from some Rs 31 billion in 2011 to some Rs 38 billion in 2015, that is, by 23 per cent.

1.2 Audit Motivation

In Mauritius, the global rising food prices and shortages contributed to high food inflation, and it ultimately impacted on the purchasing power of local consumers, namely the low income groups. In response to it, Government took several initiatives to foster local production of foodstuffs so as to mitigate, in the short and medium term, the dependency of the country on imported food commodities.

In the Ministry's Food Security Strategic Plan (FSSP) 2013-2015, an objective of increasing the food crop production to 130,000 tonnes by 2015 was set. However, the total food crop production was 102,663 tonnes in 2015, that is, some 27,300 tonnes below the production target set. On the other hand, Government aimed at enhancing production and competitiveness of the agro-business sector in Mauritius in order to reduce the country's dependency on food imports.

It is against this background that the National Audit Office carried out this Performance Audit on the measures taken by the Ministry of Agro Industry and Food Security (MAIFS) to increase food crop production level.

1.3 Audit Objective

The audit objective is to determine whether the measures taken by the Ministry to increase production of food crops as stated in FSSP 2013-2015 have been effective.

1.4 Audit Questions

The following audit questions which covered the main issues related to the audit objective were developed:

- Have the various Schemes and Subsidies designed to boost food crop production been adequately formulated in terms of study, targets and indicators, and effectively implemented and monitored?
- Was the Ministry successful in achieving the targeted production level with respect to the three priority crops, namely, potato, onion and garlic?

1.5 Audit Scope

This audit examined the implementation of measures as laid down in FSSP 2013-2015 to achieve the targeted production level and to boost local food crop production (excluding fruits), taking as case examples those relating to production of potato, onion and garlic. These three crops have been selected as the Ministry placed much importance on them in its FSSP 2013-2015.

The audit focused on Mauritius and the auditee is MAIFS. It covers the last three years, that is, 2013 to 2015 as the second FSSP prepared by the Ministry covered the same period. However, for analysis purposes, 2015 figures will be compared with 2012 figures, that is, the year just preceding the implementation of FSSP 2013-2015. To get an insight of the latest achievement in relation to the laid down measures in FSSP 2013-2015, figures up to June 2016 have been included in the Report.

1.6 Audit Criteria

- Food Crop Production targets set by 2015 under FSSP 2013 -2015
 - Potato - Increase by 5,000 tonnes
 - Onion - Target of 8,000 tonnes
 - Garlic - Target of 200 tonnes
- Measures stated in FSSP 2013-2015 (Appendix I)
- Schemes launched by MAIFS to boost local production of food crops, excluding fruits (Appendix II)

1.7 Audit Methodology and Sources of Information

The audit was conducted in accordance with International Standards of Supreme Audit Institutions. The data collection method used to understand the audit area, along with gathering sufficient, relevant and reliable audit evidence to support conclusion and recommendations included document reviews and interviews as described below.

1.7.1 Interview

Officials of the Ministry, Food and Agricultural Research and Extension Institute (FAREI), Agricultural Marketing Board (AMB) and Small Farmers Welfare Fund (SFWF) were interviewed to capture information from their personal experiences, particularly references, opinions and also obtaining their knowledge by interpretation of internal documents and reports.

1.7.2 Documents Review

At the Ministry, the team conducted files and documents review to corroborate information obtained through interviews. A purposive review of files was carried out in respect of policies, notes of meeting of the Food Security Fund (FSF) Managing Committees. Particular attention was given to the three FSSPs pertaining to period 2008 to 2011, 2013 to 2015 and 2016 to 2020 respectively, as well as to those Schemes undertaken by the Ministry in view of boosting the production of food crops in Mauritius.

Relevant information from the Digests of Agricultural Statistics of Statistics Mauritius, Annual Reports of AMB, as well as from Agricultural Production and Market Information System was examined. This enabled the team to get a broader picture on the production of food crops, imports of agricultural products, area harvested and average yield on selected food crops in Mauritius for the period 2012 to 2015.

Also, Budget Speech and Programme Based Budgets for the period 2012 to June 2016 were perused to take cognizance of the Government's vision and financial resources provided to improve the level of self-sufficiency and to supply safe, sufficient and nutritious food to the population.

CHAPTER TWO

DESCRIPTION OF THE AUDITED ACTIVITY

This Chapter describes the audited activity which includes the vision and mission and the roles and responsibilities of the Ministry and other stakeholders with respect to boosting food crop and thus increasing the food sufficiency level of the country for those food crops. It also elaborates on programmes, services and measures put in place by the Ministry.

2.1 Vision and Mission of the Ministry

The vision of the Ministry is to be a driver, catalyst, facilitator for operators in agriculture and agro business, as well as to spearhead the development of small and medium sized commercial and professional agro business sector.

The Ministry's mission is geared towards further development of agriculture and the promotion of agro industry focusing on safety, supply, quality, innovation and new technology through its service providing institutions and with stakeholders of the region.

2.2 Strategic Plans

Over the years, Government has developed several Strategic Plans for the agricultural sector. These Plans included strategies to boost food crop production with a view to giving a new impetus to the food crop sector. FSSP 2013-2015 was prepared as a continuation to the Strategic Plan 2008-2011.

FSSP 2013-2015 took into consideration all challenges facing the agricultural sector and the trends observed in the agro-industry. The main objective of the plan was to improve the level of self-sufficiency in various commodities, promote export and create new opportunities for farmers, entrepreneurs and rural families to increase farm income and productivity, while conserving the natural biodiversity and providing safe, sufficient and nutritious food supply.

2.3 Roles and Responsibilities

To implement the Strategic Plan, the Ministry is supported by the Agricultural Services and several Statutory Bodies. The roles and responsibilities of the Agricultural Services and those bodies which are involved in food crop development and production are described below.

2.3.1 Agricultural Services

The Agricultural Services is the technical arm of the Ministry for its regulatory and policy functions, as well as for provision of miscellaneous services to the farming community. These services are meant to support the non-sugar sector, enhancing food production and food security, and include agricultural input supply, such as seeds, plant protection services, pest and disease control, and advice on land use and agricultural projects.

2.3.2 Food and Agricultural Research and Extension Institute

The mission of FAREI is to support and implement priority Research, Development and Training Programmes and projects and appropriate technologies for food security and to enhance competitiveness, sustainability and stakeholder equity across the agri-food value chains. It has the responsibility, among others, to conduct research on the non-sugar crops and to provide an extension service to farmers in Mauritius, including its outer islands.

2.3.3 Agricultural Marketing Board

AMB was established to promote diversification of agriculture. One of its main objectives is to encourage local production of as much of the country's food requirements as is economically feasible. Besides ensuring that marketing costs are at a minimum and consistent with satisfying consumer demand, AMB also regulates standards and quality of products falling under its control.

2.3.4 Small Farmers Welfare Fund

SFWF was set up to promote the economic and social welfare of registered small farmers¹ and their families. The main activity of SFWF is registration of farmers to enable them to benefit from welfare schemes and facilities provided by Government.

2.4 Expenditure on Measures to Boost Food Crop Production

The Ministry funded several measures for the crop sector in FSSP 2013-2015 through Programme 16-103: "Development of Non Sugar (Crop) Sector" (formerly Programme 483) to give an impetus to the farmers community to boost the food crop production (excluding fruits) in Mauritius. Both recurrent and capital expenditure were met from this Programme. Recurrent expenditure includes Subsidies, Grants and Other Expense, while capital expenditure includes Grants, Other Expense and Acquisition of Non-Financial Assets. Budgeted and actual expenditure and description of the measures from January 2013 to June 2016 are shown in Table 1.

¹ Small Farmers are farmers occupying between 10 perches and 10 hectares of land.

Table 1 Budgeted and Actual Expenditure on Measures to Boost Food Crop Production (excluding fruits) from January 2013 to June 2016

Year	2013	2014	Jan – June 2015	July 2015 to June 2016	Total
	(Rs million)	(Rs million)	(Rs million)	(Rs million)	(Rs million)
Budgeted Amount					
Subsidies*	40.0	30.0	12.5	20.0	102.5
Grant FAREI – Crop Research and Protection	4.5	4.5	2.3	4.5	15.8
Other Expense**	45.5	50.5	26.8	53.5	176.3
Total	90.0	85.0	41.6	78.0	294.6
Actual Amount					
Subsidies*	9.4	12.0	13.5	19.2	54.1
Grant FAREI – Crop Research and Protection	8.2	4.4	2.3	4.3	19.2
Other Expense**	23.9	28.4	8.9	17.0	78.2
Total	41.5	44.8	24.7	40.5	151.5

Source: Accountant General's Annual Reports and Finance Department MAIFS

* *Figure concerns subsidies in connection with food crops (excluding fruits) and consists of the Compost Scheme and Seed Purchase Scheme for Potato, Onion and Garlic*

** *Figure concerns expenditure in connection with Schemes, such as Sheltered Farming, Land Preparation and Agricultural Infrastructure Development Project, Crop Nursery Projects, Post-harvest Facility and Rain Water Harvesting*

CHAPTER THREE

FINDINGS

This Chapter describes the findings relating to the effectiveness of the measures taken by the Ministry to increase production of food crops.

