initiative
HUNGER-FREE
LATIN AMERICA AND THE CARIBBEAN

Profile of the Small-Scale Farming in the Caribbean

Workshop on Small-Scale Farming in the Caribbean

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Preface

This document seeks to analyze relevant data in the Census of Agriculture of eight of the countries and recent studies in the sub-region, to generate a discussion on the situation of small scale farmers. It provides support for an objective approach to manage the heterogeneous nature of the small scale farming and to identify imperatives for prescriptions that embrace all the unique characteristics of small farmers. In this manner the document seeks to provide information to identify and upscale opportunities to intensify the contribution of on-farm activities to the well being of farm house holds. It also examines potential for small scale farming to impact national food and nutrition security, the expansion of farm related employment beyond the rural sector and with full consideration for the demands for sustainability.

According to the data and the studies reviewed improved productivity of small scale farmers will require more in-depth work in traditional and new areas in order to upscale methodologies, strengthen relevant national institutions, encourage cooperation, and promote a greater awareness of successful experiences among the countries in order to realize the potential for self sufficiency in food and nutrition security in CARICOM.

Productivity, incentives, cooperatives, risks, capacity building, partnerships and international competitiveness in small economies with high food importation will be central to the discussions of the Workshop. The methodologies, strategies and results agreed on must be specific and responsive to the problem and the constraints in a manner that embraces all of the farm size groups in small farming, an objective which will require better quality data including the disaggregation of socio-economic data and subsequent organization of data to create homogenous groups in strategic programming across agro-ecosystems.

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Acronyms

ACP	Africa Caribbean and Pacific
ADB	Agriculture Development Bank
CaFAN	Caribbean Farmers' Network
CARICOM	Carioca Community
FAO	Food and Agriculture Organization
CABA	Caribbean Agribusiness Association
CAP	Common Agriculture Policy
CARDI	Caribbean Agriculture and Research Development Institute
CCCCC	Caribbean Community Climate Change Center
CDB	Caribbean Development Bank
CDEMA	Caribbean Emergency and Disaster Management Agency
CDM	Caribbean Disaster Management Strategy
CFNI	Caribbean Food and Nutrition Institute
CNFO	Caribbean Network of Fisherfolks Organization
CIDA	Canadian International Development Agency
CRFM	Caribbean Fisheries Mechanism
EDADU	Export Development and Agriculture Diversification Agency
EU	European Union
HFLACI	Hunger Free Latin America and the Caribbean Initiative
IICA	Inter-American Institute for Cooperation on Agriculture
IFAD	International Fund for Agriculture Development
LAC	Latin America and Caribbean
MOA	Ministry of Agriculture
NAMDEVCO	National Marketing and Development Company of Trinidad and Tobago
NCD	Non communicable Diseases
OECS	Organization of Eastern Caribbean States
POA	Plan of Action
PISLM	Partnership Initiative for Sustainable Land Management
RFNAP	Regional Food and Nutrition Action Plan
TTABA	Trinidad and Tobago Agribusiness Association
UWI	University of the West Indies
WINFA	Windward Islands Farmers Association

Background

Introduction: The Workshop on Small Scale Farming in the Caribbean Sub-region is being held within the framework of The Hunger Free Latin America and the Caribbean Initiative (HFLACI). This Initiative is a commitment from the countries and organizations of LAC supported by the Food and Agriculture Organization of the United Nations (FAO) to create conditions that will allow eradication of hunger permanently, by 2025. In general the Initiative responds to the Millennium Development goals and specifically to the reduction of chronic malnutrition among children, to below 2.5% in the region.

Food and Nutrition Security in the sub-region: According to research conducted by CARICOM/FAO/CFNI issues on food and nutrition security are largely those related to access and utilization of food. The main concern is that except for Belize and Guyana all the countries in the sub-region are net importers of food, with average food importation as high as 60% on a sub-regional basis and reaching as high as 80% in a few of the countries. Situations of high levels of food importation are normally associated with uncertainties in domestic food prices as world food prices fluctuate. The potential impact of fluctuations in world food prices of cereals was well demonstrated during the 2006-2008 food crises when domestic food prices in some commodities increased by over 300% in some of the countries in the sub-region. Hence a heavy dependency of food importation to satisfy food demands presents is a threat to the nutrition security of all populations in general and especially to poor and vulnerable households.

Another serious concern in the sub-region is the quality of dietary practices. Sub-regional data on health status of the countries reveal high incidences of food related non-communicable diseases (NCDs) in particular obesity, cardiovascular diseases and diabetes including prevalence of diabetes in young children. The conclusion is that these health problems are caused largely by the low consumption of fresh fruits and vegetables, which are increasingly being replaced by imported processed and semi-processed foods. Should this continue the demand on resources to meet the requirements of the national health sectors could become a strain on the national budgets. Furthermore the impact of any inadequacy in the national health services would most likely be first felt by the poor and vulnerable to poverty, which is where a high percentage of small farm households fall in the Country Poverty Assessments.

While NCDs are found across all income levels in the sub-region the challenges to access food are mostly evident among the poor and vulnerable where incomes are low and where there are also high levels of unemployment. Sub-regionally the reports of the Census of Population reveal that rural poverty is higher than urban poverty.

Traditionally rural households are by extension small farm households, owing to the fact that nearly all households have a family, social or economic attachment with land in food production and which provides non-catch benefits for food and fiber. In this regard any factor that affects these social and economic relationships will disrupt access to food in small farm

households. Declines in food production and productivity, in farm related employment, declines in the contribution of farm activities to household income, increasing food importation and creeping food prices of all imported foods are all evident in the sub-region. Collectively they create a situation where food security for the small farm household is increasingly an issue of access as well as quality and consumption/utilization.

Data source: The document uses the Census of Agriculture data from eight countries in the sub-region as the main tool to profile small- scale farmers. The information generated from these data is supplemented by reviews of the main sub-regional documents on agriculture in general and small farming in particular. With respect to the latter it should be noted that the strong representation of small farmers in terms of absolute numbers justifies the use of Census data as a statistically sound basis to determine the profile of small farming in the sub-region.

There is significant inadequacy in the data on the socio-economic status of the farm household. Also owing to the fact that data on farm structure was available both as raw data and as prepared Charts in the Reports of the Census, the document accepted these Charts and Tables as the official findings of the countries based on sound statistically analyses. In this regard the profiles on small holdings reflect the use of national Census data in the findings of the document. In the case of other data, some of the Charts and Tables reflect the use of sub-regional data.

Summary of the profile of the small farming: The Census of Agriculture data and the reviews present the small farmer as a male ranging from age 41-54 years operating on two hectares and under of farm land and growing predominantly crops. Toa lesser extent small framers rear livestock or practice artisanal fisheries and small scale aquaculture. Small farmers may carry out one or various mixtures of these practices. However except for various forms of cropping systems there are no dominant farming systems in the sub region. Women farmers make up about 30% of the farming population as holders and are also involved in multi- functional ways in the production, marketing and processing of fresh foods.

Small farming is fragmented with farm structures ranging from 0.15 hectare of land to under 2.0 hectares of land. Between these farm structures is another four to five farm size depending on whether or not the Census of Agriculture was conducted using the metric or the British system of measurement. They come with different resources and capacities not necessarily linked to the farm size. There is also a group of small farmers categorized as landless. They rear livestock and in at least one of the countries make up 12% of farmers.

Farm structure data is statistically sound and regularly updated in the Census of Agriculture. On the other hand data on socio-economic status of farm holdings is deficient in many ways. The main reason for this is that the criterion for being recorded as a farmer is based on one single minimum qualification. In nearly half of the countries of the sub-region this minimum qualification is three hundred United States dollars (US$300.00). Any information on variation from this monetary value was not available. However each Census Report provides

details of up to six and more descriptions of farm resource which would qualify a farmer to be recognized as a farmer.

In regard to gender issues and education, the data show that females tend to enter the system around age 30-35 and that they are primarily involved in areas such as weeding, harvesting and marketing though male are dominant in marketing. The median age of female holders is 55 years. However because the data recognizes one holder in the farm family unless joint ownership expressed, the female may not always be recorded as a holder. In terms of education, 1999 data shows that about 50-55 % of small farmers had achieved primary level education, 20% secondary education the remaining had attained post secondary formal training and or higher education. Data collected since 2007 reveal that in a few countries young people are involved in farming as early as age 15 years, however in general youth under the age of 25 years shows little interest as holders and women under 35 tend to be absent as holders.

Small farmers use traditional farming systems such as intercropping and mixed cropping. They also use modern systems such as greenhouse technology and organic farming. Production practices include sustainable practices such as integrated pest management, rainwater harvesting and micro irrigation. However many crop farmers use agri-chemicals, mainly fertilizers and pesticides, while livestock farmers use anti-biotics.

Produce is marketed in many different segments in the domestic market and except for the open markets there seem to be no clearly identified market outlets for small farmers. Middlemen are an important part of domestic distribution chains as it eases the burden on farmers to find their own markets. Many of these middle men are linked to fresh produce exporters. Small farmers face challenges in the domestic market due to high food importation. As a counter measure there is a recent trend in small farming towards value chain arrangements and cluster formation in order to consolidate markets. This strategy is popular among the farmer organizations and cooperative networks, but the majority of farmers are not benefitting from these arrangements.

Incomes generated from small farming are in general low and most farm households earn less than 25% of household expenditure from farming activities. Risks and uncertainties in the sector make small farmers unattractive to lending institutions. Furthermore complications associated with tenure and the unavailability of agriculture risk insurance also militate against access to credit. Many farmers do not keep records and do not know the financial state of their enterprise. Mostly they blame the low incomes, high input costs and general production and marketing challenges in the system for the disinterest in adopting a business approach to their enterprise.

Fishing and aquaculture: Some small farmers manage aquaculture ponds, other are small scale fisherfolks while some are involved in mariculture (sea moss and conchs). Due to time limitation sufficient data was not sourced on this sector. However a recent survey conducted by CRFM on poverty in the fisheries sector provided some insight on the welfare of fisherfolks. Of the 10

countries[1] in which the survey was conducted 19.76% of the fisherfolks population was deemed vulnerable to poverty and a total of 9.77% across five countries[2] were considered poor.

[1] Bahamas, Barbados, Montserrat, St Kitts and Nevis, St. Vincent and the Grenadines, Trinidad and Tobago, Grenada, Jamaica, Belize and Guyana.

[2] Trinidad and Tobago, Grenada, Jamaica. Belize and Guyana

1. Small-scale holdings and smallholders in the Caribbean sub-region

Introduction: The profile of small scale farming in the Caribbean sub-region is defined by two factors. Firstly there is the quality of the natural resource base accessible to small farmers for food production and secondly there is the capacity within the holding to respond to opportunities provided in policies, programs and projects targeted, to sustain productivity in small farming and to farming in general.

