



GOVERNMENT OF SAINT LUCIA



# **NATIONAL FOOD PRODUCTION ACTION PLAN**

## INTRODUCTION

In Latin America and the Caribbean 52.5 million people, approximately 10 percent of the population, do not have access to food and daily face a challenge to eat. About 75 percent of the world's poor and hungry live in rural areas and depend on agriculture as their primary source of food, employment, and income (**FAO, 2009**). In Saint Lucia, approximately 21.4 percent of households fall below the poverty line (*Saint Lucia Country Poverty Assessment – 2005/2006*).

Food and Nutrition Security is of paramount importance for Saint Lucia. With rising food prices globally, Saint Lucia is not immune to price hikes. The increase in global food prices means that access to food for the average Saint Lucian can be unaffordable and therefore problematic. The increase in international prices can also have a negative impact on our already very high trade balance, because our import bill would be higher. Another important consideration is the nutritional status of Saint Lucians. Our increasing dependence on food imports has heightened the Ministry's resolve that a change in food consumption patterns is of paramount importance.

In Saint Lucia, in 2010, there were 10,706 recorded levels of people living with diabetes and hypertension. In 2011, this number increased to 11,129, an increase of 3.95 percent. Additionally, in 2010; 37 persons died of preliminary heart disease, this number increased to 52 in 2011. These high levels of lifestyle diseases reinforce the Ministry's resolve towards ensuring safe, nutritious foods to all people at all times, which would be easily accessible and affordable.

The Food Production Sector is critical towards reducing Saint Lucia's approximately \$350 million food import bill. In 2012, Saint Lucia imported 708 tonnes of beef valued at \$12,598,000.00; and 614 tonnes of pork valued at \$4,709,000.00. Additionally, importation of fruits and vegetables totalled \$53,899,000.00. It is important that we "*grow what we eat and eat what we grow.*" Reliance on external agents for our food leaves us vulnerable to food insecurity and depletes the nation's foreign exchange. As a matter of urgency, we must pursue an approach which will decrease our food import bill and ensure increased production of our own nutritionally rich foods.

This nutrition-based food production action plan is an intervention based on the Food Based Dietary Guidelines for Saint Lucia. These guidelines were developed in 2010 in collaboration with the Ministries of Health, Education, and Agriculture. They stressed the promotion of better eating habits, preventing lifestyle disease, promoting regular exercise, and nutrition education. Thus, we will seek to increase production of nutritionally rich foods some of which may also have export potential. The specific goals of this plan are:

- 1) **A reduction in the food import bill** by 10 percent in the first two (2) years and 30 percent in the subsequent years. This can be achieved by a decrease in imports of certain key foods such as vegetables and fruits in the short-term and all other foods subsequently;
- 2) At the end of implementation we anticipate the **provision of sustainable and long-term employment**. It is expected that with the increased acreages at the end of the first year, employment will increase by 15 percent. At the end of implementation, we anticipate that nine hundred (900) more persons will be employed either directly or indirectly in the agricultural sector;
- 3) **Stable food prices domestically**. This will be achieved by stable levels of inflation as a result of keeping imports low. Therefore, there will be less likelihood of import inflation;
- 4) **Diversification of the agricultural sector**. Traditionally, Saint Lucia has depended primarily on banana production for exports and foreign exchange within the agricultural sector. With the implementation of the action plan, it is anticipated that the agricultural sector will be further diversified into other sub-sectors which have traditionally not played a major role in domestic production or for exports.

### **STRATEGIC PARTNERS**

We will partner with several strategic agencies /organizations to achieve the objectives stated above. These include government agencies such as the Ministries of Health, Education, and Trade. We aim to further deepen collaboration with the Ministry of Tourism and Creative Industries.

**The Saint Lucia Marketing Board** will be an important partner in the implementation of the Food Production Plan. They will be responsible mainly for facilitating and improving the marketing and processing of produce, in addition to securing the most favourable arrangements for the purchase, handling, transportation, storage, exportation, shipping, and marketing of produce whether internally or externally. There is a pivotal role for them particularly in the developments of peanuts and cashews. Other entities which will be closely involved in implementation of the food production plan are the various processing plants which will be closely linked

### **Youth Agri-Entrepreneurial Project (YAEP)**

The Youth Agri-Entrepreneurial Project (YAEP) seeks to create the enabling environment to promote agricultural production and agri-business among young entrepreneurs. This project would substantially increase investments and youth participation in agriculture. The YAEP is intended to demonstrate the application of best practices, the use of appropriate technology and institution of collaborative mechanisms for the management of sustainable agricultural enterprises.

These mechanisms would facilitate a substantial increase in the production of a wide variety of agricultural produce identified under the Food Production Plan (FPP) during the five year period and beyond. The YAEP Project will ensure a succession of new farmers, particularly younger farmers, given the high aging farmer population which currently exists. Farmer succession is crucial for the sustainability of agricultural production and hence the achievement of the targeted levels of production identified in the medium to long-term as outlined in the FPP.

Overall, the YAEP Project is geared towards the achievement of the objectives of the FPP which includes the production of a wide variety of crop and livestock products to ensure that every Saint Lucian has access to nutritionally safe food both in the medium and long-term.

## **COMMODITIES**

The Ministry intends to focus on six (6) commodity groups, which reflect Food Based Dietary Guidelines.

The target is to ensure that every Saint Lucian within the medium-term could have access to nutritionally healthy foods. We also aim to have greater self-sufficiency in the targeted commodities over the time period.