3.1 Production of Food Crops (excluding fruits)

Government has given significant boost to both crop and livestock sector over the years with a view to increasing the country's food self-sufficiency level, and hence, reducing its dependency on imports and building resilience on any future food crises.

The Ministry proposed several measures in FSSP 2013-2015 to increase the production of food crop by 2015. These measures, which included various Schemes and Subsidies, were funded by Programme 16-103: "Development of Non Sugar (Crop) Sector" (formerly Programme 483).

In spite of the initiatives taken by Government through its FSSP 2013-2015, the production of food crops (excluding fruits) has decreased from 96,790 tonnes in 2012 to 83,004 tonnes in 2015 as illustrated in Table 2. According to Statistics Mauritius, this has been caused by the combined effects of climatic conditions and fluctuation in production of some crops, namely tomato, onion and potato. Moreover, 12 out of 15 categories of food crops showed a decrease in production in 2015 as compared to 2012. (Appendix III refers).

Table 2 Food Crops Production (excluding fruits) 2012 to 2015

Year	Food Crop Production (tonnes)
2012	96,790
2013	91,983
2014	94,336
2015	83,004

Source: Statistics Mauritius

3.2 Developing Schemes and Subsidies

With the setting up of FSF in 2008, a number of Schemes and Subsidies had been designed with a view to optimizing food production locally for domestic consumption and also to promote the exportation of food surpluses so as to capture the maximum gains from economies of scales. The Schemes and Subsidies relating to food crops (excluding fruits) are the Post-harvest Facility, Sheltered Farming, Crop Nursery/Curing Units (previously known as Onion Curing Unit), Rainwater Harvesting, Seeds Purchase, Purchase of Agricultural/ Processing Equipment (Crop Sector), Compost Subsidy and Land Preparation and Agricultural Infrastructure Development Project (Mauritius).

The Seeds Purchase Scheme and Crop Nursery/Curing Units Scheme were launched in 2009, whereas the Sheltered Farming Scheme and the Rainwater Harvesting Scheme in 2012. The Post-harvest Facility and the Compost Subsidy Scheme were being implemented since 2013. The Purchase of Agricultural/ Processing Equipment (Crop Sector) Scheme was launched in 2014. The Land Preparation and Agricultural Infrastructure Development Project (Mauritius) was implemented since 2010. These Schemes are being administered and managed, mainly by FAREI, AMB, SFWF and Mauritius Cane Industry Authority (MCIA), and are funded by the Ministry through the Programme: “Development of Non Sugar (Crop) Sector”.

It is common practice to carry out a study prior to the development of any scheme. There was no data to support whether the Ministry had investigated extensively on the interest and commitment of small farmers/ group of farmers before coming up with the Schemes. Additionally, no target had been set in respect of the number of beneficiaries under each Scheme.

However, the Ministry contended that informal meetings with the farmer’s community were regularly carried out, and that it was difficult to set targets as the agricultural sector is dynamic.

3.3 Budgeted and Actual Expenditure of Schemes and Subsidies

A detailed breakdown of the budgeted estimates and expenditures incurred with regard to the Schemes and Subsidies relating to food crops (excluding fruits) from January 2013 to June 2016 are shown in Appendix IV. The total provisions for the period were some Rs 278.8 million, whilst accumulated expenditure was some Rs 132.3 million. In other words, only some 47 per cent of the total provisions had been utilized over the last three and a half years. For five Schemes, the amount spent was less than 50 per cent of the voted provisions. Table 3 refers.

Table 3 Schemes and Subsidies – Budgeted and Actual Expenditure – January 2013 to June 2016

	Voted Provisions (Rs million)	Actual Amount (Rs million)	% Spent
Compost Subsidy Scheme	92.5	44.1	48
Seed Potato/ Onion/ Garlic Scheme	10.0	10.0	100
Sheltered Farming Scheme	9.5	9.5	100
Land Preparation - Mauritius	140.0	60.3	43
Crop Nursery (Curing Scheme)	7.5	2.3	31
Post-Harvest Facility	12.3	3.8	31
Rain Water Harvesting Scheme	7.0	2.3	33
Total	278.8	132.3	47

Source: Budget Estimates and Treasury Accounting System

3.4 Schemes Administered and Managed by FAREI

The Post-harvest Facility, Rainwater Harvesting Scheme, Crop Nursery/Curing Unit Scheme, Purchase of Agricultural/ Processing Equipment (Crop Sector) Scheme and the Sheltered Farming Scheme are all administered by FAREI. The Schemes target, in principle, small planters or group of planters, as well as Cooperative Societies/ Companies/ Farmers Associations cultivating vegetable crops.

To take advantage of the Schemes, namely the Rainwater Harvesting Scheme, Crop Nursery/Curing Unit Scheme and Sheltered Farming Scheme, potential beneficiaries submit their applications accompanied by relevant documents to FAREI. An Evaluation Committee set up at the level of FAREI examines the applications and recommends the projects to the FSF Management Committee for final approval. After approval of the Committee is obtained, fund is transferred to FAREI for onwards disbursement to planters. Eventually, an agreement is signed between the Ministry (represented by FAREI) and each beneficiary.

As far as the Post-harvest Facility is concerned, FAREI invited bids in September 2012 and construction of the Post-harvest Facility was completed at Rouge Terre in 2013.

3.4.1 Disbursement by FAREI with respect to Food Crops Schemes

As at 22 June 2016, amount disbursed to beneficiaries compared to amount budgeted are shown in Table 4.

Table 4 Budget Estimates Since 2013 and Disbursement to Beneficiaries at 22 June 2016

Estimates	Schemes		
	Sheltered Farming	Crop Nursery / Curing Units	Rainwater Harvesting
	(Rs 000)	(Rs 000)	(Rs 000)
2013	0	0	2,000
2014	2,000	3,000	2,000
January to June 2015	2,500	1,500	1,000
July 2015 to June 2016	5,000	3,000	2,000
Total Estimates	9,500	7,500	7,000
Total Disbursement to Beneficiaries			
January 2013 to 22 June 2016	4,619	386	1,041
% Utilised	49	5	15

Source: Estimates and Auditors Analysis

The percentage of funds disbursed with regards to the Rainwater Harvesting Scheme and the Crop Nursery/Curing Units Scheme to beneficiaries was 15 and 5 respectively. As far as the Sheltered Farming Scheme was concerned, the percentage of disbursement to beneficiaries which was 49 was relatively higher than the two other Schemes.

3.4.2 Response to the Schemes

Since the launching of the Schemes, FAREI has highlighted that the farming community had shown little interest in them. The main reason was that the financial conditions and eligibility criteria attached to these Schemes were not responsive and not in the interest of farmers. To address these problems, meetings were held among officers of the Ministry, FAREI, SFWF and the farming community with a view to redesigning the Schemes. Following these meetings, various amendments were proposed to the Schemes which had been discussed and approved by the FSF Management Committee in 2012.

In 2013, the proposed amendments for the reviewing of the Schemes and incentives were forwarded to the Ministry of Finance and Economic Development (MoFED) for approval. However, the proposals were not retained by MoFED, and as such, the existing Schemes were continued to be implemented as they were in 2013. MoFED suggested that the proposed amendments be taken care of in Budget 2014 and consideration would be given to increasing the grant component of certain Schemes.

In 2014, to encourage farmers to boost local production of food crops and to promote their active participation and involvement to increase the country's food self-sufficiency level, the Schemes were revised to render them more appealing to the farming community. The components of loan which was previously included in the Schemes was removed and replaced by grants. However, the grants would be disbursed only if the potential beneficiaries provided proof that they had enough funds to complete the project. Government's approval was obtained and funds were made available in the budget of the Ministry for the implementation of the Schemes.

For the three years 2013 to 2015, FAREI had estimated the total number of planters in Mauritius to be 11,717. The number of planters who took advantage from these Schemes during the same period is as shown in Table 5. However, compared to the total number of planters estimated in the country, the percentage of planters who took advantage from the above Schemes was relatively low.

Table 5 Number of Beneficiaries Since 2013

Scheme	No. of Beneficiaries				No. of Beneficiaries as a Percentage of Estimated No. of Planters (2013-2015)
	2013	2014	2015	Total	
Sheltered Farming	-	-	5	5	0.043
Crop Nursery / Curing	-	-	2	2	0.017
Rain Water Harvesting	13	1	11	25	0.210

Source: FAREI

Sheltered Farming Scheme

Statistics Mauritius has over the years pointed out the adverse effect of climatic conditions as one of the reasons for drop in food crop production. To address the problem of adverse climatic conditions, the Ministry came up with the Sheltered Farming Scheme which

encouraged farmers to shift from traditional open field cultivation to sheltered farming system. This Scheme enables farmers to mitigate the effects of adverse climatic conditions, to improve production and the quality of farm produce. A grant of 50 per cent on investment costs up to a maximum of Rs 250,000 was given to eligible beneficiaries of the Scheme.