In the case of the natural resource base the status of the small holder is defined within the Census of Agriculture, which first identifies farmers according to predefined farm structures. While this identification does not qualify the capacity of the small holder to respond to opportunities for growth, sustainability and risk management, the sub-region acknowledges that the majority have limited resource base and often limited coping skills. In addition the Census of Population and the Country Poverty Assessments usually position small farmers among those households in rural areas living below the poverty line and who are vulnerable to the risks associated with the daily challenges to satisfy household food security and welfare.

Against this background the document in its attempt to profile small farming in the sub-region takes as its point of departure relevant data provided in the Census of Agriculture. In adopting this approach the document expects to identify any innovative approaches in the conduct of respective Census of Agriculture that add value to the formulation of policies and programs for small farm families/family farming, designed to improve livelihoods and household food security, in farm families.

With the same aim the document will also seek to propose ways for the Census of Agriculture to be recognized as an effective tool to design a data collection mechanism for managing the heterogeneity in small scale farming populations, for policy analysis and programs that permit the transitioning of food insecure farm households.

Defining the small scale farmer: The typical small scale farmer in the Caribbean sub-region is predominantly a male between 41 and 54 years of age who operates on under five acres (two 2 hectares) and includes landless[3] farmers. On the hand other a farm holder in the Census of Agriculture is defined in terms of minimum requirements frequently determined on the basis of the value of the enterprise. In practice this value varies but in the Caribbean sub-region the amount is usually about US$300.00. When one considers the range of small farmers

[3] This is a farmer who does not meet the minimum economic criteria to be counted in the census of agriculture but who owns some animals roaming around on land.

from landless to under two hectares it quickly becomes clear that this minimum requirement on its own will not provide an objective basis for defining a small farmer within the context of family farming or for objective targeting in results based management. The data is inadequate to determine the farm holder's capacities, endowments and potential to benefit from opportunities that could be addressed through policies formulation, programs and projects. On the other hand the data on farm structure and populations according to structure is statistically sound and is also critical in the final determination of farm capacity to transition. In this regard this data presents as the best option for a baseline from which to examine the resource base of small farmers and to design a process to improve data quality for small framing/family farming.

Countries have the right and do exercise that right to determine minimum requirements for an economic holding (See Table 1 below). While most countries have adopted the metric system of unit there are still a few that use the British system of measurement. For consistency and to satisfy internationally accepted system of measurement, the narrative of the document adopts the metric conversion and includes all farms from 0.01 hectare to under five hectares.

Owing to the fact that recent Census data was only available from eight of the countries in the sub-region the intra-country comparisons on small farm profile are based on relative percentages rather than in absolute numbers. Also in the creation of Charts, Census data measured in the British System were not adjusted. This is to avoid any compromise in the integrity of data analyzed by the national statistics institutions.

Definition of a farm holding: The definition of a holding is based on the minimum value of an enterprise and is guided by FAO guidelines[4] but final determination of criteria is the prerogative of the respective country. Table 1 below shows the variation in the minimum requirement practiced by six of the countries in the sub-region. The criteria are most specific for the crop subsector compared to the other sub-sectors. From time to time countries do change the minimum requirements but in this review no updates were found except for Antigua and Barbuda, which revised these requirements upwards in 2007 and tightened the definition relevant to livestock. Table 1 shows the variability in criteria at sub-regional level as well as the wide range in the baseline at the country level. This is an indication of the current inherent challenges to any attempt to manage small farming on a sub-regional programming matrix. The Table also shows that except for the case of Trinidad and Tobago, the minimum requirements posted in the selection of six countries do not qualify the status of the farmer holder, beyond the farm structure. On the other hand the Text Box below provides an example of the criteria used in Japan, which could be considered as an important improvement that supports objective planning to suit the situation of farmers, including small farmers.

[4] World Census of Agriculture 2000

Table 1 Definition of holding for the Agriculture Census

Country	Definition of an agriculture holding in selected countries
Jamaica	At least one of the following characteristics: 1.0.41 hectares of crop cultivation, including flowers; 2. If only a greenhouse is operated, it should be of at least 4400 square feet (1 sq. ft = 0.92 m2); 3. Twelve economic trees like citrus, mangoes, breadfruit etc; 4. One head of cattle; 5. Two pigs, two sheep or two goats; 6. Twelve head of poultry, (including ducks, turkeys etc); 7. Six beehives; 8. A fish pond of any size
Dominica	1.An economic unit of agricultural production under single management, comprising all the livestock kept and all land used wholly or partly for agricultural production purposes, without regard to title, legal form or size. Any piece of land to be considered as an agricultural farm should report at least 0.01 acres (40 square meters) with at least one of the following: 2. Temporary and permanent crops and forages; 3. Fallow one year or less; 4· Fallow more than one year, but less than three; 5· Improved and unimproved pastures; 6· At least one head of cattle or goat, pig, horse, sheep, donkey, rabbit or poultry.
St Vincent and the Grenadines	At least one of the following minimum specifications: 1.one head of cattle or one donkey or horse; 2.two head of pigs, sheep, goats (or one head of any two); 3.A flock of at least 12 fowls or rabbits; 4.0 or more bearings of any tree crops, bananas or plantains; 5.500 square meters or more of vegetables, provision, food or cash crops. 6. A raised stand or greenhouse of at least 18 square meters.
Trinidad and Tobago	En economic unit of ***agricultural production primarily for sale*** under single management comprising all livestock and poultry kept, and all land being used either wholly or partly for agricultural purposes without regards to title, legal form, size or location. Criterion for qualifying as an agricultural holding was also based upon ***scale of agricultural operation***.
St Kitts and Nevis	Economic unit of agricultural production satisfying, at the day of enumeration, at least one of the following minimum specifications: 1.one head of cattle or one donkey or horse; 2.two head of pigs, sheep, goats (or one head of any two); 3.A flock of at least 10 fowls or rabbits; 4.10 or more bearings of any tree crops, bananas or plantains or fruit trees; 5.400 square meters of land under vegetables, provision, food or cash crops.
Antigua and Barbuda	Economic unit production unit under single management with at least one of the following minimum specifications: 1.1/8 of an acre under production 2.25 poultry or 5 goats or two cows 3. At least two head of cattle and/or breeding cattle (at least one calf born in 2007). 4.At least 5 sheep or goats or pigs and/or breeding such animals (at least one birth in 2007) 5. A combination of at least 5 sheep, goats and pigs. 6. At least 25 poultry and/or annual sales of eggs from these poultry of at least EC$1000 AND/OR annual sales of poultry meat from these poultry of at least EC$1000. 7.At least 20 bearing fruit trees and/or annual sales of fruit from these trees of at least EC$1000 8.At least 10 Banana/Finger Rose Mats and/or annual sales of bananas from these plants of at least EC$1000 9. At least 10 Plantain Mats and/or annual sales of plantains from these plants of at least EC$1000 10.At least one eight of an acre (0.12 ACRES OR 5445 Sq. Ft. (75 x 75 Ft)) of any garden crop and/or annual sales of garden crops from this land of at least EC$1000 (garden crops include vegetables, ground provisions, food crops, pineapple, papaya, herbs or any other crop not elsewhere included).

Definition- Japan

Agricultural enterprise: An entity having cultivation area of over 0.40469 ha or having a total agricultural product sales of 150 000 yen in one year prior to the census date regardless whether the operation in performed by a family unit or by other entities.

Farm household: An agricultural entity consisting of a family unit

Commercial farm household: A household engaged in agriculture managing more than 0.3 ha of cultivated land or reporting a sales value of agricultural products, in the previous 12 months, of at least 500 000 yen.

Source: ESS/FAO website

In at least one of the countries it was categorically stated that backyard gardens should not be included in the criteria for identification of farm holders. Furthermore except for Antigua and Barbuda none of the data reviewed included any food production other than food produced on areas designated as holdings. This is despite the fact that the Ministries of Agriculture in the sub-region have allocated significant inputs and have developed partnerships with international organizations to support backyard gardens to increase food production, for household food security with fair to good responses in some countries. Figure 1 below shows the results of the Antigua and Barbuda Census of Agriculture data which included not just holdings but every household that produced fruit trees.

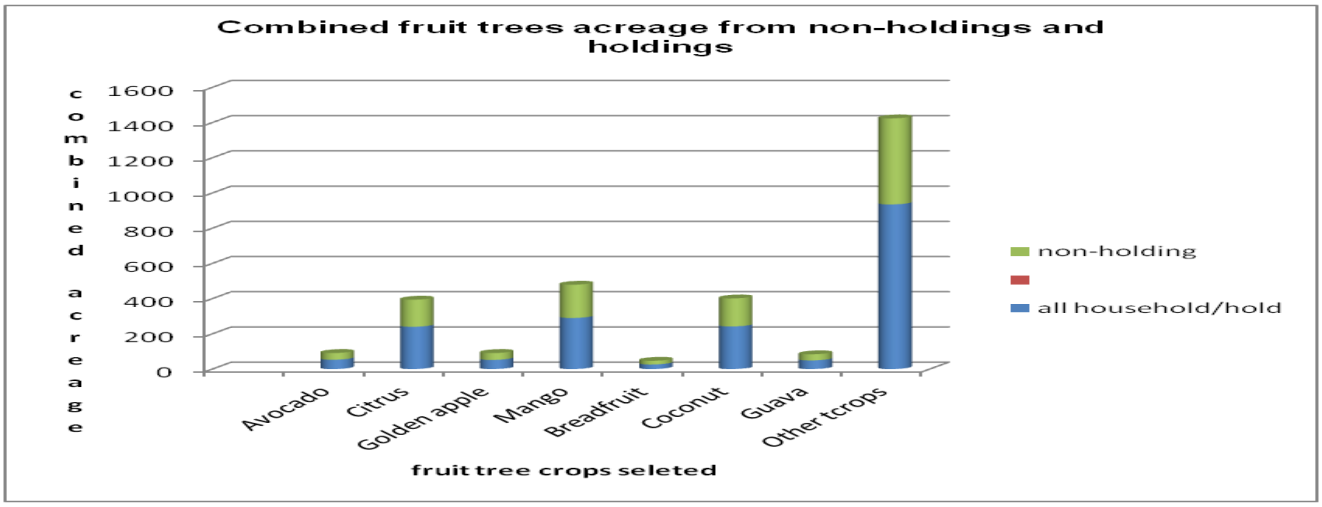


Figure 1 The impact of non- farm household in fresh fruit production in Antigua and Barbuda

In the context of the very high food importation bill of the sub region and the growing interest of householders in backyard gardening evidence is growing that there might be benefits to designing a process that permits inclusions of backyard gardens in the Census data

or some other database, as except for Antigua and Barbuda this data did not seem to be available at the national level, even though production data for the landless is available.

Structure of the small scale farming population: According to Census of Agriculture conducted since 2004-2007 in eight of the countries of the sub-region[5], just under 90% of the small scale farmers operating on under 10 hectares of land are small farmers and occupy 55.20% of the land area (Figures 2and 3 below). The levels of farm structure among small holders in the two hectares and under, vary from one country to another; the number of holders is highly fragmented and based on data from Jamaica may be extreme in the larger countries (Table 2 & Figure 7).