**Table 1 depicts production targets for the period 2013 – 2016**

<b>2012</b>				
<b>Commodity Food Group</b>	<b>Commodity</b>	<b>Production (pj) (tonnes)</b>	<b>Yield Per Acre (tonnes)</b>	<b>Acres required for Production</b>
<b>Staples</b>	Sweet Potatoes	543.04	9.39	57.82 acres per year
	Yams	448.84	8.90	50.44 acres per year
	Dasheen	548.49	10.08	54.39 acres per year
	Cassava	200	16	12.5 acres per year
	Breadfruit	1,235.71	5.02	246.25 acres per year
	Plantains	1,443.80	6.96	207.44 acres per year
	Bananas	19,703.68	18.36	1073.43 acres per year
<b>Legumes and Nuts</b>	Salad Beans	70	12	5.83 acres per year
	Peanuts	6	1.3	4.62 acres per year
	Cashews	10	0.37	27.03 acres per year
<b>Fruits</b>	Watermelon	251.66	15.82	15.91 acres per year
	Orange	420.91	9	46.77 acres per year
	Lime	273.50	12	22.79 acres per year
	Mangoes	576.31	4.09	141.07 acres per year
	Passion Fruit	5	8	0.63 acres per year
	Pineapples	53.81	7.49	7.18 acres per year
	Guava	2	5	0.4 acres per year

<b>Vegetables</b>	Lettuce	171.36	5.76	29.72 acres per year
	Spinach	5.00	5	1 acre per year
	Tomatoes	248.34	12.46	19.92 acres per year
	Pumpkin	338.24	11.68	28.96 acres per year
	Carrots	14.39	26.33	0.55 acres per year
	Cabbage	240.94	8.72	27.63 acres per year
	Cucumber	696.81	11	63.35 acres per year
<b>Fats and Oils</b>	Avocado	246.60	2.72	90.54 acres per year
	Coconut	400	1.5	266.67 acres per year
<b>Food From Animals</b>	Chicken	667.58	1 square feet per bird (average bird 0.0020411655 tonnes	327,057 square feet
	Pork	87.33	9.4 square feet per pig (average pig 0.057152634 tonnes after slaughter	14,364 square feet
	Tilapia	9	0.80 tonnes per acre	11.25 acres per year
	Shrimp	9	0.50 tonnes per acre	18 acres per year
	Sheep	288.35	10 sheep per acre (average sheep 0.027215540 tonnes after slaughter)	1059.51 acres per year
	Goat	19.74	10 goats per acre (average goat 0.027215540 tonnes after slaughter)	72.52 acres per year

<b>2013</b>				
<b>Commodity Food Group</b>	<b>Commodity</b>	<b>Targeted Production (tonnes)</b>	<b>Yield Per Acre (tonnes)</b>	<b>Acres required for Production</b>
<b>Staples</b>	Sweet Potatoes	559.33	9.39	59.55 acres per year
	Yams	462.30	8.90	51.96 acres per year
	Dasheen	564.95	10.08	56.02 acres per year
	Cassava	200	16.99	12.1 acres per year
	Breadfruit	1,272.78	5.02	253.64 acres per year
	Plantains	1,487.12	6.96	213.67 acres per year
	Bananas	19,721.42	18.36	1074.40 acres per year
<b>Legumes and Nuts</b>	Salad Beans	72.10	12.93	5.6 acres per year
	Peanuts	6.18	1.3	4.75 acres per year
	Cashews	10.30	0.37	27.84 acres per year
<b>Fruits</b>	Watermelon	259.21	15.82	16.39 acres per year
	Orange	433.53	9.99	43.3 acres per year
	Lime	281.70	12.0	23.5 acres per year
	Mangoes	593.60	4.09	145.30 acres per year
	Passion Fruit	5.15	8.26	0.62 acres per year
	Pineapples	55.42	7.49	7.40 acres per year
	Guava	2.06	5	0.41 acres per year
<b>Vegetables</b>	Lettuce	176.50	5.76	30.62 acres per year
	Spinach	5.15	5	1.03 acres per year
	Tomatoes	255.79	12.46	20.53 acres per year
	Pumpkin	348.38	11.68	29.83 acres per year
	Carrots	14.97	26.33	0.57 acres per year
	Cabbage	248.16	8.72	28.46 acres per year
	Cucumber	717.71	11.53	62.25 acres per year

<b>Fats and Oils</b>	Avocado	253.81	2.72	93.26 acres per year
	Coconut	412	1.5	274.67 acres per year
<b>Food From Animals</b>	Chicken	687.60	1 square feet per bird (average bird 0.002041165665 tonnes)	336,869 square feet per year
	Pork	89.95	9.4 square feet per pig (average pig 0.05715263862 tonnes after slaughter)	14,795 square feet per year
	Tilapia	9.27	0.80	11.59 acres per year
	Shrimp	9.27	0.50	18.54 acres per year
	Sheep	297.00	10 sheep per acre (average sheep 0.0272155 tonnes after slaughter)	1,091.29 acres per year
	Goat	20.33	10 goats per acre (average goat 0.0272155 tonnes after slaughter)	74.69 acres per year

<b>2014</b>				
<b>Commodity Food Group</b>	<b>Commodity</b>	<b>Targeted Production (tonnes)</b>	<b>Yield Per Acre (tonnes)</b>	<b>Acres required for Production</b>
<b>Staples</b>	Sweet Potatoes	576.11	9.39	61.34 acres per year
	Yams	476	8.90	53.52 acres per year
	Dasheen	581.89	10.08	57.70 acres per year
	Cassava	212.18	16.99	12.5 acres per year
	Breadfruit	1,310.97	5.02	261.25 acres per year
	Plantains	1,531.73	6.96	220.08 acres per year
	Bananas	20,313.06	18.36	1106.63 acres per year
<b>Legumes and Nuts</b>	Salad Beans	74.26	12.93	5.74 acres per year
	Peanuts	6.37	1.3	4.9 acres per year
	Cashews	10.61	0.37	28.68 acres per year
<b>Fruits</b>	Watermelon	266.99	15.82	16.88 acres per year
	Orange	446.54	9.99	44.6 acres per year
	Lime	290.16	12.00	24.18 acres per year
	Mangoes	611	4.09	149.66 acres per year
	Passion Fruit	5.304	8.255	0.64 acres per year
	Pineapples	57.09	7.49	7.62 acres per year
	Guava	2.12	5	0.42 acres per year
<b>Vegetables</b>	Lettuce	181.79	5.76	31.53 acres per year
	Spinach	5.31	5	1.06 acres per year
	Tomatoes	263.47	12.46	21.15 acres per year
	Pumpkin	358.84	11.68	30.73 acres per year
	Carrots	15.56	26.33	0.6 acres per year
	Cabbage	255.61	8.72	29.3 acres per year
	Cucumber	739.24	11.53	64.12 acres per year