Only five farmers initially took advantage of this Scheme. However, they were gradually showing interest therein, and the number increased to 33 in June 2016.

Crop Nursery/ Curing Units (previously known as Onion Curing Unit) Scheme

Under FSF, setting up of Onion Curing Units (OCU) was recommended to help onion producers to improve the post-harvest quality and the shelf life of their onion bulbs. This project was expected to benefit onion producers who faced marketing problems. In other words, it was meant to assist them in obtaining a better price for their produce, as well as improving the national self-sufficiency level. To optimize the utilisation of these Units, planters were requested to use them as nurseries for seedling production during off-season.

The first OCU (15 m x 7 m) was built at Plaine Sophie in 2009. It catered for the 40 planters who were members of the Midlands/ 7 Cascade Cooperative Society. The capacity of the Curing Unit was 10 tonnes, and three tonnes of onion of variety Star 5519 were successfully cured. Planters showed their satisfaction with the results obtained, and the quality onions bulbs obtained found a ready market. The Unit had a multifunctional dimension. At the end of the onion season, it was used for ripening of tomatoes for processing. It was also used as a nursery for raising seedlings.

Following the success of the first Curing Unit, 12 additional OCUs were distributed to Cooperative Societies and associations involved in onion production in 2010 and 2011. The cost of these 13 Curing Units was Rs 2,275,000. According to the FSF Projects Status Report of March 2013, during the 2012 crop season, 80 tonnes of onions were cured in the OCUs, and according to the Report of October 2013 and February 2014, no curing activities were recorded in the Units. The status of OCUs as at June 2016, according to FAREI, is shown in Appendix V.

The planters had not taken full advantage of these Curing Units since the start of the Scheme. According to FAREI, this was due to the insufficient storage facility of onions after being cured. Thus, they preferred to sell their freshly harvested onion immediately. On the other hand, the effectiveness of OCUs could not be assessed as FAREI did not have figures to substantiate post-harvest and post storage losses before and after utilisation of OCUs.

In 2014, the OCU Scheme was renamed Crop Nursery/ Curing Units Scheme and geared towards improving the capacity of vegetable growers to produce good quality planting materials and minimise loss of harvested produce. The Scheme provides partial funding for construction of Nursery cum Curing Units in terms of a 50 per cent grant up to a maximum of Rs 100,000 on investment costs to establish nursery/ curing facilities.

As at December 2015, only two planters took advantage of this Scheme, and as at June 2016, the number increased to five.

Rainwater Harvesting Scheme

This Scheme is meant at minimising the impact of water shortage due to climatic changes on agricultural production. This will encourage crop farmers to “harvest” rainwater to optimise use of water resources. The Scheme provides partial funding as grant for acquisition of appropriate equipment to collect, store and supply of rainwater on-farm for the sole purpose of agricultural production. A grant of 50 per cent up to a maximum of Rs 100,000 on investment costs for installation of rainwater harvesting facilities is given to beneficiaries. The Scheme caters for on-farm installation of rainwater harvesting system on existing shed or construction, putting up of rain water collecting pond or any other light structure for collecting rain water. As at December 2015, there were only 25 planters (out of 11,717 registered planters) who took advantage of the Scheme, and by June 2016, an additional six.

Post-Harvest Facility

Post-harvest losses vary considerably according to crop, variety, prevailing agro climatic condition at time of harvest, pests and diseases status, harvest and post-harvest treatments, handling of produce, market channel and storage condition at consumer level. According to FAREI, post-harvest losses of produce are major problems in the post-harvest chain. Losses can be both in terms of quality and quantity and range between 20 to 40 per cent. It is therefore imperative for small farmers to adopt suitable practices along the whole post-harvest value chain.

In February 2012, Government agreed to the setting up of the Post-Harvest Facility Units at Rouge Terre, l’Espérance, St Hubert and Mare d’Albert where planters had grouped themselves into clusters. The aim was to assist them to increase the quality standards of their produce, enhance their competitiveness and shift from traditional post-harvest practices to higher standards to be able to face the new challenges with respect to competitiveness and productivity in the local, regional and international markets. The Units were expected to provide basic facilities and equipment to wash, sort, grade, minimally process, store and pack fresh produce of the farm.

In 2013, the Ministry constructed the first post-harvest facility at Rouge Terre at a cost of some Rs 2.6 million on land acquired under the 1200A Mauritius Sugar Planters Association (MSPA) Scheme. Its objective was to support post-harvest needs of 14 groups, comprising 75 planters who had benefited land in that locality. The planters of Rouge Terre were requested to regroup themselves into a Cooperative Federation so that the facility could be handed over to the latter. The facility was intended to be managed and maintained by the Federation.

In November 2014, at a meeting of the FSF Management Committee, it was reported that the facility was not being extensively used by planters of Rouge Terre. At another meeting in June 2015, it was again pointed out that planters were not interested to use the facility.

Consequently, the budgeted amounts of Rs 3,500,000 for 2014 and Rs 1,750,000 for the period January to June 2015 for the construction of additional post-harvest facilities were not spent. Meanwhile, for the existing facility, payments totalling some Rs 1.2 million, representing costs incurred by FAREI towards maintenance of the building, electricity bills and security services from January 2014 to June 2016 were refunded by the Ministry to

FAREI in June 2016. As at June 2016, some Rs 3.8 million had been spent on the existing Post-Harvest Facility.

According to FAREI, post-harvest losses turned around 30 to 40 per cent as at June 2016. No reduction in the post-harvest losses was achieved despite the investment.

Purchase of Agricultural/ Processing Equipment (Crop Sector) Scheme

The Purchase of Agricultural/ Processing Equipment (Crop Sector) Scheme aims at assisting farmers to equip themselves with appropriate tools and equipment to address the challenges of the modern agricultural sector. Planters are encouraged to acquire farm machinery/ equipment to mechanise their production system and also venture in food processing or other value-addition activities. A grant of 50 per cent on the costs of investment up to a maximum of Rs 100,000 for the purchase of equipment for processing of crop, harvested produce and/ or mechanise agricultural operations is given to planters willing to take part in the Scheme. Disbursement to planters, through FAREI, was done under Programme 16-104: “Livestock Production and Development” through the Item “Scheme for Purchase of Equipment”.

This action aligns with the Food and Agricultural Organisation’s (FAO) stand on mechanization which is to help farmers in improving their productivity, as well as in addressing the problem of labour scarcity.

There were indications that the objective of helping farmers to improve their productivity, as well as addressing the labour scarcity would not be fully achieved as described below.

- Absence of Strategy on Mechanisation. According to FAO, a mechanisation project requires a proper strategic plan given its importance in increasing agricultural production. It also pointed out that one of the major reasons for the disappointing performance and low contribution of mechanization to agricultural development in Africa had been the fragmented approach to mechanization issues which could be attributed to poor planning by Government agencies. In the local context, the Ministry did not have any strategy on mechanisation.
- Absence of Budget Estimates. No separate budget estimates was provided for the Purchase of Agricultural/ Processing Equipment Scheme with respect to food crops. Instead, disbursement to planters through FAREI was done under Programme 16-104: “Livestock Production and Development” through the Item “Scheme for Purchase of Equipment”.
- Low Level of Investment. Investment on agricultural equipment for production, irrigation and agro-processing was low. As at June 2016, some three and a half years after the development of FSSP 2013-2015, 83 farmers took advantage of the Purchase of Agricultural/ Processing Equipment Scheme, and grant amounting to some Rs 3.4 million was disbursed by FAREI. Taking into consideration that a 50 per cent subsidy was given to planters, this means that the latter had actually acquired agricultural equipment for some Rs 6.8 million, that is, an average of Rs 82,000 per planter.

3.5 Scheme Administered and Managed by SFWF

In order to promote sustainable agriculture, a Compost Subsidy Scheme was launched on 30 January 2013 and administered by SFWF. The purpose of the Scheme is to provide free organic compost up to a maximum of 1 tonne /arpent to small registered farmers. The objective is to enable farmers utilizing non chemical fertilizers (compost) to improve the quality of agricultural land for sustainable agriculture, to reduce production costs and to promote production of chemical free agricultural products for the benefit of consumers.

The perceived benefits of compost are as listed below.

- It improves any soil to which it is applied, increasing productivity;
- It suppresses soil-borne disease organism;
- It prevents topsoil loss;
- It provides erosion control;
- It degrades some petroleum-based contaminants and reduces the bioavailability of heavy metal.

At the outset of the Scheme, a 30 per cent discount on the price of organic fertilisers was being given to farmers in the form of vouchers. The subsidy was granted to planters registered with SFWF and was operated on a first come first serve basis. Three Delivery Vouchers were issued per planter for a total of three crop cycles on the same plot of land.

As at 31 December 2013, 434 applications were received though the number of registered planters was 5,137, representing eight per cent only. SFWF delivered vouchers for 1,572 tonnes to planters, but they took delivery of only 264 tonnes. Out of the Rs 40 million budgeted in 2013, only some Rs 9.4 million were spent, that is some 24 per cent. It was considered that Rs 40 million earmarked could finance some 8,000 tonnes of compost.