The document recognizes the absence of data from for Guyana, Suriname and Belize[6] which are all countries with substantive agriculture land areas in the sub region. Furthermore these are countries with lower population densities which could influence the farm structure and populations as shown in Figures 2and 3. For example in Belize the pattern of land ownership is skewed towards medium to large size farms. In the absence of available data the document adopts an FAO reporting on the 2011 Census of Agriculture, which reveal that 24% of farms in Belize are occupied by small farmers (two hectares and under), 33% occupy farm sizes between two hectares and under ten hectares and 74% of farms occupy below 20 hectares. However based on traditional patterns of tenure and the Charts shown below for specific country data it is reasonable to accept that Figures 2 and 3 are fair representations of holdings and farm size structure in the sub-region.

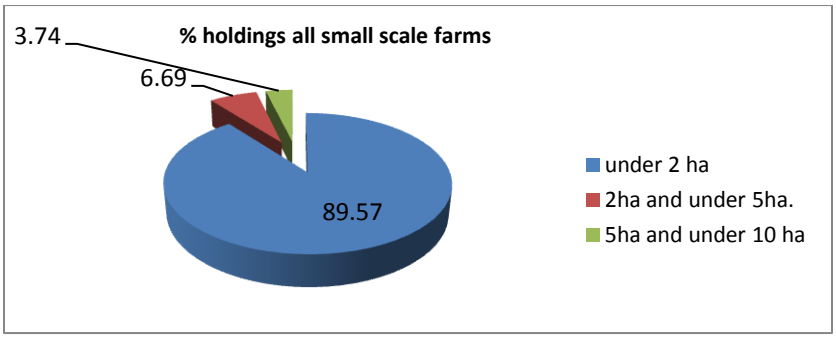


Figure 2 Small farm populations in the Caribbean Sub-region- Census of Agriculture data (2004-2007)

[5] Jamaica, Trinidad and Tobago, Saint Lucia, St Kitts and Nevis, Antigua and Barbuda, Grenada, St Vincent and the Grenadines and Dominica

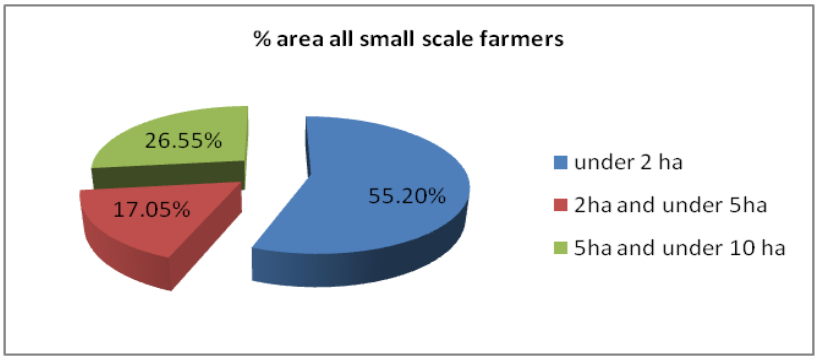


Figure 3 Small farm structures in the Caribbean Sub-region- Census of Agriculture data (2004-2007)

There is noticeable variability in the degree of fragmentation of holdings according to farm structure among the countries selected, which does not seem to be influenced by the size of the country. For example in Antigua and Barbuda 45% of holdings are under 0.5 hectare (Figure 4 below) while in Saint Lucia the holdings under 0.5 hectare represent only 2% (Figure 5 below) of the farm population and in Trinidad and Tobago the same group represents 21.88% (Figure 6) of the farm population.

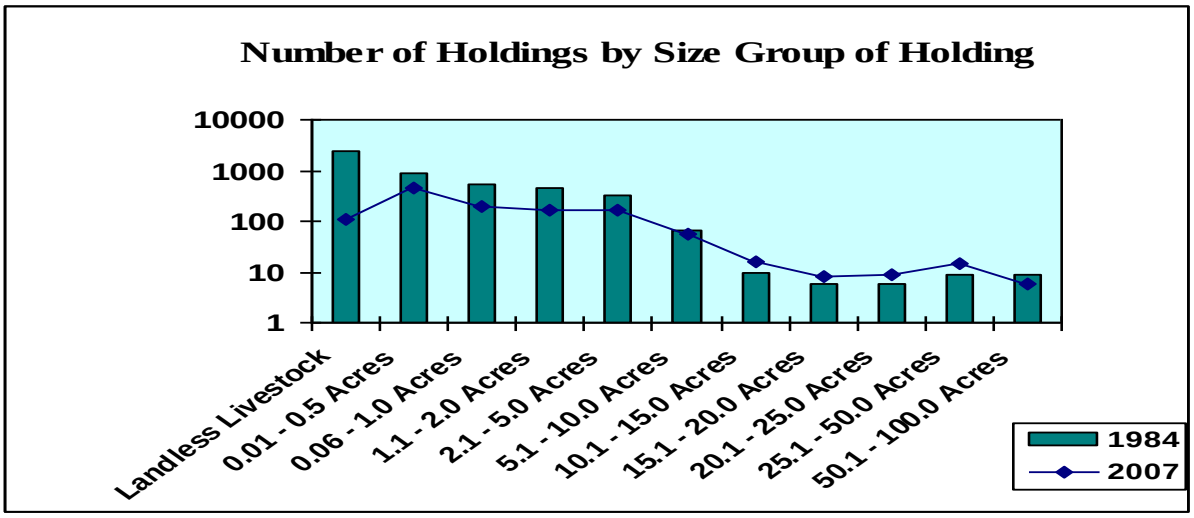


Figure 4 Farm structure in Antigua and Barbuda – Census of Agriculture 2007[7]

[7] Adapted from FAO Report on Census of Agriculture – Antigua and Barbuda 2007

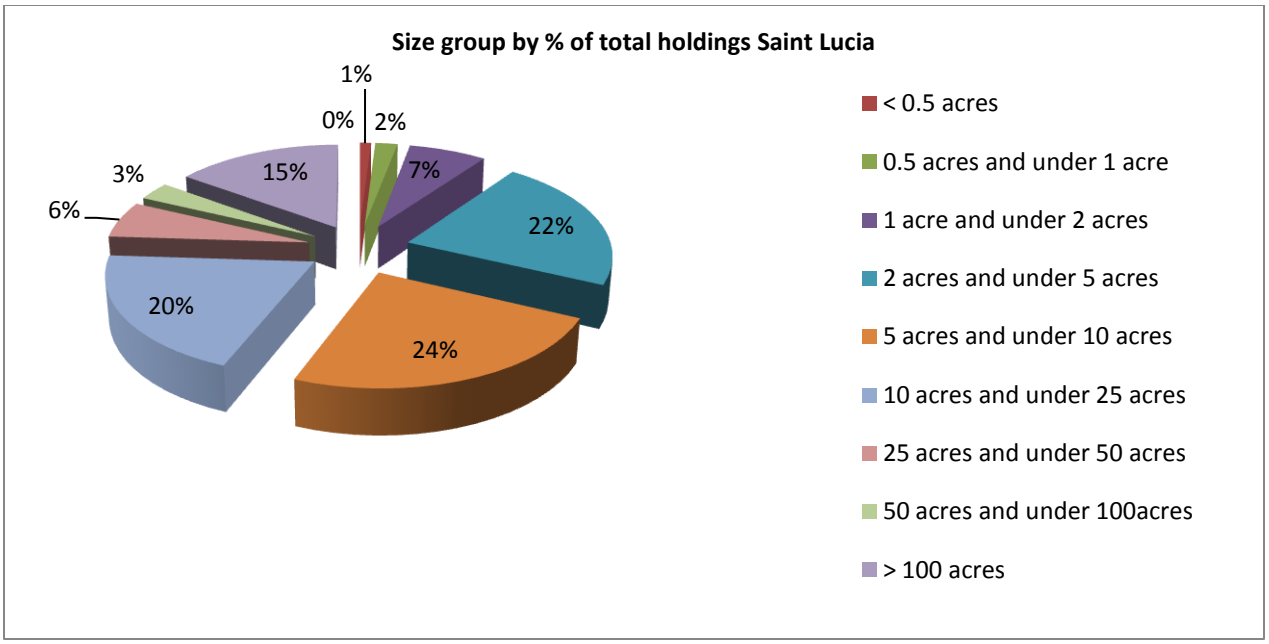


Figure 5 Farm structure Saint Lucia –Census of Agriculture 2007

The contrast between the distribution of percentage farm holdings and percentage area of farmland across the sub-region is clear in both the data and the Charts. In the case of Trinidad and Tobago 53.50% of holdings operate on 8.79 % of farm lands in the two hectares and under category, while another 33.72% operate on 34.14% of the farm lands within the farm structure two hectares to under 5 hectares. It is not expected that the development of mega farms in Trinidad and Tobago since the time of the 2004 Census would have strongly influenced the outcome of the Chart, as these mega farms were from lands released from sugarcane planting and are mostly over 100 hectares.

The extreme fragmentation on the smaller farm size in Jamaica is clear in the Census of Agriculture (1996) as shown in Figures 8 through 10 below. The data from the 2007 Census (Table 2 below) shows that this tendency towards fragmentation in the lower farm sizes persists. As will be seen later a similar pattern emerges for Saint Lucia, Antigua and Barbuda and St Kitts and Nevis.

Specific to Jamaica and worthy of note is that between 1996 and 2007 there was a 9.79% increase in the number of small farms in the one hectare farm size, resulting in almost 70% of the total farming population operating at that level of farm structure. The number of landless farmers increased by almost 90% to reach 12.3% of total farm population and the number of farmers operating on one hectare by 31.8% within that group size (Table 2 below).