<b>Fats and Oils</b>	Avocado	261.62	2.72	96.1 acres per year
	Coconut	424.36	1.5	282.91 acres per year
<b>Food from Animals</b>	Chicken	708.23	1 square feet per bird (average bird 0.002041165 tonnes)	346,975 square feet per year
	Pork	92.65	9.4 square feet per pig (average pig 0.0571526 tonnes after slaughter)	15,239 square feet per year
	Tilapia	9.55	0.80	11.94 acre per year
	Shrimp	9.55	0.50	19.1 acres per year
	Sheep	305.91	10 sheep per acre (average sheep 0.02721554 tonnes after slaughter)	1,124.03 acres per year
	Goat	20.94	10 goats per acre (average goat 0.0272155 tonnes after slaughter)	76.9 acres per year

<b>2015</b>				
<b>Commodity Food Group</b>	<b>Commodity</b>	<b>Targeted Production (tonnes)</b>	<b>Yield Per Acre (tonnes)</b>	<b>Acres required for Production</b>
<b>Staples</b>	Sweet Potatoes	599	9.39	63.79 acres per year
	Yams	495.22	8.90	55.66 acres per year
	Dasheen	605.17	10.08	60.01 acres per year
	Cassava	220.67	16.99	13.0 acres per year
	Breadfruit	1,363.41	5.02	271.70 acres per year
	Plantains	1,593.00	6.96	228.88 acres per year
	Bananas	21,125.58	18.36	1150.90 acres per year
<b>Legumes and Nuts</b>	Salad Beans	77.23	12.93	6.0 acres per year
	Peanuts	6.62	1.3	5.09 acres per year
	Cashews	11.03	0.37	29.81 acres per year
<b>Fruits</b>	Watermelon	277.67	15.82	17.55 acres per year
	Orange	464.40	9.99	46.4 acres per year
	Lime	301.76	12.0	25.1 acres per year
	Mangoes	635.86	4.09	155.65 acres per year
	Passion Fruit	5.52	8.26	0.7 acres per year
	Pineapples	59.37	7.49	7.93 acres per year
	Guava	2.21	5	0.44 acres per year
<b>Vegetables</b>	Lettuce	189.06	5.76	32.80 acres per year
	Spinach	5.52	5	1.10 acre per year
	Tomatoes	274.00	12.46	21.99 acres per year
	Pumpkin	373.19	11.68	31.96 acres per year
	Carrots	16.34	26.33	0.62 acres per year
	Cabbage	265.83	8.72	30.49 acres per year
	Cucumber	768.81	11.53	66.6 acres per year

<b>Fats and Oils</b>	Avocado	272.08	2.72	99.90 acres per year
	Coconut	441.33	1.5	294.22 acres per year
<b>Food from Animals</b>	Chicken	736.56	1 square feet per bird (average bird 0.002041165665 tonnes)	360,853 square feet per year
	Pork	96.36	9.4 square feet per pig (average pig 0.05715263862 tonnes after slaughter)	15,848 square feet per year
	Tilapia	9.93	0.80	12.41 acres per year
	Shrimp	9.93	0.50	19.86 acres per year
	Sheep	318	10 sheep per acre (average sheep 0.02721554 tonnes after slaughter)	1,168.45 acres per year
	Goat	21.78	10 goats per acre (average goat 0.02721554 tonnes after slaughter)	80.0 acres per year

<b>2016</b>				
<b>Commodity Food Group</b>	<b>Commodity</b>	<b>Targeted Production (tonnes)</b>	<b>Yield Per Acre (tonnes)</b>	<b>Acres required to produce targeted Production</b>
<b>Staples</b>	Sweet Potatoes	629	9.39	66.98 acres per year
	Yams	519.98	8.9	58.44 acres per year
	Dasheen	635.43	10.08	63.01 acres per year
	Cassava	231.70	16.99	13.6 acres per year
	Breadfruit	1,431.58	5.02	285.28 acres per year
	Plantains	1,672.65	6.96	240.32 acres per year
	Bananas	22,181.86	18.36	1208.44 acres per year
<b>Legumes and Nuts</b>	Salad Beans	81.10	12.92	6.3 acres per year
	Peanuts	6.95	1.3	5.35 acres per acre
	Cashews	11.59	0.37	31.32 acres per year
<b>Fruits</b>	Watermelon	291.55	15.82	18.43 acres per year
	Orange	487.62	9.99	48.7 acres per year
	Lime	316.85	12	26.4 acres per year
	Mangoes	667.66	4.09	163.42 acres per year
	Passion Fruit	5.79	8.26	0.7 acres per year
	Pineapples	62.34	7.49	8.32 acres per year
	Guava	2.32	5	0.46 acres per year
<b>Vegetables</b>	Lettuce	199	5.76	34.44 acres per year
	Spinach	5.8	5.0	1.16 acres per year
	Tomatoes	288	12.46	23.09 acres per year
	Pumpkin	391.85	11.68	33.55 acres per year
	Carrots	17	26.33	0.65 acres per year
	Cabbage	279.12	8.72	32.01 acres per year
	Cucumber	807	11.53	69.9 acres per year

<b>Fats and Oils</b>	Avocado	286	2.72	104.9 acres per year
	Coconut	463.40	1.5	308.93 acres per year
<b>Food from Animals</b>	Chicken	773.39	1 square feet per bird (average bird 0.002041165 tonnes)	378,896 square feet per year
	Pork	101.18	9.4 square feet per pig (average pig 0.05715263862 tonnes after slaughter)	16,641 square feet per year
	Tilapia	10.43	0.80	13.04 acres per year
	Shrimp	10.43	0.50	20.86 acres per year
	Sheep	333.81	10 sheep per acre (average sheep 0.05715263862 tonnes after slaughter)	1,227 acres per year
	Goat	22.85	10 goats per acre (average goat 0.272155422 tonnes after slaughter)	84 acres per year

## **ENHANCING PRODUCTIVITY**

Productivity is defined as the effective and efficient use of all resources. Productivity is the ratio of what is produced to what is required to produce it. Agricultural productivity depends on climate and on efficient and effective use of all the factors of production (farmland, water, and labour). Agricultural inputs (fertilizers, irrigation, seeds, and capital equipment) and farmers' skills also influence farm productivity. With the world's population expected to rise from its current population of 7 billion to 9.1 billion persons by the year 2050, and the demand for food to grow globally by 70 per cent and by almost 100 per cent in developing countries (FAO, 2009a), agricultural productivity is becoming increasingly important as the world population continues to grow. As a result, it is important for farms to improve their agricultural productivity. Such an improvement will be an essential factor in dealing with Saint Lucia's food security issues in the future, as water and land resources become increasingly limited with increasing populations.