Following a situational analysis carried out in August 2013 and information obtained from planters, SFWF highlighted the weaknesses of the Scheme:

- (a) Production of compost was slow due to lack of materials;
- (b) Planters used poultry manure which was less expensive. However, same was not advisable as it was toxic for the soil;
- (c) Following the torrential rainfall which occurred in February 2013, compost was being delivered free of charge to planters by FAREI and this had hampered the Scheme to some extent;
- (d) Planters had to disburse 70 per cent of the cost of compost out of their pockets;
- (e) The product was new to planters and the performance was not yet known;

- (f) Planters complained on the supply of the product on the market and informed that same was not always available.

FAREI, which had been monitoring the performance of the compost, reported in 2013 that the use of the compost had mixed results in terms of yield in different regions.

The Compost Subsidy Scheme was thus reviewed in 2014 to render same more accessible to planters. Following amendments brought to the Scheme, registered planters of SFWF benefited from free compost, equivalent to 30 per cent of the cost of compost. The revised Subsidy Scheme was launched in May 2014.

As at 31 December 2014, the number of applications received increased to 2,858. For the period January to June 2015, only the pending applications of 2014 were being entertained due to production constraint of compost on the supplier's side. During period 2014 to June 2015, an amount of Rs 37.5 million was budgeted and some Rs 20.5 million spent, representing some 55 per cent, and 2,975 tonnes of compost were delivered to 2,097 planters. For the year ending 30 June 2016, Rs 14 million out of a budget of Rs 15 million were spent and 1,693 tonnes were delivered to 1,364 planters.

From January 2013 to June 2016, 3,811 planters benefited from free compost for a total amount of some Rs 44 million. The last survey on efficiency of the Compost Subsidy Scheme carried out in 2016 by SFWF highlighted that, overall, the compost performed well. However, due to lack of information about the content and usage of the compost, farmers encountered certain difficulties, such as burnt seeds and crop growth ceased at seedling stage, which ultimately discouraged them from using it.

3.6 Schemes Administered and Managed by AMB

The Seeds Purchase Scheme (SPS) comprises the Seed Potato Purchase Scheme (SPPS), the Onion Seed Purchase Scheme (OSPS) and the Garlic Seed Purchase Scheme (GSPS). SPPS and OSPS were set up in 2009, and GSPS two years after, that is, in 2011. AMB manages and administers SPS. Planters who took advantage thereof signed a contract with AMB.

The Scheme aims at boosting the production of potatoes, onions and garlic. It also allows small planters to have greater accessibility to the seeds of these strategic crops. It is funded by the Ministry through a Revolving Fund which enables small planters to purchase seeds through monetary advances, thus alleviating the significant financial costs involved therein. For the period 2009 to 2012, some Rs 42 million were injected in the Revolving Fund, and as at December 2015, some Rs 189 million had been revolved. For the period January 2015 to June 2015, a further Rs 5 million was injected in the Fund.

3.6.1 Response of Planters to the Schemes

Initially, there was no element of grant in these Schemes, but the advance to planters was interest free. The latter were required to make a deposit of 10 per cent on the total cost of seeds purchased at AMB and the remaining 90 per cent was payable after the beneficiaries had harvested their crops. In May 2014, two Schemes, namely OSPS and GSPS, were reviewed and two additional incentives were provided to planters. They are as follows:

- Planters under these two Schemes are eligible to benefit from a grant of 10 per cent on the total cost of seeds purchased at AMB;
- Government approved a subsidy of Rs 50/kg on the selling price of local garlic seeds which were purchased by AMB at Rs 150/kg. (Previously, planters were eligible to a subsidy of Rs 20/kg on the selling price.)

Despite the fact that Government had been providing these incentives to planters since the setting up of SPS, the response of planters with respect to the lifting of seeds was low as explained below.

Seed Potato Purchase Scheme

Regarding SPPS, the volume of seed lifted decreased from 748,409 kg in 2012 to 457,848 kg in 2015, representing a decrease of some 39 per cent, though the number of beneficiaries which stagnated in the range of 178 to 185 during 2012 to 2014 increased to 251 in 2015, that is, by 41 per cent as compared to 2012.

Onion Seed Purchase Scheme

The quantity of seeds lifted showed a declining trend from 363 kg in 2012 to 271 kg in 2015, that is, by some 25 per cent, and the number of planters decreased from 150 in 2012 to 39 in 2015, that is, by some 74 per cent.

Garlic Seed Purchase Scheme

The number of beneficiaries of GSPS increased from 1 to 15 from 2012 to 2015 though there were 25 beneficiaries in 2014. The quantity of seeds lifted increased from 2,465 kg in 2013 to 13,612 kg in 2014, representing an increase of some 450 per cent. However, it decreased to 4,550 kg in 2015, representing a decrease of 66 per cent as compared to quantity lifted in 2014.

The number of beneficiaries and quantity lifted under SPS for the last four years are shown in Table 6.

Table 6 Number of Beneficiaries and Quantity Lifted from 2012 to 2015

	2012	2013	2014	2015
SPPS				
Number of Beneficiaries	178	178	185	251
Quantity Lifted (Kg)	748,409	775,833	647,461	457,848
OSPS				
Number of Beneficiaries	150	130	67	39
Quantity Lifted (Kg)	363	338	220	271
GSPS				
Number of Beneficiaries	1	14	25	15
Quantity Lifted (Kg)	100	2,465	13,612	4,550

Source: AMB

3.6.2 Debtors

According to AMB, some 350 planters had not reimbursed their debts for the period 2009 to 2015 which amounted to some Rs 34 million. Those debts remained unpaid as at time of audit in March 2016 and this in spite of measures taken by AMB to counter the problem as stated below. AMB was made to understand that these planters suffered losses due to poor yield and other related reasons.

AMB had been taking actions to address the problem by issuing several and regular reminders to these debtors. In May 2014, the Schemes were reviewed and stringent conditions as mentioned below were included to address the problem.

- Planters under SPPS and OSPS were henceforth required to sell to AMB, a minimum of three tonnes of table potato or onion bulb instead of two tonnes for every tonne of potato or onion seeds purchased; and
- Planters cultivating above three arpents (about one hectare), wishing to join SPS should provide a bank guarantee representing at least 90 per cent of the cost of the seeds purchased. The validity of the bank guarantee was for a period of 12 months as from the lifting of the seeds at AMB. In case of non-payment, AMB might request the bank to forfeit the required amount with interest from the guarantee.

Following a meeting held at the level of the Ministry in December 2015, the following actions were taken in 2016 to recoup the long outstanding debts:

- A registration exercise for small growers wishing to enlist under SPS was launched for the Campaign 2016, whereby the latter were required to submit all relevant information. The aim of this exercise was to allow AMB to be more diligent prior to accepting any request from small growers;
- Approval of the Ministry was obtained for AMB to proceed with the issue of legal notice to debtors;
- AMB would henceforth be assisted by FAREI, SFWF, Mauritius Chamber of Agriculture and a representative of the Ministry to determine the eligibility of planters benefiting from the Scheme.

However, in March 2016 the Ministry postponed the issue of legal notice to debtors as planters incurred losses during the torrential rain in February 2016, and needed time and financial resources to start their plantations again.

As the recovery of the debt was slow, as at March 2016, only an amount of Rs 16 million was available in the Revolving Fund out of the amount of Rs 47 million injected during the period 2009 to June 2015.

Amounts advanced for year 2009 to 2015 and still outstanding as at 31 March 2016 under SPS are shown in Table 7.

Table 7 Amount Advanced and Still Owed by Beneficiaries of SPPS and OSPS as at 31 March 2016

Year	Seed Potato Purchase Scheme		Onion Seed Purchase Scheme		Garlic Seed Purchase Scheme	
	Advance to Planters (Rs million)	Amount Still Owed (Rs million)	Advance to Planters (Rs million)	Amount Still Owed (Rs million)	Advance to Planters (Rs million)	Amount Still Owed (Rs million)
2009	14.9	0.8	2.2	0.4	-	-
2010	26.4	2.9	1.8	0.2	-	-
2011	30.0	2.5	1.4	0.5	-	-
2012	28.0	4.8	3.0	1.6	-	-
2013	30.5	4.5	3.0	0.9	0.3	-
2014	24.7	4.3	2.7	0.7	1.2	0.6
2015	17.2	8.7	1.6	0.5	0.4	-
Total	171.7	28.5	15.7	4.8	1.9	0.6

Source: AMB

3.7 Land for Food Crop Production

Land is considered as a critical success factor for the agro-industry. As at December 2015, 8,137 hectares of land under food crop production had been harvested.

Government, in its endeavour to increase food crop production, continues to provide assistance and to empower planters by providing State Land for cultivation after obtaining request from them. As of June 2016, 1,840 arpents (some 630 hectares) of State Land, including some 536 arpents (some 183 hectares) of land received from the ex-MSPA under the 1,200 Arpent Scheme, were provided for food crop production.