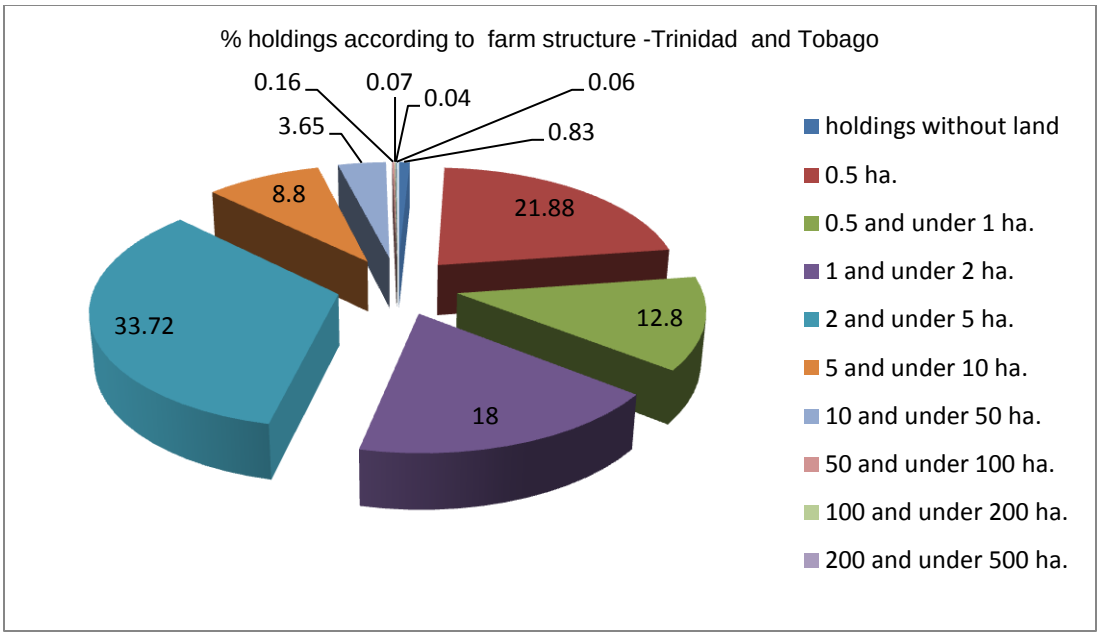


Figure 6 Farm structure in Trinidad and Tobago- Census of Agriculture 2004

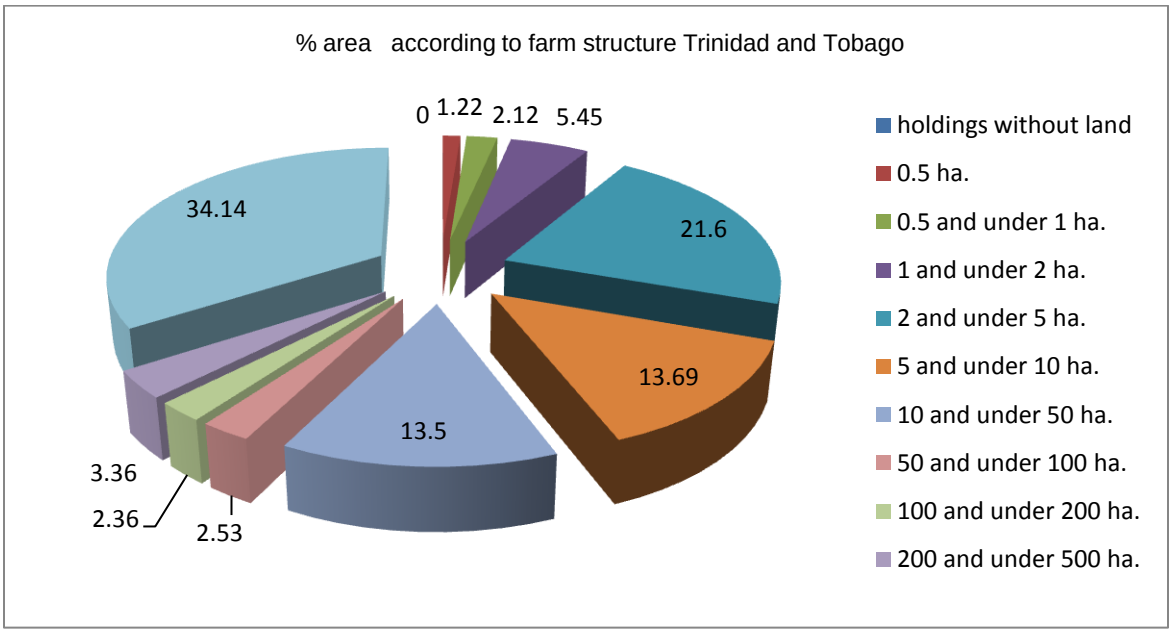
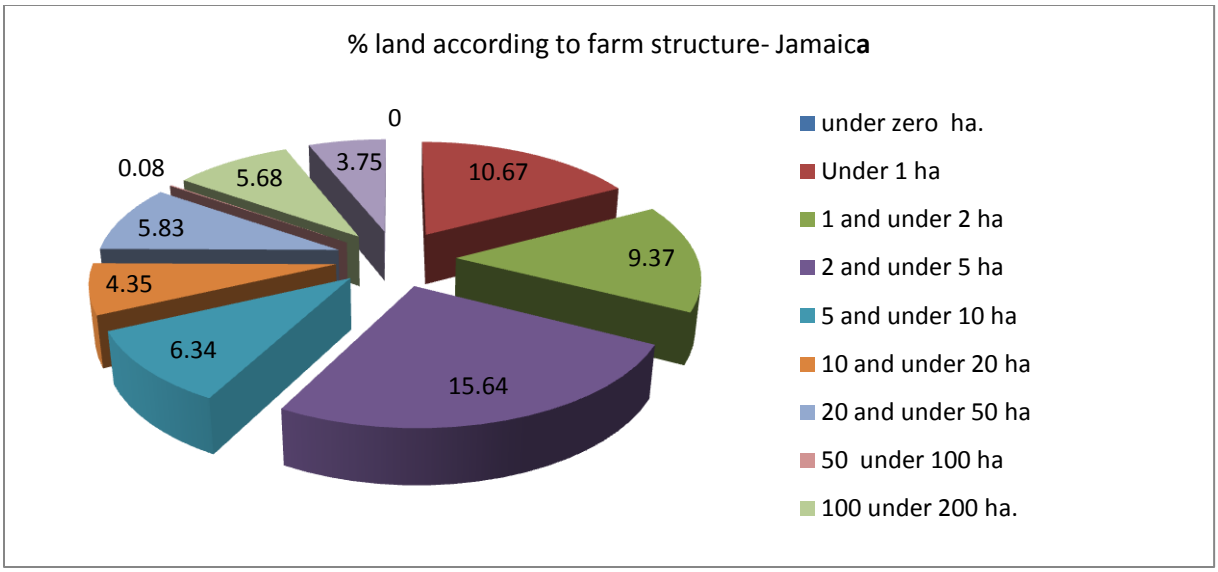


Figure 7 % Size group according to farm structure in Trinidad and Tobago[8]

[8] Census of Agriculture data 2004 – FAO /ESS website



Figures 8 Farm structure in Jamaica – Census of Agriculture 1996[9]

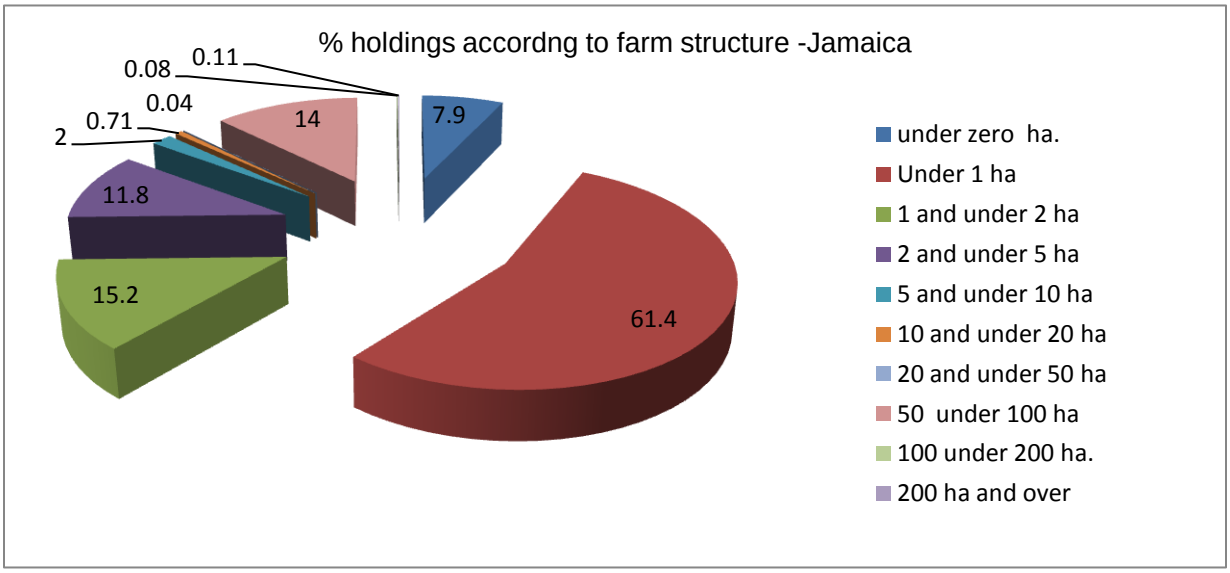


Figure 9 % Size group according to farm structure Jamaica 1996[10]

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[9] ESS/FAO Website

[10] under 0 represents landless farmers

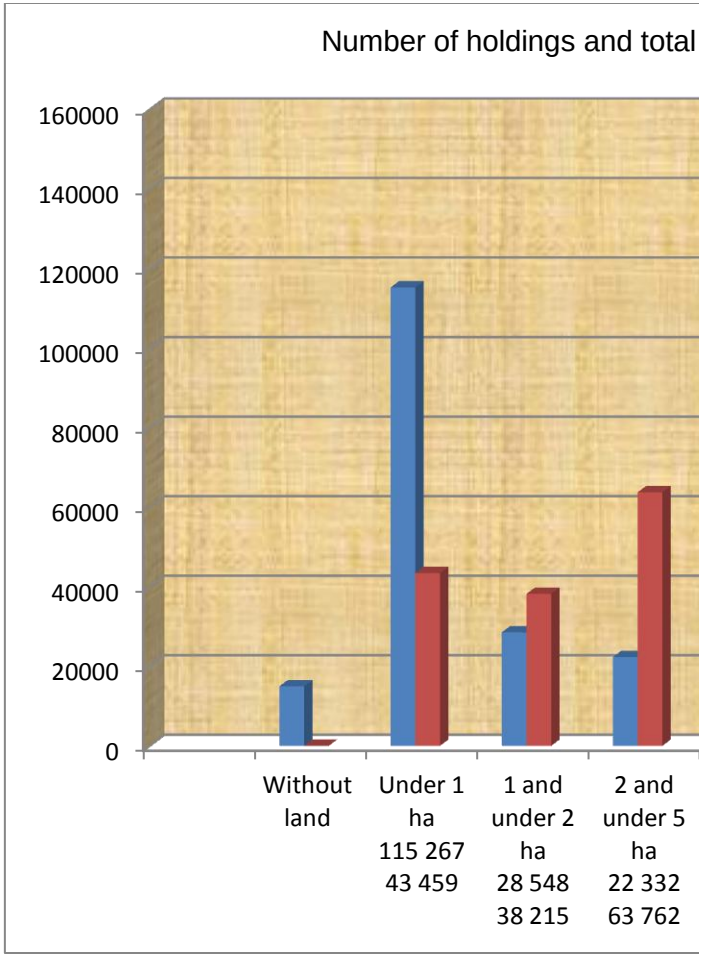


Figure 10 Absolute holdings according absolute land area in Jamaica – 1996- Source: Census of Agriculture 1996

Table 2 Census of Agriculture 2007- persistent fragmentation towards smaller size farms - Jamaica

Lands under cultivation by size group						Number of farms by size group of farms			
	2007 Census		1996 Census		1996-2007		2007		1996-2007
Size group of farms	Area occupied	%	1996	%	% change	Size group of farms	% of all farms	Cumulative	% change
						Landless	12.3%	12.3%	87.4%
Under1 ha	47,712	15	43459	11	9.79%	Under1 ha	66.4%	78.7%	31.8%
1 to under 5 ha	86,011	26	101977	25	-15.66%	1 to under 5 ha	19.1%	97.8%	-14.1%
5 to under 50	50783	16	67723	17	-25.01%	5 to under 50	2.0%	99.8%	-24.7%
50 to 200 +	141303	44	194275	48	-62.82%	50 to 200 +	0.2%	100.0%	-98.9%
TOTAL	325810	100	407434	100	-20.03%	A ll farms	100%		21.7%

Source: Jamaica Statistical Institute - website

The tendency towards increasing fragmentation in small farming was also evident in Saint Lucia (Figure 11) as was the tendency towards increase in the number of populations operating on one hectare and under of land (Figure 12).