### **Addressing Productivity Issues**

#### **Vegetables and Crops**

1. Soil Fertility- issues will be addressed by encouraging farmers in the use of composting and green manuring;
2. Plant nutrition- provision of scientific training in improved plant nutrition practices;
3. Varietal Screening- in collaboration with producer co-operatives through Public-Private Partnerships. These varietal screenings will explore high yielding varieties which are best suited for our climatic conditions;
4. Assistance will be provided to farmers with efficient management of their farms and management of pests and disease using integrated pest management practices. This will also cover best agronomic practices;
5. Expansion of drip irrigation to enhance water-use efficiency;
6. Use of fertigation systems to optimize plant nutritional uptake;
7. Orchard rehabilitation to include height management which will help reduce post-harvest losses;
8. The ministry will address land preparation issues by facilitating access to soil tillage equipment with supporting services of highly trained technicians;
9. The Ministry will pay particular attention to Land Zoning placing emphasis on identifying lands which are most suitable for agricultural production, and can be easily mechanized.

## **Bananas and Musa Species**

1. Assist farmers with better husbandry practices and production planning;
2. The ministry of Agriculture will develop a data base;
3. Encourage better environmental practices.

## **Aquaculture**

1. Feed- Emphasis will be placed on ensuring that the protein and nutritional content of feed is adequate for agricultural use;
2. Government will encourage local the development of local ration using local material for use as animal feed;
3. Initiatives to reduce the cost of feed to the farmer will be explored;
4. Water harvesting, specifically for aquaculture use will be encouraged;
5. Training will be provided to aquaculture farmers in the management of farms and adhering to protocols and standards within the industry.

## **Livestock**

### Poultry

1. Encourage the automation of feeding and watering systems through the use of silos by facilitating easier financing arrangements with the co-operative league;
2. Engage lending agencies to make re-payment arrangements more flexible for farmers;
3. Land Zoning will be pursued vigorously to ensure that lands are demarcated specifically for agricultural use;
4. Encourage the adoption and appreciation for GAPs and other standards which are required for further expansion of the sub-sector.

## **Cattle/Ruminants**

1. New bloodlines will be introduced particularly for meats and beef.
2. Change production systems which are semi-intensive and intensive, thereby increasing output over a smaller area of occupied land.
3. Engagement of SLASPA to establish forage production for farmers along the perimeter of the International Airport.

## **Swine**

1. Artificial Insemination will be explored at the Beausejour Agricultural Station. Farmers will be given access to improved breeding stock.

## **STAPLES**

The staples selected under the Food Production Plan include **sweet potatoes, yams, dasheen, cassava, breadfruit, plantains and bananas**. These staples exhibited some level of growth over the past five years with the exception of 2009 and 2010, where production of staples declined. This decrease in production in 2009 and 2010 was attributed to the drought which occurred during the last quarter of 2009 and the first quarter of 2010 coupled with the passage of Hurricane Tomas in 2010. Both local production and exports of staples were affected by the adverse weather conditions during these periods.

Ground provisions continue to be one of the main staple foods consumed by the majority of the population. Green bananas, breadfruit, dasheen, yams, sweet potatoes and plantain are the most widely consumed ground provisions. Data from the Agricultural Census conducted in 2007, indicated that 58.8 percent of farms under temporary crop production were involved in the production of dasheen, while 54.3 percent were under yam cultivation and 32.0 percent were under sweet potatoes.

The increasing demand for staples by the export market brings with it tremendous opportunities for farmers to increase their production of ground provisions. Saint Lucia's climatic conditions and soil types are favourable for the production of a wide variety of staple crops such as sweet potatoes, yams, dasheen, breadfruit, plantain, cassava and bananas. With the exception of bananas and plantains, production of ground provisions has not been severely hampered by pest and disease infestation.

In recent years, Saint Lucian's have gravitated towards the consumption of rice and pasta. This is partly due to the higher price of ground provisions and ease of preparation of rice and pasta. The introduction of packaged peeled ground provisions in supermarkets has made the preparation of ground provisions less time consuming and simpler for busy households. However, the high price of ground provision compared to cheaper alternatives such as rice and pasta have led to declining consumption particularly among poor households. Exports of staples fluctuated over the past five years. Growth in the exports of staples was not consistent over the past five years. While exports of some staples crops grew significantly in certain years, others declined.

The Food Production Plan proposes to focus on certain staples for domestic consumption while promoting those staples that have export potential. All of the staples identified in the Food Production Plan with the exception of cassava

have shown potential for the development of the export market and are actually being exported at this time.

**Key Elements of the Plan of Action for staples include the following:-**

- 1) The Tissue Culture Facility will be mandated to develop protocols for the production of material for the targeted commodities;
- 2) To address the fungal problems in dasheen, the weevil in sweet potato, and Black Sigatoka disease in bananas and plantains. A more scientific approach will be adopted focusing on disease surveillance, monitoring and effective treatment. This will be made possible with the new staff structure proposed by the Ministry;
- 3) Farmers will be trained by the Extension Division in efficient production technologies and keeping in mind the need for the realignment of the agro-food chain to the end consumer, emphasis will be on valuecreation and innovation.
- 4) Post-harvest Technology will be fully utilized. The facility at Fond Assau as well as the Meat Processing Facility will be avenues targeted for activities such as cold storage, and value-added activities;
- 5) Rehabilitation and expansion of breadfruit production will be encouraged as we will pursue the pruning of breadfruit trees island-wide which will result in increasing production/yields;
- 6) Identification and procurement of appropriate equipment which will add value to the raw materials targeted.