3.7.1 MSPA Land Scheme

Following conclusion of the deal on sugar reforms, Government signed an agreement with the ex-MSPA in 2008, whereby corporate planters who were members of the Association were to provide a total area of 2,000 arpents (some 684 hectares) of land in favour of the State over the period 28 April 2008 to 31 December 2017. The land would be used for the needs of the State for agricultural, housing and other social purposes. As and when land was identified and agreed upon by parties concerned, the transfer of ownership would be effected.

Initially in 2008-2009, 1,000 arpents (some 342 hectares) of the land under the Scheme were earmarked for agricultural purposes, 727 arpents (some 248 hectares) of which were for food crop farming.

Subsequently, in March 2013, Government approved new proposals for re-allocation of the 2,000 arpents (some 684 hectares) of land to agriculture and housing/social infrastructure. With a view to increasing the level of self-sufficiency in the country, around 1,200 arpents

(some 410 hectares) of the 2,000 arpents (some 684 hectares) were earmarked for agricultural purposes, of which 869 arpents (some 235 hectares) were for food crop.

However, as at June 2016, some 18 months prior to the expiry of the agreement, land received by Government reached 722 arpents (some 247 hectares) of which some 536 arpents (some 183 hectares), were earmarked for food crop production. About 478 arpents (163 hectares) of agricultural land, including 333 arpents (114 hectares) for food crop have yet to be obtained.

The delay in obtaining land for onward distribution to planters, among other factors, is having a negative impact on production. We were made to understand that, all the MSPA land earmarked for agricultural purposes would be obtained by the end of December 2017.

3.7.2 Land Preparation

High cost of production is one of the major constraints to increase food crop production. In this respect, Government provides assistance and empowers planters through a programme of land consolidation/ preparation, such as clearing, ripping, harrowing, tilling, derocking (fine and coarse) on State Land. The land preparation is undertaken by MCIA.

For the period January 2013 to June 2016, Rs 140 million were provided for the Item “Land Preparation” (Mauritius) under Programme 16-103: Development of Non-Sugar (Crop) Sector, and some Rs 60 million, that is, 43 per cent only were spent. During a meeting of the FSF Managing Committee on 30 May 2014, it was pointed out that there were serious delays in carrying out land preparation works on MSPA and State Lands, as MCIA was overloaded with work. However, we were informed that the situation had improved in 2016.

3.8 Potato, Onion and Garlic – Case Examples

According to FSSP 2013-2015, the production of food crops was undertaken mainly to meet local requirements. However, to palliate shortages of some important crops, such as potato, onion and garlic, Government had to resort to seasonal imports. In the Strategic Plan, several measures had been proposed to boost their production. These three food crops had been selected to illustrate the effects of the measures on local production.

3.8.1 Self Sufficiency Level of Potatoes, Onions and Garlic

The self-sufficiency level in 2012 for these three food crops stood at some 95, 49 and 5 per cent respectively. However, in 2015, the self-sufficiency level of potato and onion decreased to 58 and 39 per cent respectively, while that of garlic stayed at 5 per cent. This was contrary to the objective set by the Government in the FSSP 2013-2015 which was to increase self-sufficiency of onion and garlic to 50 and 10 per cent respectively. As far as potato was concerned, no self-sufficiency target was set. Further details on the evolution of these three food crops are given below.

Potato Production

Potato is an important seasonal food crop, with two season plantations during a year. In FSSP 2013-2015, Government targeted to increase potato production with an additional production of 5,000 tonnes to meet the increase in demand.

However, despite the measures spelt out in FSSP 2013-2015, the additional 5,000 tonnes of potato production targeted was not achieved. Instead, the production showed a decline of 20 per cent, that is, from 20,442 tonnes in 2012 to 16,427 tonnes in 2015. The area harvested also decreased from 876 hectares in 2012 to 707 hectares in 2015. Hence, Government had recourse to importations of potatoes, and this was reflected in the increase in both the cost and volume of imported potatoes (fresh and preserved) by 38 per cent from 2012 to 2015. Details on the production, area harvested, as well as importations are shown in Table 8.

Table 8 Harvest, Production and Importation of Potatoes from 2012 to 2015

Year	Annual Production (tonnes)	Area Harvested (ha)	Volume of Importation (tonnes)	Cost of Importation (Rs)
2012	20,442	876	10,162	278.0
2013	16,451	697	8,472	269.9
2014	19,404	821	10,130	318.6
2015	16,427	707	14,065	384.5

Source: Statistics Mauritius

Onion Production

Onion is considered as another priority crop, and Government, since its first FSSP 2008-2011, intended to increase production locally in order to reduce the country's dependency on imports.

However, instead of an increase, there was a decrease in onion production over the years from 5,558 tonnes in 2008 to 5,182 tonnes in 2011. Government recognised that the accompanying measures provided to planters, such as OSPS and the curing facilities during 2008-2011 did not assist fully in increasing the volume of production. Moreover, unavailability of land and insufficient financial support for the purchase of light machinery to mechanise onion production constrained the expansion of this sector.

A production target of 8,000 tonnes, representing a self-sufficiency level of 50 per cent, was set for 2015. In spite of the measures stated in FSSP 2013-2015, the target of 8,000 tonnes was not achieved. The annual production of onions reached 6,898 tonnes in 2015, that is, 200 tonnes lesser than the production of 7,098 tonnes in 2012. Area harvested decreased from 291 hectares in 2012 to 283 hectares in 2015, that is, by some three per cent.

In order to cater for the annual consumption which averaged some 17,000 tonnes for the last four years (2012 to 2015), Government resorted to importation of onions. In terms of volume of importation (fresh and preserved), there was an increase of 14 per cent, that is, 10,859 tonnes of onions were imported in 2015 as compared to 9,533 tonnes in 2012.

Consequently, the import bill amounted to some Rs 223 million in 2015 as compared to some Rs 129 million in 2012. This represented an increase in cost of importation of 72 per cent over the last four years. Details on the production, area harvested as well as importations are shown in Table 9.

Table 9 Harvest, Production and Importation of Onions from 2012 to 2015

Year	Annual Production (tonnes)	Area Harvested (ha)	Volume of Importation (tonnes)	Cost of Importation (Rs)
2012	7,098	291	9,533	128.9
2013	7,772	354	8,680	161.3
2014	5,912	282	10,942	204.1
2015	6,898	283	10,859	222.5

Source: Statistics Mauritius

Garlic Production

Garlic is a major product which is being used for both culinary and medicinal purposes. However, most of the local requirement was being imported. Over the last three decades, the average annual local production decreased by 88 per cent, that is, from 199 tonnes during the 1980s' to 24 tonnes in 2010. Likewise, the area under production decreased from 28 hectares in the 1980s' to 3.5 hectares in 2010. This loss of interest in the production of garlic was mainly attributed by the Ministry to the availability of cheap and high quality imported garlic.

Government through FSSP 2013-2015 set a production target of 200 tonnes of garlic, representing around 10 per cent self-sufficiency by 2015.

Despite the intention of Government to increase the production of garlic, the target of 200 tonnes was not achieved in 2015. The production showed an increase of 65 per cent, that is, from 98 tonnes in 2012 to 162 tonnes in 2014, but dropped to 85 tonnes in 2015. Government resorted to the import (fresh and preserved) of some 1,600 tonnes of garlic for some Rs 83 million in 2015. Details on the production, area harvested, as well as importations are shown in Table 10.

Table 10 Harvest, Production and Importation of Garlic from 2012 to 2015

Year	Annual Production (tonnes)	Area Harvested (ha)	Volume of Importation (tonnes)	Cost of Importation (Rs million)
2012	98	16	1,624	76.9
2013	107	16	1,570	102.1
2014	162	27	1,682	75.1
2015	85	13	1,624	82.9

Source: Statistics Mauritius

3.8.2 Land Availability

Availability of land on a timely basis is one of the factors that contributes to boosting food crops production. In previous years, any increase in land harvested had a direct impact on production. In 2011, potato production increased by 45 per cent, that is, from 14,868 tonnes in 2008 to 21,561 tonnes in 2011, partly as a result of an increase in area under potato cultivation from 648 hectares in 2008 to 1,010 hectares in 2011, and partly by SPPS.

For the period 2013 to 2015, FSSP targeted to increase area under cultivation of potato, onion and garlic by 200 hectares, 130 hectares and 25 hectares respectively to be able to meet the targeted production of 2015. However, no mention was made in FSSP 2013-2015 on how the additional lands would have been mobilized for onward distribution to planters.

The area cultivated for potatoes decreased by 279 hectares, that is, from 876 hectares in 2012 to 597 hectares in 2015. During the same period, the area under onion cultivation increased by only 12 hectares instead of 130 hectares, while the area under garlic cultivation remained the same at 16 hectares instead of increasing by 25 hectares. (Table 11) Moreover, area harvested for potato and garlic had decreased by 217 hectares and three hectares respectively between 2012 and 2015, and for the same period, area harvested for onion has shown an increase of only 12 hectares. (Tables 8, 9 and 10 refer).