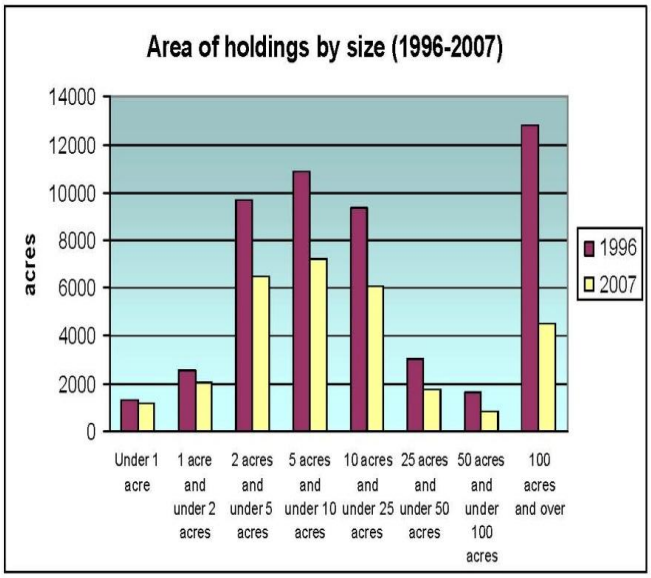


Figure 11 Change in small farming structure by area and holdings.
Saint Lucia

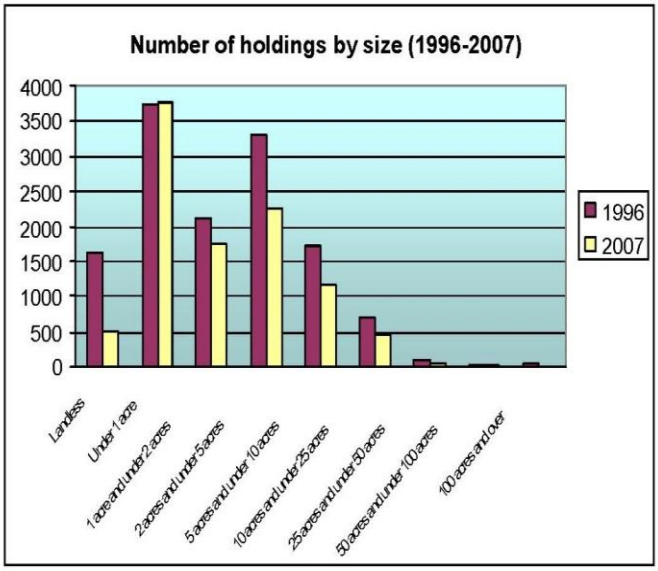


Figure 12 Change in small farming by number of holdings
Saint Lucia[11]

[11] Source Census of Saint Lucia 2007

The situations in Antigua and Barbuda data (Figures 13, 14&15 below) as well as in St Kitts and Nevis (Figure 16) are shown below. The real concern in the small farmer profile being observed is that in these smaller economies, the absolute numbers in food production population is low. If food importation estimated at 70-80% is correct then imports would be 20% higher than the average for the sub-region.

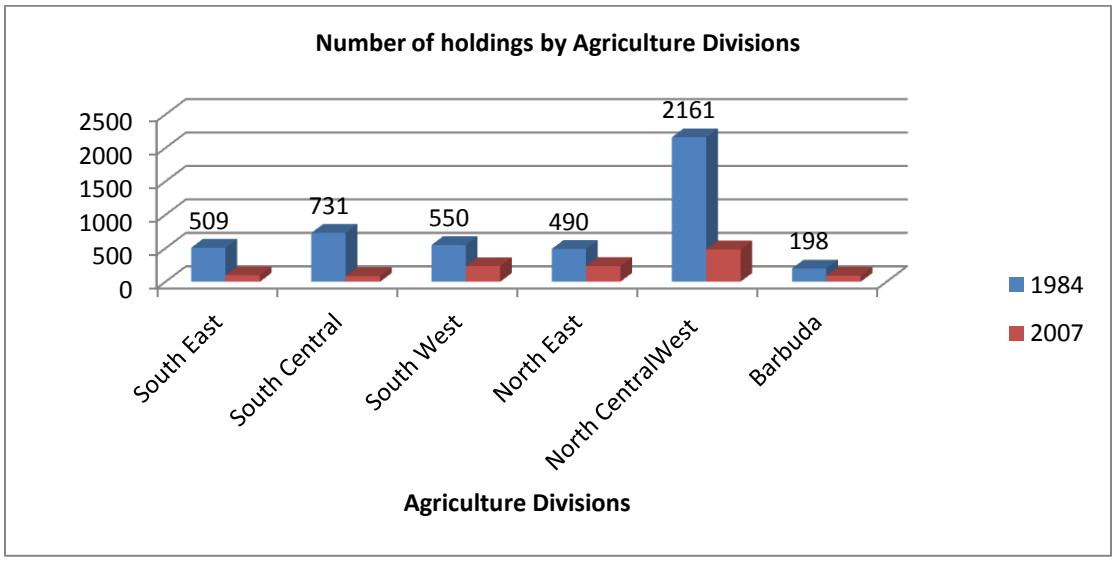


Figure 13 Change in number of holdings 1984-2007 - Antigua and Barbuda

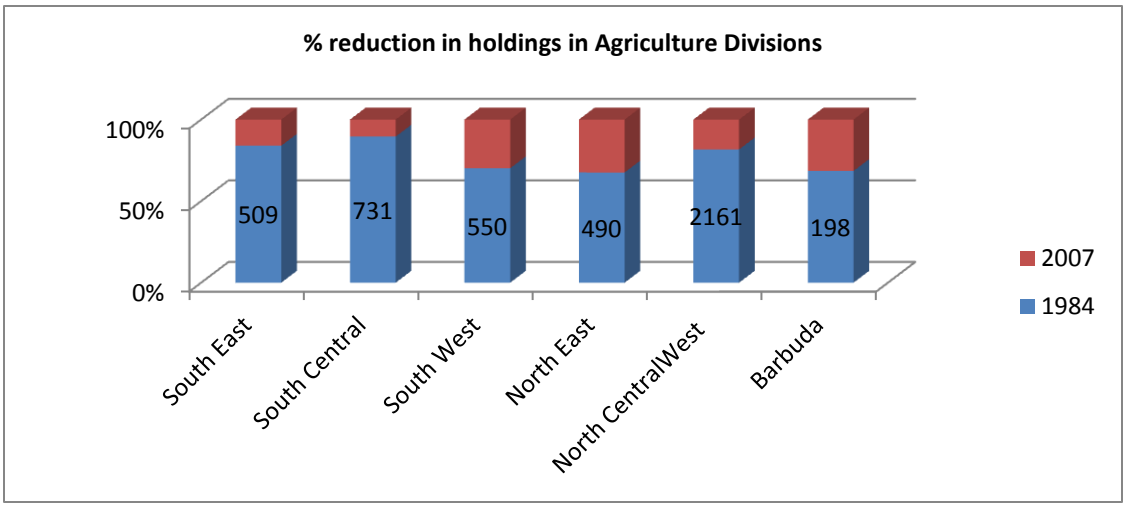


Figure 14 % change in number of holdings 1984-2007 - Antigua and Barbuda

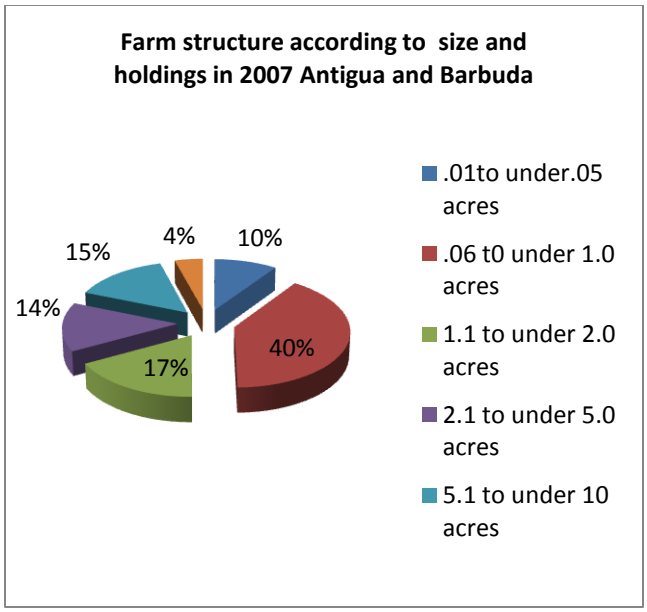


Figure 15 Fragmentation in farms under one hectare Antigua and Barbuda - 2007

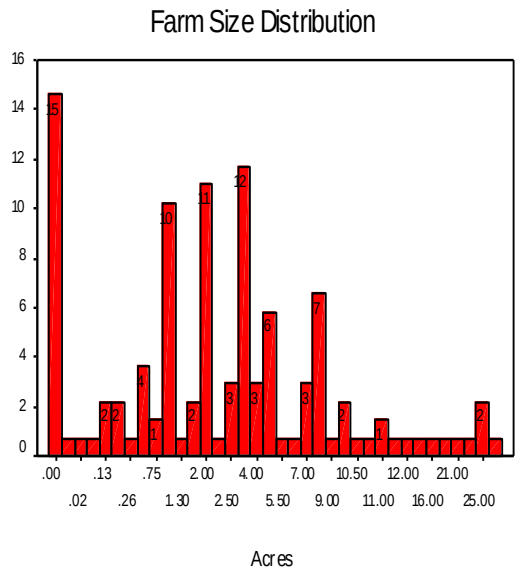


Figure 16 Fragmentation in farms and under-one hectare - St Kitts and Nevis- 2007

Tenure arrangements: With respect to tenure arrangements at the sub-regional level, the data revealed 56% of farms are owned by the holder, another 26% is family owned, 10% rented or leased and the remainder operated under various kinds of common law or illegal action, including squatting on private or government land. Except for Antigua and Barbuda less of the agriculture land is held by Government. Where the data is available the trend is towards a changing land tenure structure, towards family ownership. For example in Saint Lucia, tenure has shifted to family ownership moving from 24.4% in 1986 to 41.9% in 2007 and from 60.2% owned land to 39.7% over the same period. The shift in land ownership to family ownership has been observed in farms under two hectares in Saint Lucia and under one hectare in Jamaica. It is reasonable to assume that the shifting of tenure towards family ownership might not be in the interest of keeping land in food production. In such situations there could be negative implications for household food security in farm families. On the other hand there is the evidence of an increase in the number of landless farmers. This number almost doubled in Jamaica as recorded by the 2007 Census, increased by 1% in Saint Lucia and is very high in St Kitts and Nevis.