**Fruits**

The major fruits targeted under the food production plan include **melons, oranges, limes, mangoes, passion fruit, pineapples and guavas**. Among these fruits, mangoes and oranges were the two major fruits exported over the past five years. While St. Lucia is fairly self-sufficient in the production of oranges, limes, mangoes and guavas, local production of melons and pineapples is inadequate to satisfy local demand. Imports of melons and pineapples continued to increase over the period 2009-2011.

Increasing demand for melons and pineapples by households and the hotel sector presents opportunities for farmers to increase the production of these commodities. Passion fruit is highly consumed among households and the hotel sector. Local production of passion fruit needs to be expanded in order to satisfy high local demand.

Available data shows that St. Lucia's imports of fruits have been on the increase. There is a need to expand the production of some fruits including passion fruit, pineapples and melons. The majority of fruits grown in Saint Lucia are highly seasonal. However, when certain fruits are unavailable at certain periods of the year other fruits in season can be used as a substitute. Fruits such as limes can be used as a substitute for lemons when the production of lemons is low. There may be a need to introduce cultivars that produce all year round to ensure greater year round availability of certain fruits.

**Key elements of the Plan of Action include:-**

- Like so many other agricultural commodities targeted, fruits are highly susceptible to pest and disease. The Ministry is of the opinion that pure orchards are not the best option for most farmers therefore a system of intercropping will be encouraged;
- Additional planting materials to facilitate the expansion in production, to be produced by the Tissue Culture Facility, particularly with pineapples;
- Height management via pruning of limes and guavas will be conducted by Extension Division;
- Research and development of new varieties;
- The Extension Division will pursue a soil conservation programme and encourages inter-cropping;
- An input distribution and management system is vital in ensuring a constant and reliable supply of inputs to farmers;
- The overabundance of mangoes, citrus fruits and guavas at certain times of the year has heightened the need for transforming these fruits into

value-added products. Frozen pulps, packaging to ensure longevity of fruits will be ensured;

- Rehabilitation of fruit trees, namely, citrus, mango, and guava trees is critical to facilitate targeted increased production. This activity has commenced this year and will be intensified throughout the target period;
- Market research and development for fruits;
- Easier access to planting materials.

## **Vegetables**

The vegetables selected under the Food Production Plan include **lettuce, spinach, tomatoes, pumpkin, carrots, cabbage and cucumber**. Over the five year period 2007-2011, Saint Lucia was self –sufficient in the production of pumpkin and cucumbers. Exports of vegetables were minimal during the five year period. Pumpkin was the only vegetable exported during the period 2007-2011. A total of 1.3 tonnes of pumpkin was exported during the five year period. Over the past five years, imports of vegetables have been relatively high when compared to local production of vegetables.

All other vegetables identified under the Food Production Plan were imported during the five year period. Imports of carrots were particularly high in 2011 and accounted for 98.2 percent of total carrot consumption in 2011. This was followed by imported cabbage which accounted for 56.0 percent of total cabbage consumption in 2011. Imported lettuce accounted for 49.3 percent of total lettuce consumption in 2011 while imported tomatoes accounted for 35.9 percent of total tomato consumption in 2011. This signifies the need for significant increases in local production of vegetables. Local production of vegetables exhibited growth over the past five years with the exception of 2009 and 2010 during which the drought and Hurricane resulted in huge crop losses. There is tremendous scope for expanding local production of vegetables as demand far outstrips supply.

The problems of inconsistencies in supply and quality of vegetables need to be addressed in order to boost local production. Gluts and scarcities at different times of the year need to be regularized. Some months one may find over-production of certain vegetables while at other times under-production is a problem.

Open field production during certain months presents a serious challenge which may lead to huge crop losses as certain crops are susceptible to damage from excessive rainfall or sunlight. Therefore new technologies in protected agricultural production are of paramount importance.

### **Key elements of the Plan of Action include:-**

- There will be an intensified educational drive with strong collaboration between agriculture, health and education to ensure the public's consumption patterns are changed;

- Carrots are consumed extensively; therefore expansion is required in this commodity. Farmers will therefore be educated on proper cropping patterns;
- A study will be conducted on soil type and preparation, and the identification of costs of production;
- For pumpkin, value-added will be pursued extensively, in the form of soup-packs, and other forms of value-added apart from solely the raw materials.
- Development of Tech-packs for appropriate open field production will be pursued, as well as protected production systems (hydroponics) and nurseries so that farmers can produce seedlings in their farm;
- Arrangements put in place for easier accessibility of farmers to greenhouses, in collaboration with the Government of Mexico. These will be of the farm most appropriate for our conditions;
- The Ministry will pursue special arrangements for farmers with banks and other financial institutions. Hence, agricultural financing will be given top priority.

## **Fats and Oils**

The Food Production Action Plan will focus on **coconuts and avocados** for fats and oils. For a number of years, coconut in Saint Lucia was cultivated primarily for the production of copra (shelled and dried coconut) which was produced on a relatively large scale. The copra was processed to produce mainly coconut oil and other by-products such as margarine and cosmetics. However, since the 1980's coconut production has continued to decline primarily as a result of low yielding aging trees, abandoned banana farms that were inter-planted with coconut and mite infestation. In addition, the increasing demand for fresh water (jelly) nuts which continues to fetch an attractive price has resulted in decrease in the quantity of coconut available for processing of coconut oil.

Through its Crop Development Programme, the Ministry of Agriculture over the last five years has been continuing its work of revitalizing the Coconut Industry through the implementation of programmes that seek to rehabilitate existing acreages and further expand acreages in an effort to help reverse the trends in performance. It is anticipated that the Coconut Industry Rehabilitation Programme would result in greater volumes of coconut available for processing into coconut oil.

Pests and diseases in the form of coconut mite presents a potential issue that the Ministry has to address. Avocados may have fungus, and as with the other commodities the Ministry's Plan of Action will address these.