Table 11 Cultivated area in hectares- Island of Mauritius, 2012 – 2015

Year	2012	2013	2014	2015
Potato	876	697	673	597
Onion	291	354	282	303
Garlic	16	16	27	16

Source: FAREI

3.8.3 Planting Materials

Potato Seeds

AMB spent some Rs 220 million on the purchase of potato seeds from 2012 to 2015. This included an importation cost of some Rs 131 million. The purchase of local seeds increased gradually from 585 tonnes in 2012 to 824 tonnes in 2015 and import of potato seeds decreased from 1,075 tonnes in 2012 to 979 tonnes in 2015. Percentage of local seeds to total volume of seeds sold to planters was 45 in 2012 and increased to 48 in 2015. The cost of importation had also decreased from some Rs 37 million in 2012 to some Rs 34 million in 2015. The cost per tonne of potato seeds imported had remained constant at some Rs 34,000 from 2012 to 2015. The cost per tonne of locally purchased seeds was some Rs 31,000, that is, local seeds were some Rs 3,000 per tonne cheaper.

However, the volume of potato seeds lifted under SPPS decreased from 748 tonnes in 2012 to 458 tonnes in 2015, though the number of planters acquiring potato seeds under the Scheme had increased from 178 in 2012 to 251 in 2015. According to FAO, cost of seeds is usually the most expensive single input to potato cultivation. In Mauritius, as the cost of seeds

represents 40 per cent of total cost of production, this may have an adverse impact on planters producing potatoes.

Onion Seeds

On average, the cost of onion seed represents 23 per cent of the total cost of production, being the second highest production cost per arpent, after cost of labour. FSSP 2013-2015 identified two measures to address the high cost of seeds.

The first measure was to encourage one or two agro entrepreneurs to embark on large scale production of sets for early onion production to enhance production of onion to 8,000 tonnes by 2015. Incentives in terms of grant for farm equipment for land preparation, irrigation and nursery and storage structure were envisaged to be provided to interested agro entrepreneurs. However, no local producer embarked in the production of onion sets in spite of the incentives provided by Government.

We were made to understand that planters were not interested in the production of onion sets as it was costly and highly labour intensive.

The other measure was to promote the mother bulbs and seeds of two varieties of onions, namely Bellarose and Francia, which were produced locally, among onion growers. In fact, the Ministry, through FAREI, produced these seeds which were sold to AMB to subsequently sell to planters. However, the volume of these local seeds purchased by AMB decreased from 573 kg in 2013 to 90 kg in 2015, representing a decrease of some 84 per cent.

The quantity of these varieties of local seeds sold to planters had also decreased from 480 kg in 2013 to 182 kg in 2015, representing a decrease of some 62 per cent as shown in Table 12. From 2012 to 2015, 1,078 kg of local seeds were purchased and 1,070 kg were sold to planters, that is, almost 100 per cent, which was an indication that these varieties were popular among farmers.

Between 2013 and 2015, the cost of imported seeds had been showing an increasing trend compared to local seeds. In 2015, the average cost of onion seeds imported was Rs 6,500/kg compared to local seeds which was Rs 4,689/kg.

The number of planters taking the benefits of OSPS decreased from 150 in 2012 to 39 in 2015. The production of local seeds had fallen and there were no local producers who had embarked in the production of onion sets. If this trend is maintained, more imported seeds need to be purchased.

Table 12 Imported and Local Onion Seeds Purchased and Sold

	2012	2013	2014	2015	Total
Imported Seeds*					
Seeds Imported by AMB (kg)	1,122	625	380	500	2,627
Cost of Importation (Rs 000)	5,749	2,769	1,880	3,250	13,648
Quantity Sold to Planters (kg)	859	591	680	436	2,566
Local Seeds**					
Seeds Purchased by AMB (kg)	240	573	175	90	1,078
Cost of Local Purchase (Rs 000)	840	3,256	888	422	5,406
Quantity Sold to Planters (kg)	240	480	168	182	1,070
Total Seeds Purchased and Sold					
Total Seeds Purchased by AMB (kg)	1,362	1,198	555	590	3,705
Cost of Purchase - Local and Imported (Rs 000)	6,589	6,025	2,768	3,672	19,054
Total Seeds Sold to Planters (kg)	1,099	1,071	848	618	3,636
Local Seeds Sold/Total Seeds Sold (%)	22	45	20	30	29

Source: AMB

* *Noflaye, Nun 7272, Star 5516 (250), Star 5517 (250), Star 5529, and Shahar*

** *Bella Rose and Francia. In 2012, only Bella Rose was produced.*

Garlic Seeds

Garlic seeds were not imported. Only local seeds were made available to planters. Purchase of local seeds by AMB was 15 tonnes in 2012 and it doubled to 30 tonnes in 2013. However, the purchase of seeds started to decrease from 25 tonnes in 2014 to 19 tonnes in 2015. Cost of garlic seeds purchased during these four years amounted to some Rs 13 million. Some 51 tonnes were sold to planters at some Rs 4 million during the same period. In May 2014, Government approved a subsidy of Rs 50/kg on the selling price of local garlic seeds which were purchased by AMB at Rs 150/kg. (Previously, planters were eligible to a subsidy of Rs 20/kg on the selling price.) Under GSPS, the number of planters acquiring garlic seeds increased from 14 to 25 between 2013 and 2014 and fell to 15 in 2015. The cost of seed represents on average 28 per cent of the total cost of production.

3.8.4 Average Yield

The yield of potato and onions averaged 22 to 23 tonnes/hectare for the period 2012 to 2015, while that of garlic averaged 6.4 tonnes/hectare for the same period.

Average Yield of Potato

According to FAO, potato yield is determined by the crop per se and the environment (external factors that consist mainly of temperature, light, nutrition and water). All external factors cannot be controlled, but efforts can be made to optimize yields by using high quality seeds.

The average yield of potato had stagnated at 23 tonnes per hectare for the last 10 years. The two mostly grown varieties were Spunta and Delaware and they were released in 1975 and 1994 respectively. They adapted well to the agro climatic conditions, and according to FAREI, they were considered as the preferred choice for growers and customers. Following further research carried out by the ex-Mauritius Sugar Industry Research Institute, a new variety of potato, namely, Belle Isle was released in 2009. According to FAREI, in spite of having several advantages, such as, late blight tolerant and it gave yields higher than the Spunta variety, it did not gain popularity among growers and consumers. Currently, there is no commercial cultivation of Belle Isle, and it is produced in limited quantity to keep the germplasm for research and breeding purposes.

Average Yield of Onion

Two varieties of onion, namely Bellarose and Francia, were developed and released in 2013 by FAREI. However, in spite of new varieties being developed, the average yield of onion was some 22 tonnes per hectare. As illustrated in Table 13, from 2012 to 2015, the average yield of onions had stagnated. In 2011, one variety, Star 5529, was recommended for commercial cultivation by FAREI as growers showed their great appreciation for this variety. In 2013 and 2014, 820 kg of seeds were imported and sold to planters for cultivation. However, no more seeds were imported and planted in 2015. We were made to understand that the producer of this seed was cutting down its production, and thus it was difficult to procure them.

Average Yield of Garlic

The standard yield of garlic was 7 to 9 tonnes per hectare. However, during the period 2012 to 2015, the average yield ranged from 6.0 to 6.9 tonnes per hectare, which was below the standard yield.

Table 13 Cultivated Areas – Mauritius and Average Yield – 2012 to 2015

	2012	2013	2014	2015
Potato				
Average Yield (T/ha)	23.3	23.6	23.6	23.2
Cultivated Area (ha)	876	697	673	597
Onion				
Average Yield (T/ha)	24.4	22.0	20.9	24.4
Cultivated Area (ha)	291	354	282	303
Garlic				
Average Yield (T/ha)	6.2	6.9	6.0	6.4
Cultivated Area (ha)	16	16	27	16

Source: Statistics Mauritius and FAREI

3.9 Research and Development

According to FAO, research can be undertaken at different stages, namely at improving the variety, seed production and multiplication, crop protection and post-harvest management. In FSSP 2013-2015, measures were proposed in relation to Research and Development for three crops, namely potato, onion and garlic. In this context, FAREI was taking initiatives in view of the objectives set in FSSP 2013-2015. The objectives of the Research and Development are listed in Appendix I.

Research is a continuing process and some of the researches have started as far back as 2008, the result of which will be obtained as from 2017 according to FAREI. (Appendix VI refers)

CHAPTER FOUR

CONCLUSION

The planters' community plays a central role as the planters are the food crop producers of the country. The role of the Ministry, as a service provider, is equally crucial as it provides assistance to planters with a view to boosting food production and raising self-sufficiency level. In the Crop Sector, Government attempted to reduce its dependence on imports by addressing a wide range of issues associated with food crop production through various measures as stated in FSSP 2013-2015. During the period January 2013 to June 2015, although the Ministry had spent some Rs 110 million on Subsidies, Schemes and research and some Rs 189 million revolved in SPS, the actual production of food crops (excluding fruits) showed a decreasing trend from 2012 to 2015.