At the sub-regional level the data that makes a link between tenure and small scale agriculture is largely focused on use of land for collateral and what appears to be unwillingness to invest in technology and infrastructure in the absence of single household ownership. However at this time the significance of tenure relative to access to credit for agriculture in general is unclear. As will be seen later a 2012 FAO Review indicates no strong evidence of

interest in access to credit for investment in the farm as a first choice. Hence while in 1999, small farmers indicated an interest[12] in accessing credit, currently where collaterals are available they are being used for loans for other purposes. One explanation is that in view of the high cost of tertiary education, farm families are using land titles as collaterals to access loans from commercial or development banks to pay for education of their children in Universities overseas.

Age distribution in farming: Figure 17 below is representative of the age distribution of the farming population across eight countries during a 2010 survey on praedial larceny. Most of the farmers are in the 41-55 years age group. While the collection of the data did not make a distinction according to farm structure the high percentage of small farmers in the sub-regional farm population would suggest that a large number of small scale farmers are in this age group.

An earlier 1999 survey[13] of small farmers in the OECS reports 1.0% of farmers were under 25 years of age, another 32% between 26 and 40 years of age, 39.3% between 41-55 years of age and 27.7% over 55 years of age. The age distribution in terms of 41-55 years observed at the sub-regional level is reflective of the country specific data shown in Figures 18 and 19 for Antigua and Barbuda and for St Kitts and Nevis. However age distribution was more even in Saint Lucia (Figure 20), a reminder of the tendency towards even distribution in farm structure observed earlier in that country. It is important to note the complete absence of female youth under 35 years from the farm sector in St Kitts and Nevis.

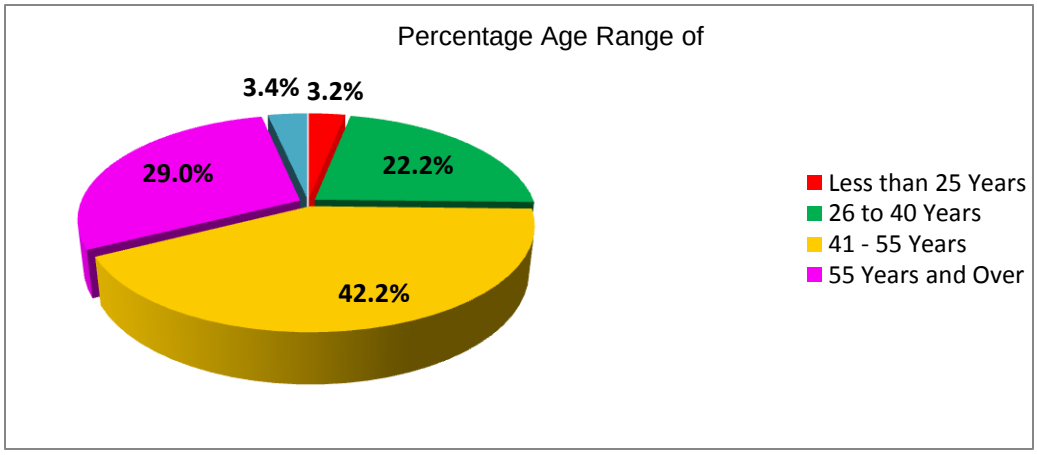


Figure 17 Age distribution all farmers in sub-region[14] -2010- Source FAO/CDEMA Study on Praedial Larceny

[12] FAO 1999 Small Farmer Study in the OECS

[13] OECS/EDADU/FAO Study on Small Farmer Participation in Export Production

[14] Guyana, Suriname. Belize, Jamaica, Barbados , OECS sub-region

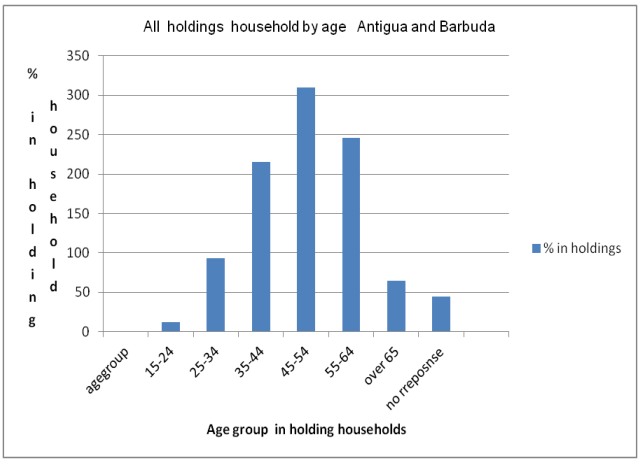


Figure 18 Age distribution in Antigua and Barbuda - 2007

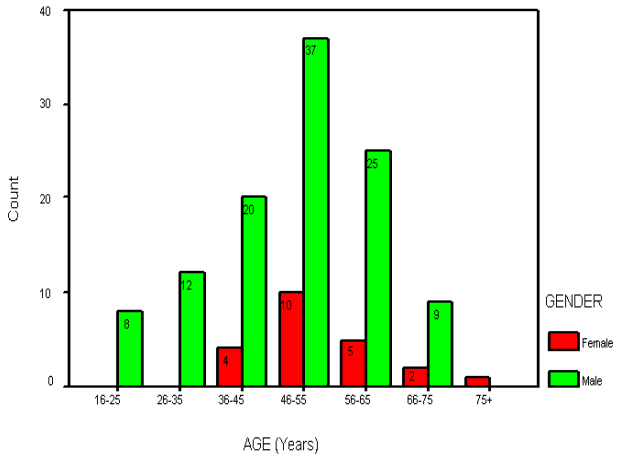


Figure 19 Age distribution by gender in SKN- 2007[15]

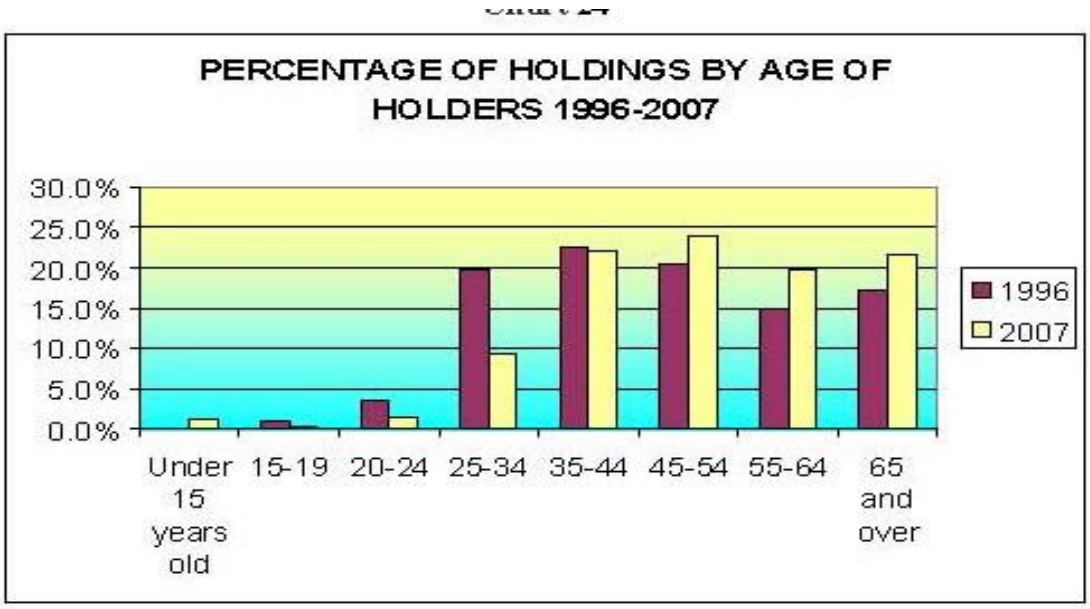


Figure 20 Age distribution in Saint Lucia 2007

[15] Census of Agriculture 2007- St Kitts and Nevis

Low participation of females in farming: The Census data distinguishes holders from labour employed on the holding. Figure 21 below is representative of an all farmer survey (2010) to assess the prevalence of praedial larceny in the sub-region. It is reasonable to assume that these are holders and not workers on the farm and is therefore an acceptable representation of male/ female distribution. It is clear that farming/small scale is a male dominated activity as not more than about 30% of the holders are female. It is worthy of note that in Guyana female representation is relatively lower.

The absence of female holders below the age of 35 in Saint Kitts was already shown in Figure 19 above and the growth in female holders in Saint Lucia is shown in Figure 22 below. According to Figure 23 below, while females are involved in both livestock and crop activities they only represent 30% of the crops population and 16% of livestock, in Antigua and Barbuda. Data from Antigua and Barbuda also show women confirm females mainly involved in weeding, planting, harvesting and marketing. The 1999 Small Farmer Study[16] of earlier reference also reported that on the farm women are primarily involved in weeding, planting and harvesting.

In the absence of available data, it document also notes the highly recognized role of females in the initial processing and the marketing of artisanal fisheries and in the rural urban marketing of crops in the sub-region.