### **Key elements of the Plan of Action**

- For coconuts, varieties which are tolerant to the mite will be sourced. Additionally, the coastlines will be re-planted with coconuts in a first phase approach in replanting/expansion of coconuts;
- For avocados, farmers will be encouraged in the use of blowers for disease control purposes;
- Training of farmers in appropriate practices and the rehabilitation of coconut estate will be encouraged by the Ministry;

- Research into product development for coconut water will be undertaken.

### **Legumes and Nuts**

Under Legumes and Nuts the priority crops will be **peanuts, cashew nuts and salad beans**. Although actual data is unavailable for local production of legumes and nuts, local demand far outstrips supply. Traditionally, peanuts have been produced on a very limited scale by a few farmers in the rural communities, particularly in the Choiseul area among the older folk. The majority of peanuts found on the local market are imported. Recently, the volume of peanuts imported has been very minimal due to high import prices. The Saint Lucia Marketing Board has commenced a pilot project to expand local production of peanuts. A few farmers have agreed to begin peanut production during the last quarter of 2012. It is anticipated that if this initiative is successful, further expansion of peanut production would be pursued by local farmers.

Cashew nuts have been produced on a wider scale in Saint Lucia compared to peanuts and sold in various communities and supermarket outlets. However, local demand far outstrips supply. Ninety percent of the cashew nuts consumed locally are imported. Many persons have acquired a taste for local cashews. While there is scope for expanding local cashew nut production, the processing of cashew nuts on a large scale is costly.

Salad beans are widely consumed by the local population. Increasing demand by households and the hotel sector presents tremendous opportunities for production expansion. It is anticipated that the development of the local legume industry would reduce the dependency on imports and create incomes and employment for persons in rural communities.

### **Key elements of the Plan of Action:-**

- Work in close collaboration with the St. Lucia Marketing Board in sourcing planting material (peanuts) for farmers from Miami;
- An education programme for farmers in terms of utilizing crop rotation methods will be undertaken by the Extension Division;

- Expansion in the production of cashews requires making planting materials affordable to farmers, an initiative to that end will be pursued with the SLMB
- A study will be undertaken to analyse the true situation of peanuts and to determine cost of production;
- Extension training in agronomy and backyard gardening will be encouraged;
- Explore the role of mechanisation in operations;
- Extension will educate farmers in post-harvest technology.

### **Food from Animals**

Saint Lucia's consumption of poultry meat remains one of the highest per capita in the Caribbean. Consumption for 2011 totalled 15,378,961 lbs which is slightly higher than the 2 preceding years. The broiler subsector currently accounts for over 330 direct jobs and in 2011 generated sales in excess of EC\$14 million. Poultry rearing for meat is considered a viable alternative for displaced banana farmers who are used to cash crop system. It has a relatively quick turnaround time (6 weeks) and the market is available locally. Poultry production require a moderate investment which can be recovered in relatively short time on condition of following the prescribe protocols for rearing of birds.

Saint Lucia currently has one of the best disease profile one can find anywhere in the world in that no vaccine is use in the rearing of poultry or other livestock. This alone should be a sales pitch that should encourage increase in production albeit at a higher cost. There are many consumers both tourist and locals who are demanding a healthier product and understand that that product will come at a cost. What is needed now is an aggressive marketing campaign to coincide with the increase in market share for domestic poultry meats.

\*Notwithstanding increasing demand for local pork, imported pork accounted for an average of 74.1 percent of total pork consumed during the five year period 2007-2011. Local pork producers were unable to satisfy consumers demand for pork. This is partly attributed to the high cost of imported feed

which increases farmers' cost of production and selling price to final consumers. There is also a high demand for premium cuts of pork which are not locally produced such as ribs.

Local demand for lamb and chevron (goat) far outstrips local supply. The majority of these meats are imported due to the inadequacy of local production of lamb and chevron. Currently, no organized market exists for small ruminants resulting in the non-capture of data on local production of small ruminants. The majority of the owners of small ruminants sell live animals and slaughtered sheep and goat directly to private persons. The problem of dog attacks and praedial larceny has prevented existing farmers from expanding production and new farms from getting into production.

*\*Data only covers purchases by importers and does not include pork/pigs sold to butchers and other farm gate sales.*

#### **Key elements of the Plan of Action:**

- Government will encourage Public-private Partnerships (PPP) and invite investors to establish a feed mill locally, which will reduce the cost of feed locally;
- Establishment of a Central Procurement Facility, controlled by government is an option being explored where the price of feed and fertilizer will be controlled by government;
- A greater emphasis will be placed on Artificial Insemination. This has already started in the south at the Beausejour Livestock Station;
- Government will play a greater role in the management and use of communal pastures;
- Greater assistance will be provided for marketing development and guiding processors into premium cuts/parts for chicken and pork;
- Research will be conducted as to the feasibility of using local products for animal feed. These include bananas, cassavas, coconuts, and sweet potatoes;

- The assistance of the Taiwanese Government will be sought in developing a functional production and marketing system for all commodities;
- SPS issues are of concern to the Ministry, therefore, an intensified drive towards standards and certification for food from animals will occur in the short-term;
- In the case of pork, we will explore prime cuts and value-added in the form of pre-seasoned meats, and processing into ham and bacon. This will be facilitated by the Meat Processing Facility in Vieux-Fort. Individuals will be trained in these required fields;
- The Ministry will work with farmers and processors towards increasing the safety net for pork from 40% to 60%;
- Increase in the safety net from 25% to 30% by January 2013 and 30% to 50% by 2016
- Secured housing will be recommended for small ruminant production.
- For all food from animals, an important component of Education and public awareness will be undertaken;
- Maintain Saint Lucia's national health status with respect to these diseases

### **Aquaculture**

There is a growing demand for Tilapia and Shrimp in Saint Lucia. Currently, local demand for shrimp and tilapia exceeds supply. An average of 100,000 kg of shrimp is imported annually, while local production of shrimp averages about 5000 kg per annum. Although data on tilapia imports is not readily available, both hotels and supermarkets import tilapia. An average of 5000 kg of tilapia is produced in Saint Lucia annually. Rising consumption of these species coupled with increasing imports signals the need for greater investment in the aquaculture sector. Although the facilities exist for expanding local production of tilapia and shrimp, there are not many farmers involved in aquaculture production. This is associated with the high cost of start up operations.