Panoply of measures was proposed for food crops, including strategic ones. As for Schemes, the Ministry contended that it had informal meetings prior to formulating them and planters showed their interests therein. However, only a few of them took advantage of same. To render them more responsive to the need of the farming community, the Ministry subsequently reviewed certain Schemes. They again have not been popular to planters. These measures had varying response rate during 2013-2015, and thus impacted on the achievement of the stated objectives leading to, in most cases, funds provided in the Budget for the measures earmarked to be underspent.

Various Schemes and Subsidies have not been adequately formulated in terms of targets and indicators. This does not facilitate the monitoring and reviewing of their implementation.

The above weaknesses, along with the effect of the changing climatic conditions hindered the attainment of food crops production target set.

On the positive side, FAREI has been working actively on research and development programmes, as well as dissemination of good practices. Researches were focused, amongst others, on the evaluation and release of new and high yielding varieties food crops, pest and disease management and new technologies for growers. However, research and development is a time consuming process and its outcome will only be known in the future.

CHAPTER FIVE

RECOMMENDATIONS

In the light of the audit findings and conclusion, hereunder are the recommendations.

5.1 Developing Schemes

Prior to developing new schemes and incentives to boost local production, the Ministry has to investigate extensively on the interest and have the commitment of small planters/ group of planters so that realistic objectives and budget are set.

The constraints affecting farmers are multiple. These include scarcity of land, pests/diseases, natural disaster, theft, non-availability of water and high price of inputs. The factors affecting production should be ranked in order of incidence and controllability, and measures should be taken accordingly.

5.2 Developing a Proper Implementation Plan

Another overriding element to achieve the objectives set by the Ministry with respect to food crops is the development of a proper implementation plan within existing resources. The plan should incorporate, amongst others, tasks to be prioritised, a realistic budget, an appropriate timeframe and indicators. Moreover, it should be revised in line with changing circumstances. The objective(s) and target sets, as well as the action(s) to be taken to reach them must be adequately described.

5.3 Developing Indicators and Targets

The Ministry should develop indicators and targets taking into consideration the specificity of the agricultural sector. These can be used as benchmark for measuring the output for each proposed actions in a Strategic Plan. Indicators and targets are important for monitoring and evaluation purposes. This will help the Ministry, among others, to assess progress by comparing planned and actual results, and to evaluate the impact of their actions. The targets and indicators should be measurable and time based. In cases where feasible, annual targets can be set based on a long term plan.

5.4 Enhancing the Monitoring, Review and Evaluation Process

The Ministry should ensure that there is close monitoring, review and evaluation of the measures in the Strategic Plan. These are important aspects to track the progress of proposed actions.

The monitoring needs to be done on a regular basis, to be determined by the Ministry. In case of underperformance, corrective actions should be taken in line with the analysis so that objectives and targets set are achieved. Objectives and targets set should be monitored and may require revision, based on the progress made, obstacles encountered and the changing

environment. Regular reports should be made available to different stakeholders so that corrective measures are taken on a timely basis.

Other actions that may be taken include altering the design and implementation of an initiative/ Scheme to enhance its effectiveness or expanding highly successful initiatives/ Schemes, or even closing an ineffective program. In order to make reasonably informed decision, the Ministry should conduct surveys to understand why the existing Schemes are not popular among the planters' community and what their expectations thereof are.

In line with the importance given by Government to bio-farming and the effect of the changing climatic condition on agriculture, the Ministry should reassess Schemes, such as the Compost Subsidy Scheme and Sheltered Farming.

5.5 Land Availability

Land, as a factor of production, is of great importance for the planters' community. In view of the substantial number of applications received from farmers with the ultimate view of increasing production, more agricultural lands need to be released to farmers on a timely basis.

In addition to the ex-MSPA land, other sources of land should be explored. As far as the ex-MSPA land is concerned, the Ministry should ensure that all the agricultural lands earmarked under the agreement between Government and ex-MSPA are obtained by 31 December 2017.

According to the 2014 Census of Agriculture dated October 2015, in the Island of Mauritius, out of a total area of 64,683 hectares of agricultural holdings (excluding sugar cane and tea), 83 per cent were used by businesses/ institutions, and the remaining 17 per cent by household² farms. Hence, for decision making purposes, it is important for the Ministry to find out whether the fluctuation in production is influenced by the priorities of the business/ institutions sector or the household sector. This can be done by analysing the trends in land occupied by business/ institutions and household farm over the years, and the distribution of the size of their holdings.

5.6 Measures to Control Total Cost of Production

The Ministry should take measures to control the total cost of production which is primarily dominated by costs of labour and planting materials.

Due to scarcity of labour, the planters' community is experiencing an increase in the cost of labour, which ultimately impacts on the cost of production. The Ministry should encourage them to shift to mechanization to address the problem of labour shortage and high cost of production. However, for the objective set to be achieved, there should be a proper strategy on mechanisation. Additionally, before developing strategy for mechanisation, the Ministry should carry consultative meetings with planters to determine their requirements. It is also important for the Ministry to determine whether the impact of the shortage of labour on cost

² A household is defined as a person living on his/her own.

is more significant at the planting stage, harvesting stage or post-harvest stage so that informed decision is taken.

As the production of sets is costly and labour intensive, the Ministry should find other alternatives to encourage planters to embark in the production of seeds.

Ministry's Reply

The Ministry's reply is reproduced below:

“This Ministry has taken cognizance of the amended draft Performance Audit Report and has no further comments to make thereon”.

Examples of Measures Stated in Food Security Strategy Plan 2013-2015

1. Sectoral Plan by Commodity Groups

Potato

- 200 hectares of land would be required during the second season plantation to attain an additional production of 5,000 tonnes that are being imported. Timely allocation of land is necessary;
- The Potato Boost up Scheme should be maintained to assist planters in purchasing seed potatoes;
- Financial facilities in terms of loan for purchasing of machinery for land preparation, irrigation and harvesting should be given to planters;
- Support to mechanical land preparation to encourage use of abandoned sugar cane lands for potato cultivation; and
- Introduction and promotion of varieties with better yields due to increasing cost of production.

Onion

- An additional acreage of 130 hectares of land will have to be released;
- A package of incentives including financial facilities (30 per cent Grant and VAT exemption) for the purchase of machinery for land preparation, sowing and harvesting and equipment for irrigation and nursery should be given to planters;
- In order to promote the utilization of sets for early onion production, one or two agro entrepreneurs should be encouraged to embark on large-scale production of sets to be sold to onion planters. Incentives in terms (30 per cent grant) for farm equipment for land preparation, irrigation and nursery and storage structure need to be provided to interested agro entrepreneurs;
- The Onion Booster Scheme should be maintained to encourage new entrants in onion production; and

Garlic

- An additional 25 hectares of land is targeted to be under garlic cultivation to attain an annual production of 200 tonnes by 2015.
- The Garlic Seed Purchase Scheme should be maintained as prerequisite to increase the availability of planting material in the years to come; and

- A package of incentives for mechanization including financial facilities (30 per cent Grant and VAT exemption) for the purchase of machinery for land preparation, sowing and harvesting and equipment for irrigation and nursery should be given to planters.

2. Research and Development Programme

Potato

- Increase efficiency of seed potato production and assure availability of seeds for plantation;
- Pursue breeding programme to develop new varieties;
- Develop integrated packages for pest and disease control;
- Technical support to assist growers during production period; and
- Introduce and promote varieties with better yields due to increasing cost of production.

Onion

- Evaluation of new short day onion varieties will be pursued;
- Large-scale on-farm trials with promising varieties will be conducted. With a view of extending the onion production season, two intermediate onion varieties will be tested on-station for late production under our agro-climatic conditions. Large scale on-farm trial will also be conducted;
- Onion breeding activities will be continued;
- Mother bulbs and seeds of Bellarose and Francia varieties will be produced to promote these varieties; and
- New crosses will be made in order to develop more novel varieties. Selection and evaluation of breeding lines will be continued.

Garlic

- Collection of planting materials from existing garlic planters and evaluation in different localities. By the end of 2013, the important garlic varieties grown can be characterised and preliminary results on their yield potential over the island be made available;
- Traceability of garlic planting materials used by planters in terms of source, variety and quality; and
- Development of drip irrigation and fertigation in garlic cultivation. Water stress during the growing periods and inefficient fertiliser use efficiency can be the reason for sub-optimal garlic production. Such systems can improve the productivity of garlic per unit area as well as the quality of garlic.

Schemes and Subsidies in the Non-Sugar Sector

Several schemes were launched by the Ministry which aimed at further boosting food production and improving the level of self-sufficiency in various strategic commodities, thereby decreasing our dependency on imports. The following are schemes that concern the food crop sector and are treated as Capital Expenditures in the Budget:

- a) ***Land Preparation and Agricultural Infrastructure Development Project*** This Project provides assistance to planters to empower them and reduce the cost of production through a programme of land consolidation/preparation, such as clearing, ripping, harrowing, tilling, and derocking (fine and coarse).
- b) ***Crop Nursery/Curing Unit*** The Scheme is geared towards improving the capacity of vegetable growers to produce good quality planting material and minimise loss of harvested produce. The Scheme provides partial funding as grant for construction of Nursery cum Curing Units.
- c) ***Post-harvest Facility*** This Project consists of the setting up of facilities whereby small farmers will be provided with the basic equipment to wash, grade and pack their fresh produce enabling them to improve post-harvest management and offer better quality produce for sales and bringing down substantially post-harvest losses.
- d) ***Rain Water Harvesting Scheme*** The Scheme is meant at minimising the impact of water shortage due to climatic changes on agricultural production. This will encourage crop farmers “harvest” rainwater to optimise use of water resources. The Scheme provides partial funding as grant for acquisition of appropriate equipment to collect, store and supply of rainwater on-farm for the sole purpose of agricultural production.