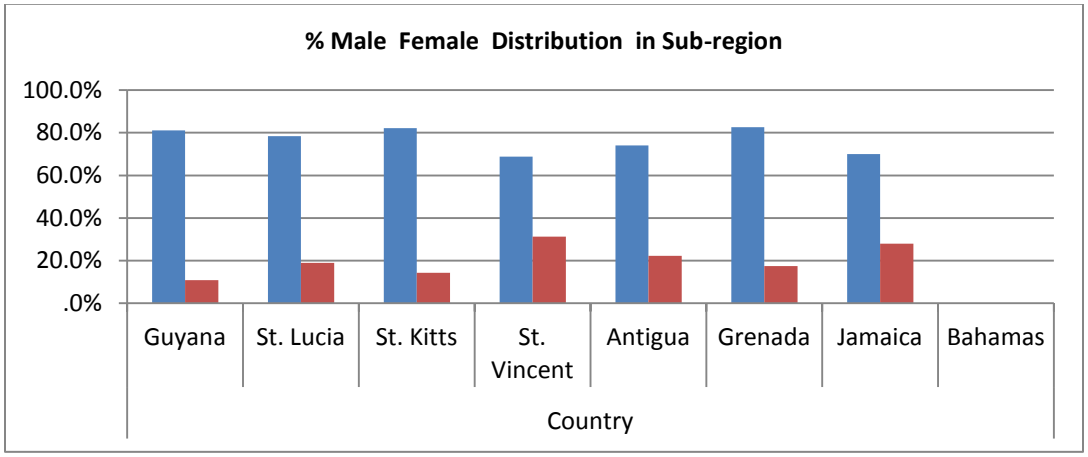
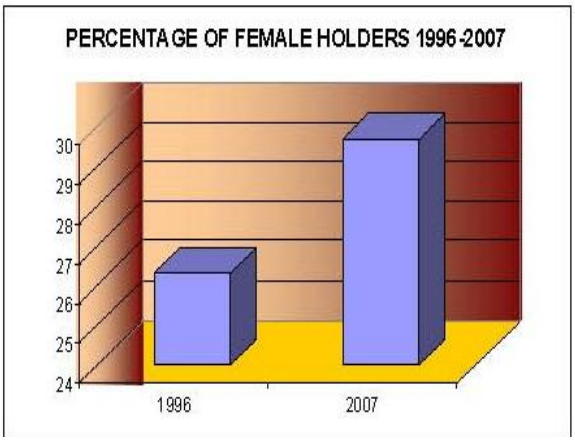


Figure 21 Female and male holder distribution across 7 countries

[16] Study on Small Farmer Participation in Export Production OECS/EDADU/FAO



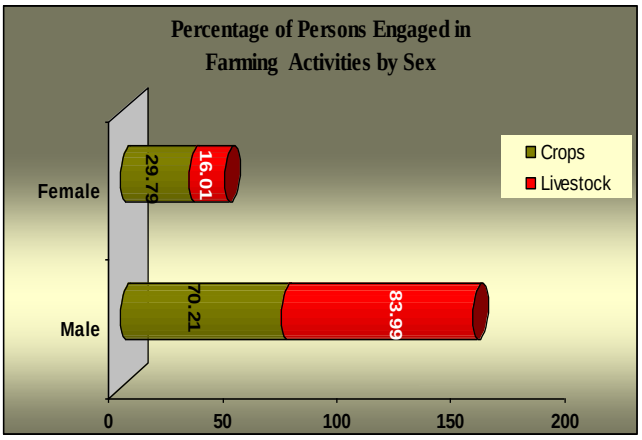


Figure 22 Change in female holders in Saint Lucia.
Source: Census of Agriculture Saint Lucia 2007

Figure 23 Female male holders in Antigua and Barbuda
Source: Census of agriculture Antigua and Barbuda 2007

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Income from small scale agriculture: Data on percentage income from agriculture were available only from Saint Lucia and Antigua and Barbuda. It is interesting to note that except for these two countries, attempts to get this type of data from other countries were unsuccessful. According to the responses received this data was not readily available, specific to farm households. Figure 24 below shows the decline in contribution of farm activities to farm household over the last decade. Again while this is for all farmers it is reasonable to assume that this is a reflection of the situation of the relatively large population of small farmers.

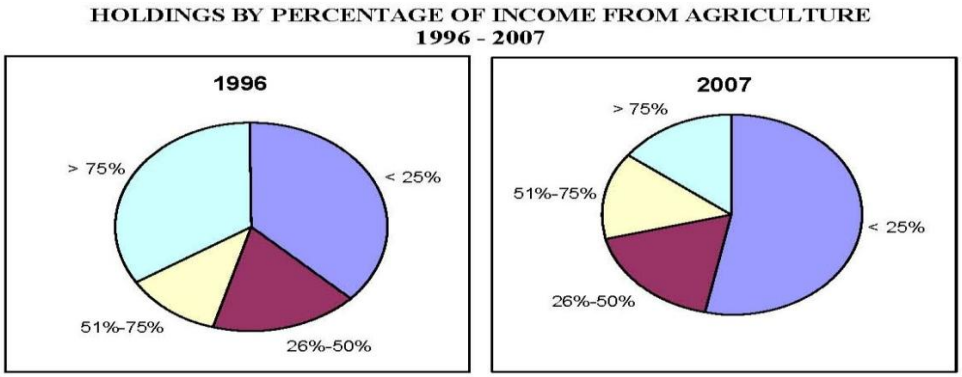

Figure 24 Changes in % of income from farm in Saint Lucia[17]

[17] Source Census of Agriculture Saint Lucia 2007

Figures 25 and 26 below are generated from more detailed data from the Antigua and Barbuda Census of Agriculture 2007. As for Saint Lucia most of the farming population generates less than 25% of household income from their farming activities (Figure 25). In this case only 6% of farm households reported obtaining 75% or more of their income from agriculture. Another 7% of farm households reported obtaining between 50% and 75% of their income from agriculture and 13% reported obtaining between 25% and 50% of their income (Figure 25). Small farming in the farm structure 0.0-0.01 (landless) to 10.0 acres (5 hectares) revealed the pattern of contribution to household expenditures.

Closer examination of the data showed that within the age group 15 years to 35 years, 88% derived less than 25% of income from farming. While this age group represents only 8.4% of total farming population in this country, there is much concern about the persistent low participation of youth in agriculture. The real significance of these observations rests in the concern that to date the sub-region has provided no positive indicators, sufficient to attract the desirable level of participation of youth in farm activities.

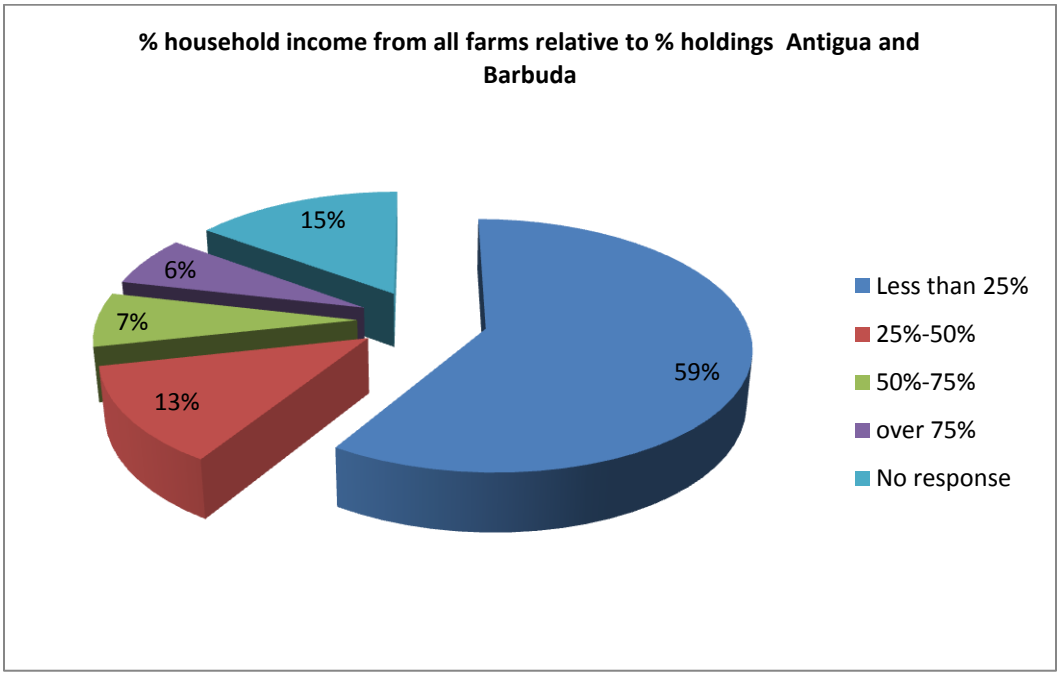

Figure 25 Income contribution to household expenditure realtive to all small farm holdings -2007

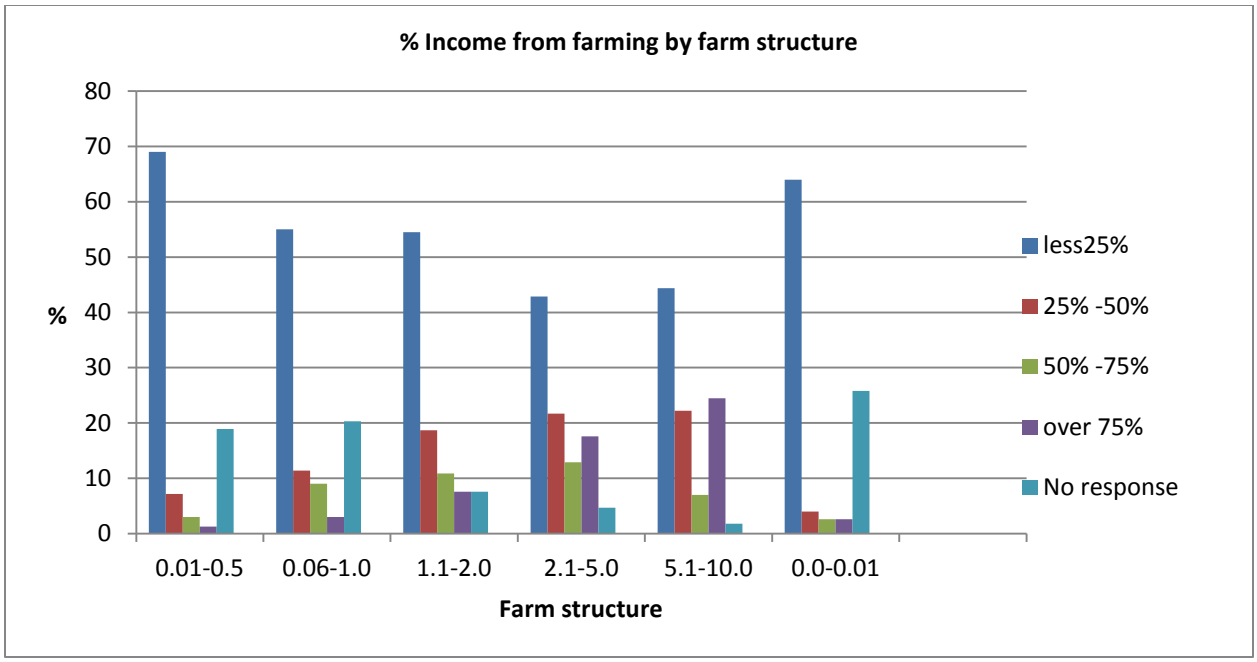

Figure 26 Income contribution to household expenditure based on farm structure

The OECS/EDADU/FAO small farmer study of earlier reference also reported that in terms of the role of small framing in livelihoods, only 50 % of OECS farmers were recorded as full time. In this same study it was noted that while these farmers were categorized as commercial, semi-commercial and subsistence, most of them did not keep records. About 30% indicated they have no one to account, while others provided varying other reasons including, no interest in keeping records, no time to keep records, fear of being discouraged and not being able to read.