Many persons are unwilling to invest in the sector because of the initial outlay required for commencement of production. However, sufficient land space exists to facilitate increased production. In addition, feed is available locally due to the presence of a local manufacturing company involved in the production of feed for tilapia and shrimp.

### **Key elements of the Action Plan**

- An enabling environment needs to be created by government to advance the expansion of the aquaculture sub-sector. Government will engage financial institutions in making credit terms more attractive to aquaculture farmers;
- Support will be provided to aquaculture farmers through the Union Facility which will provide the baby shrimps and fingerlings at affordable prices to farmers;
- Farmers will be trained and Extension Officers' capabilities enhanced in aquaculture;
- Investment profiles for aquaculture farmers will be developed with assistance from the Ministry;
- Product development for value-added products will be conducted with assistance from the government.

## **SPECIAL FOCUS/STRATEGIC CROPS**

In addition to the commodities identified for food security and import substitution, there are commodities that have the potential to contribute to both these objectives and will be given special attention. These are cassava, corn, essential oil, chicken backs, and coconuts.

### **1) Cassava**

Cassava has a long tradition of cultivation, consumption and processing in St. Lucia. This root crop is grown throughout the country. However, production is concentrated in the northern, south eastern and south western parts of the island and along the coastal areas. It is traditionally grown as a subsistence crop with all cultural operations being done manually, inputs negligible, limited cultivars and yields generally low. There are two varieties: the sweet and bitter cassava.

The sweet cassava is mostly boiled and eaten fresh, while the bitter is usually processed into a flour, locally called farine, a bread referred to as cassava bread, other products include starch and cassareep (food flavouring). The farine is sold through the organized market sector, while the bread is sold huskers/vendors.

The annual production of cassava is estimated at 442,000 lbs from a total of 26 acres among 110 farmers. According to processors, they sell a lot more farine than cassava bread. The peak season for its consumption is during the avocado season where a lot of farine is consumed with this fruit. Cassava is grown on marginal lands and is given very little attention. Additionally, a number of factors suggest a good potential for the development of a viable cassava industry, including the fact that the crop exhibits high versatility with respect to growing conditions and low susceptibility to natural disasters. It is also amenable to the typical small scale farming systems that characterize St. Lucia.

The major producing areas are Monchy, Aux Leon, Anse Ger, Canaries and other coastal areas are classified as marginal lands with limited capacity to support multi-production systems. The poverty assessment study identified these communities as resource poor. Traditionally cassava production has been of significant economic importance to these low income communities. Cassava products have very little presence in retail outlets and processors are less aggressive about getting and keeping products on shelves when compared to the actions of more established distributors.

Given the changing consumption patterns of St. Lucian consumers to more convenience food, it has become imperative for local producers and processors to respond to these new marketing opportunities

Development of a cassava industry will require exploiting all available market development strategies. In this regard, promotional strategies must be continuously implemented as means to improve consumer awareness and demand. Cassava producers and processors on the island must expand current markets, as well as obtain and penetrate into new and emerging markets. Therefore, developing and implementing consumer based activities are critical to the repositioning of this product within the local market.

## **2) Essential Oils**

Essential oils are high value and low volume commodities. This makes them attractive crops to grow and process for small holder farmers and communities where transport facilities prevent them from marketing high volume cash crops. This therefore can create a business opportunity and contribute to economic growth of the country. These value added products are processed from local resources and have growing market demand. The essential oils are used for wide variety application such as perfumes, flavours, medicines, cosmetics, household products and toiletries.

### USES OF ESSENTIAL OILS

- Most essential oils are used for cooking, potpourri, crafting, cosmetics, massage, aromatherapy and other uses;
- Other essential oils are used to repel insects and other arthropods that are pests of humans, livestock, and pets (mosquitoes, fleas, ticks, etc);
- There are four broad sectors in which the oils are also used, including the flavor, pharmaceutical, personal care and industrial.

The growth and rising interest in herbal, botanical, and essential oil products worldwide over the last several years offers an opportunity for the agricultural sector. The initial focus for St. Lucia will be on the production of Bay oil. Bay oil is primarily used as one of several "essential oils" in perfumes and cosmetics (some other of oils includes: vertiver, patchouli, citronella and musk oil). Virtually all perfume and cosmetic fragrances in the world are made from different combinations of these oils. St. Lucia has three varieties of Bay plant leaves that can be used: common, cinnamon (spice) scented and citronella scented. Additional crops of focus will include vertiver, patchouli, and lemongrass.

### **3) Chicken Backs**

Available data indicates that the populace consumes very large quantities of chicken backs. In 2009, 6,183,580 lbs of backs were imported, followed by a 14% increase in imports in the following year 2010. The data suggests that this market is one which local processors can maximize upon, and the Ministry will assist processors in giving special attention to chicken backs as a commodity requiring special focus.

### **4) Cocoa**

Cocoa production steadily fell over the years, in spite of guaranteed market access and an above market price for cocoa beans offered by World's Finest Chocolates. Erosion of this industry has been attributable to conversion of traditional estates into smaller banana farms during the prime banana producing period and the deterioration of existing plantations on account of age and increased pests and diseases attacks. Currently, production is on the upsurge as new investments in rehabilitation bear fruit.

It should be noted that the Ministry of Agriculture played a major role in the rehabilitation of the cocoa industry by implemented two cocoa rehabilitation and expansion projects. Below is data regarding cocoa production information:

1. Total acreage Island wide: Approximately 550 acres. Approximately 100 acres of that total was planted in the last 2 years through the Ministry's COCOA REVITALIZATION PROJECT.

2. Through the COCOA REVITALIZATION PROJECT which commenced in 2004, rehabilitation practices were conducted in approximately 250 to 300 acres of cocoa island wide (from 2004 to 2010). Acreages range from 0.25 to 20.00 acres in size.
3. Processing: Mainly in the form of cocoa-sticks which is marketed locally (central market, supermarkets, etc.) and some people sell to clients in Martinique, Barbados, St. Croix, Cayenne. Rabot Estates HCEL also at some point marketed about 500 cocoa sticks (4 ounces in size) in the U.K.
4. Export. **NOTE:** Most of the disposal is by export of dry beans: Export of dry cocoa beans increased from 6.7 metric tonnes in 2004 to approximately 20 metric tonnes in 2008. Both Hotel Chocolat and the Saint Lucia Agriculturist Association (SLAA) export Cocoa.