Over and above the aforementioned Schemes and Projects, the Ministry has also provided other subsidies to small farmers with the aim of increasing local production of food crops. These are classified under Recurrent Expenditure of the Ministry and brief descriptions of the financial supports are given below:

- ***Potato, Onion and Garlic Seed Purchase Scheme.*** The Scheme is intended for individual small planters and it aims at boosting potato, onion and garlic production by alleviating the significantly high financial cost involved in the purchase of these seeds.
- ***Compost Subsidy Scheme.*** The Scheme has been set up to promote organic agriculture. It provides support to small planters by encouraging them to shift from the use of chemical inputs to organic ones so as to encourage sustainable agriculture.
- ***Sheltered Farming Scheme.*** The Scheme aims at providing investment support in order to encourage production under controlled environment ensuring better protection from pests, diseases and adverse climatic conditions. The purpose of the Scheme is to encourage farmers to shift from traditional open field cultivation to sheltered farming system. This will enable farmers to mitigate effects of adverse climatic conditions, improve production capacity and the quality of farm produce.

Production of Food Crops (Tonnes) - 2012 to 2015

Food Crops	2012	2013	2014	2015	Increase / Decrease (2012 to 2015)	Percentage Decrease / Increase
Potato	20,442	16,451	19,404	16,427	-4,015	-20
Rice (Paddy)	831	646	1,186	657	-174	-21
Maize	413	632	625	451	38	9
Groundnut	723	431	618	189	-534	-74
Onion	7,098	7,772	5,912	6,898	-200	-3
Ginger	1,156	991	535	553	-603	-52
Garlic	98	107	163	85	-13	-13
Chillies	1,466	1,488	1,670	1,491	25	2
Tomato	13,150	11,201	10,997	8,525	-4,625	-35
Beans and Peas	1,614	1,513	1,436	1,247	-367	-23
Cabbage	4,539	4,863	4,279	3,870	-669	-15
Cauliflower	1,520	2,016	2,105	1,921	401	26
Brinjal	3,227	3,378	3,549	2,504	-723	-22
Creepers*	28,453	28,290	29,376	26,811	-1,642	-6
Mixed vegetables**	12,062	12,204	12,480	11,375	-687	-6
Total	96,792	91,983	94,335	83,004	-13,788	-14

Source: Statistics Mauritius and Auditor's Analysis

* Includes Bittergourd, Calabash, Chouchou, Courgette, Cucumber, Patole, Pipengaille, Pumpkin, Squash and Voehm

** Includes Beet, Broccoli, Carrot, Echalotte, Eddoes, Ladies Finger, Leek, Lettuce, Manioc, Petsai, Sweet Pepper and Sweet potato

Schemes and Subsidies (Budgeted and Actual Expenditures)

	Voted Provision		Total Provision		Actual Expenditure				Total Expenditure	
	2013	2014	Jan-June 2015	July 2015-June 2016	Jan 2013 to June 2016	2013	2014	Jan-June 2015	July 2015-June 2016	Jan 2013 to June 2016
	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs
<u>Subsidies</u>										
Compost Subsidy Scheme	40,000,000	30,000,000	7,500,000	15,000,000	92,500,000	9,427,994	11,970,124	8,500,000	14,185,895	44,084,013
Seed Potato / Onion / Garlic Scheme	0	0	5,000,000	5,000,000	10,000,000	0	0	5,000,000	5,000,000	10,000,000
<u>Total Subsidies</u>	<u>40,000,000</u>	<u>30,000,000</u>	<u>12,500,000</u>	<u>20,000,000</u>	<u>102,500,000</u>	<u>9,427,994</u>	<u>11,970,124</u>	<u>13,500,000</u>	<u>19,185,895</u>	<u>54,084,013</u>
<u>Other Expense</u>										
Sheltered Farming Scheme	0	2,000,000	2,500,000	5,000,000	9,500,000	0	1,979,973	2,500,000	5,000,000	9,479,973
Land Preparation Mauritius	40,000,000	40,000,000	20,000,000	40,000,000	140,000,000	20,164,514	25,270,243	5,947,631	8,893,214	60,275,602
Crop Nursery (Curing Scheme)	0	3,000,000	1,500,000	3,000,000	7,500,000	0	73,300	460,596	1,774,563	2,308,459
Post-harvest Facility	3,500,000	3,500,000	1,750,000	3,500,000	12,250,000	2,610,965	0	0	1,218,539	3,829,504
Rain Water Harvesting Scheme	2,000,000	2,000,000	1,000,000	2,000,000	7,000,000	1,099,147	1,037,743	0	139,677	2,276,567
<u>Total Other Expense</u>	<u>45,500,000</u>	<u>50,500,000</u>	<u>26,750,000</u>	<u>53,500,000</u>	<u>176,250,000</u>	<u>23,874,626</u>	<u>28,361,259</u>	<u>8,908,227</u>	<u>17,025,993</u>	<u>78,170,105</u>
<u>Grand Total</u>	<u>85,500,000</u>	<u>80,500,000</u>	<u>39,250,000</u>	<u>73,500,000</u>	<u>278,750,000</u>	<u>33,302,620</u>	<u>40,331,383</u>	<u>22,908,227</u>	<u>36,211,888</u>	<u>132,254,118</u>

Source: Budget Estimates and Treasury Accounting System

Status on the Utilisation of the 13 Onion Curing Units as at June 2016

Name of Cooperative Society/Association	Locality	Onion Cured	Nursery/Seedlings	Remarks
Bois Marchand Multipurpose Coop. Sty Ltd.	Bois Marchand	Nil	Nil	Yet to be allocated. Problem of site
Trou D'eau Douce AMCS	Trou D'eau Douce	Nil	Nil	Allocated in 2012
La Chaumiere AMCS	La Chaumiere	Onion Cured	In use both for onion and seedling	
Onion Producers Association	La Marie	Nil	Not in Use	
Agricultural Development Marketing Association	Glen Park	Nil	Not in use	Intends to delocalize to a more secured place.
Glen Park Young Farmers Association	La Marie	Nil	Nil	
La Vanille Reunion AMCS	La Marie	Onion cured	Seedling Production	
Vacoas Agro services Coop. LTD.	La Marie	Onion Cured	Seedling Production	
Sept Cascade AMCS	La Marie	Onion Cured	Seedling Production	
Green Farm Coop Ltd	Les Casernes	Nil	Seedling Production	
Good End AMCS	La Marie	Nil	Seedling Production	Wish to have it relocated
Midlands AMCS	La Marie	Onion cured	Seedling Production	
Belle Mare WUC Sty. Ltd	Belle Mare	Nil	Nil	

Source: FAREI

Research and Development

Potato

Project 1: Introduction and evaluation of new potato varieties for ware production, processing and tolerance to biotic and abiotic stresses

Time schedule: 2013-2018

Project 2: Breeding and selection of local potato clones

Time schedule: 2013-2023

Long term plan for research – To reduce cost of production through:

- Mechanisation of farm operations viz planting, ridging and harvesting. This requires capacity building in terms of creation of a Mechanical Unit at FAREI and funding.
- Development of better performing local potato clones for ware and seed production.
- Introduction and evaluation of new potato varieties for ware production, processing and tolerance to biotic and abiotic stresses. This should be a continuous process.

Onion

Project 1: Evaluation of onion cultivars for increased yield, better storability and good quality

Time schedule: 2015-2017

Project 2: Onion breeding

Time schedule: 2008-2020

Project 3: Development of short day onion variety through mutation breeding and selection for biotic and abiotic stresses (IAEA supported project)

Time schedule: 2009-2020

Long term plan for research - To reduce cost of production through:

- Mechanisation of farm operations viz land preparation, planting and harvesting. This requires capacity building in terms of creation of a mechanical unit at FAREI and funding.

- Development of better performing novel varieties.
- Introduction and evaluation of new onion varieties for increased yield, better storability and good quality. This is a continuous process whereby new onion varieties are introduced every year for evaluation under our local conditions.

Garlic

Project 1: Collection, characterisation and evaluation of local garlic accessions

Project 2: Introduction and evaluation of new garlic varieties

Time Schedule: 2010-2017

Long term plan for research

- Promising local garlic accessions have already been identified and characterised. A report has already been sent to AMB. The cultivation of these accessions needs to be promoted on-farm.
- Introduction and evaluation of new varieties. Five varieties have already been introduced from AVRDC. They are still under multiplication stage.
- Publication of a booklet on local garlic accessions planned for 2017.

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