## 5) Coconut

For a number of years, coconut in Saint Lucia was cultivated primarily for the production of copra (shelled and dried coconut) which was produced on a relatively large scale. The copra was processed to produce mainly coconut oil and other by-products on a small scale (e.g. margarine, cosmetics). However, coconut production has continued to decline primarily as a result of aging trees, mite infestation, low yields, and poor management.

Despite this decline, the industry continues to survive as an enterprise of commercial agricultural importance. There is a strong and growing popularity and demand for fresh water (jelly nut) nuts which continue to fetch an attractive price and is starting to encourage excellent prospects for higher value coconut products such as bottled coconut water and virgin coconut oil. Therefore, there is the urgent need to source varieties of coconut germplasm that are tolerant /resistant to the coconut mite and are specifically suited to the water nut market and other value added activities.

In order to increase production and gain competitive advantage in most commodities, the Ministry intends to work with all Agricultural Producer Organizations to strengthen their capacity at the national level. This will enable them to better access development funds and also to run their operations more efficiently.

## **6) Corn**

Corn has been widely consumed by the local population. It is normally roasted and sold on weekends in various communities. A limited quantity of locally grown corn is sold in supermarkets. Production is usually scheduled so that corn is harvested for specific local festivals and community events such as the Creole festival, community day etcetera. Although corn is grown in most communities, local demand far exceeds supply. The majority of corn sold in supermarkets is imported particularly frozen and tinned corn. Due to its growing popularity and high nutritional value, the Ministry of Agriculture is seeking to expand local production of corn. Efforts to resuscitate the industry need to be pursued in an attempt to increase the national output of corn. Research to control pests and diseases which is currently affecting locally grown corn needs to be undertaken.

## **7) Apiculture**

The Apiculture Industry is a growing one at present. There are a total of 80 beekeepers with an average number of 2500 colonies, giving an average of 20 colonies per beekeeper. The average production per colony is 7 gallons but in the last three years due to unsatisfactory weather conditions the production as decreased to 3 gallons per colony.

The division believes that production on island can be increased by increasing public awareness on the importance of bees to the environment, enhancing or increasing the number of bee keepers and colonies to 150 and 500 respectively with the hope of producing an average of 10 gallons of honey per colony. The production of value-added honey based products such as pollen, wax, and propolis can also be seen as an avenue to increase revenue generated from apiculture and hence the farmers livelihood.

## **General Strategies for Development of the Sector**

In the medium term, the Ministry will focus on certain key initiatives which will give support to the Food Production Plan.

Policy:- The National Agricultural Policy identifies seven broad objectives:-

- 1) Increase the efficiency and competitiveness of the island's agriculture;
- 2) Promote the generation, adaptation and adoption of improved and appropriate technology;
- 3) Expand the agricultural production and market base;
- 4) Rationalize the use of land in the country;
- 5) Enhance national food security;
- 6) Generate new opportunities for employment and income generation in rural areas;
- 7) Protect, conserve, and ensure sustainable use of natural resources.

## **Legislative Environment**

The following pieces of legislation will be revised:-

- 1) Animal Health (National and International Movements and Disease Prevention Act);
- 2) Veterinary Surgeons Act;
- 3) Sale of Agricultural Produce Act;
- 4) Pesticides and Toxic Chemicals Control Act;
- 5) Fisheries Act;
- 6) Plant Protection Act;
- 7) Agricultural Development Incentives Act.

## **Establish closer links with Tourism**

- 1) Offer incentives that encourage the consistent supply of quality products by our farmers;
- 2) Establish a Clearing House for information on the demand from the Tourism Sector and the supply from the agriculture sector;
- 3) Work with Credit Unions to improve the availability of credit for local farmers and fishers and timely payment for product sold to hotels and supermarkets.

### **Creating Farmers' Markets**

Support will be provided for the listing of farmers' markets where producers can sell their produce in an organized manner, which does not create traffic or other hazards.

### **Connecting agriculture and schools**

Intensifying activities in the Youth Agri-Entrepreneurship Programme to ensure our young people are taught the importance of agriculture to our economy.

### **Link with the Health Sector**

Together with the Ministry of Health, and the Food and Agriculture Organization (FAO), the Ministry will be spear-heading the development of a Food and Nutrition Security Policy for Saint Lucia.

### **More support to Co-operatives**

An officer has been assigned to handle Co-operative matters island-wide. However, the Ministry intends to intensify its link with the Co-operatives. Various forms of support will be priced to fisher and farmer co-operatives.

### **Research and Development**

Advocacy will be made for a sub-regional Agricultural Research and Development Institute.

### **Agriculture Incentives Act**

Work has begun on the development of an Agriculture Incentives Act which will put in law the Support and incentives which are provided to farmers, fishers and agri-entrepreneurs.

### **Land Bank and Green Belt**

The Ministry has started and will continue to look at the development of a land bank for agriculture, and also to identify those lands best suited for agricultural purposes and ensuring that they stay in agricultural production.

### **Rehabilitation of Food and Fruit Crop Sub-Sector**

The Ministry has begun rebuilding this damaged sub-sector, post-Hurricane Tomas. This will ensure that fallen trees are re-planted and production can be intensified.

### **Revitalization of Livestock Activities**

This programme will ensure the introduction of new blood lines and also the construction of small ruminant pens. It is expected that increased production on the ground will rebound benefits in the soon to be commissioned Meat Processing Facility.

### **Continued Fight Against Praedial Larceny:**

The Praedial Larceny Project has been successful and activities will be intensified to have island-wide coverage. Work will continue with farmer groups and the police to ensure minimal incidents of Praedial Larceny.

### **Conclusion**

The Ministry of Agriculture, Food Production, Fisheries and Rural Development is committed to the agricultural sector and will continue to work towards achieving a food secure and nutritionally healthy St. Lucia. It is anticipated that this Food Production Action Plan will be the platform to stimulate production and boost the national economy.