In view of the situation of declining income from farm activities, the low returns to youth from farm activities and the low participation of youth in farming so far observed it is e appropriate to include at this point the conclusions of a 2006 CFNI Study on youth participation in agriculture. The data could be of assistance in the determination of where possibilities exist to change the profile of small scale farming, by responding to the concerns of the sub-region's youth in the hope of capturing youth innovation in farm activity.

The results of the sub-regional consultation conducted in Trinidad and Tobago in 2007[18] are shown in the Charts below.

[18] Making Agriculture an Attractive Career for Caribbean Youths, Overcoming the Challenges 2006- Caribbean Food and Nutrition Institute

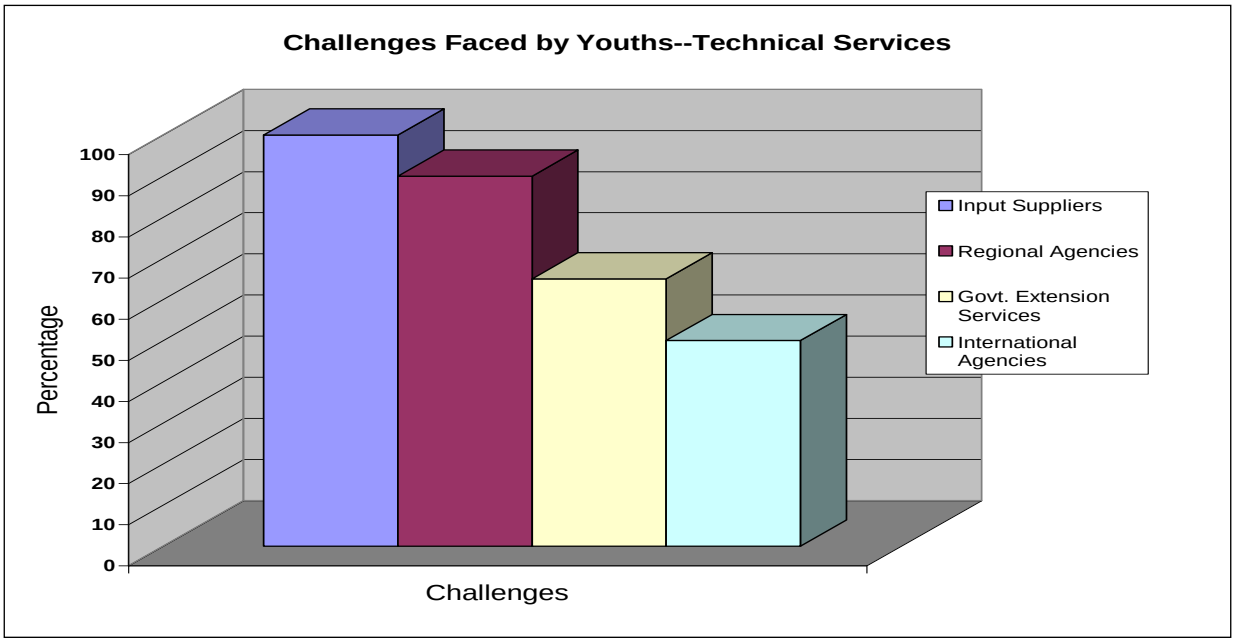

Figure 27: Youth views on weaknesses in technical services required for agri-entrepreneurial approach.

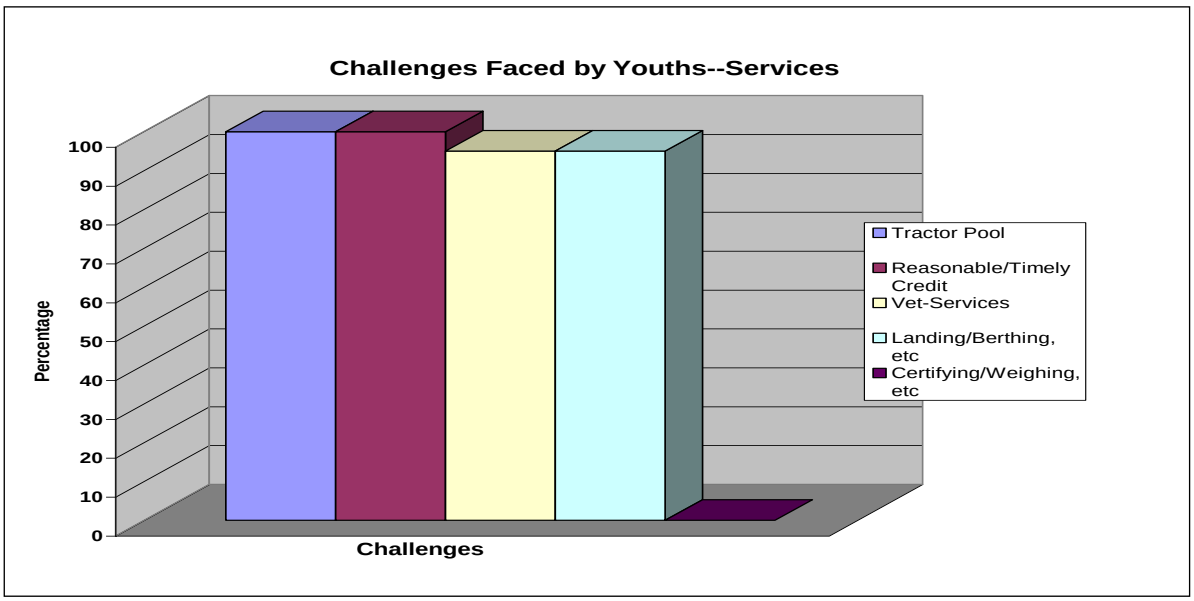

Figure 28 Youth response to weaknesses in services in selected areas

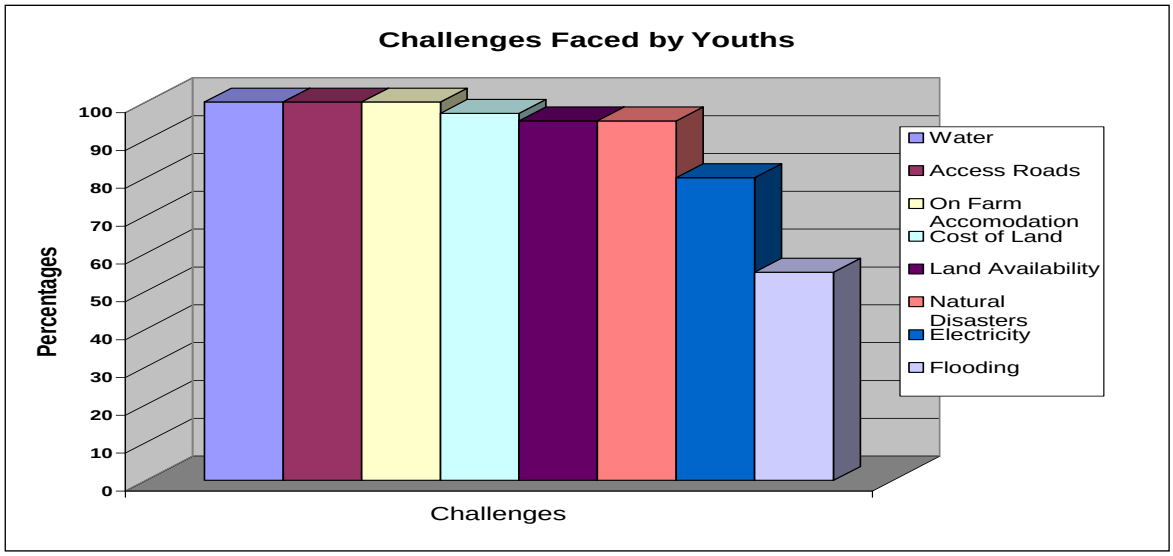

Figure 29: Youth response to assistance required in support of farm infrastructure.

In giving priorities to their concerns the youth listed the three key areas where they would like to see action as (**a**) measures to reduce high cost of inputs to agriculture (**b**) improvements to the inadequacy in market sales outlets and (**c**) measures to reduce or prevent the perennial problem of praedial larceny.

Access to agriculture credit for investment in farm production and infrastructure: Access to agriculture is identified among the nine key binding constraints to agriculture competitiveness and growth in the sub-region. Any factor associated with this constraint would be doubly manifested in the circumstances of small farmers. In general small scale farmers display low levels of investment in technology and in farm infrastructure (irrigation, nursery facilities, harvesting and packaging, soft ware for assessment and monitoring). The main source of lending to these farmers are commercial banks (38.5%), non- government organizations (38.5%), agriculture credit banks and development banks 7.7% and others including credit unions (15.4%).

Some of the problems cited are associated with the regulations governing the main financing institutions listed above. Problems identified by small farmers were specific to regulations governing lending by the Agriculture Development Banks. These include the following: time lag in disbursement, inappropriate loan structuring, inadequate technical expertise, and requirements for agriculture insurance and for collateral. The result is that many farmers including small scale farmers are forced to apply for commercial bank loans, which are usually short term and more expensive. It is the view by some farmers in the sector that legislation to support retail banking in the Agriculture Development Banks would benefit small scale farmers.

The FAO 2012 study[19] on rural financing of earlier reference concluded that small farmers are less interested in accessing credit for farm activity[20] than they are in establishing infrastructure to manage risks associated with natural or manmade disasters (Figure 30 and 31 below).

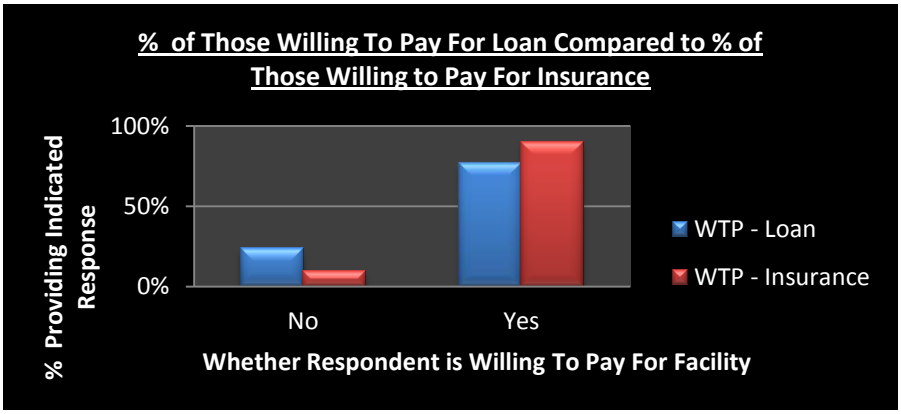

Figure 30 Farmers priority for loans versus investment in risk management[21]

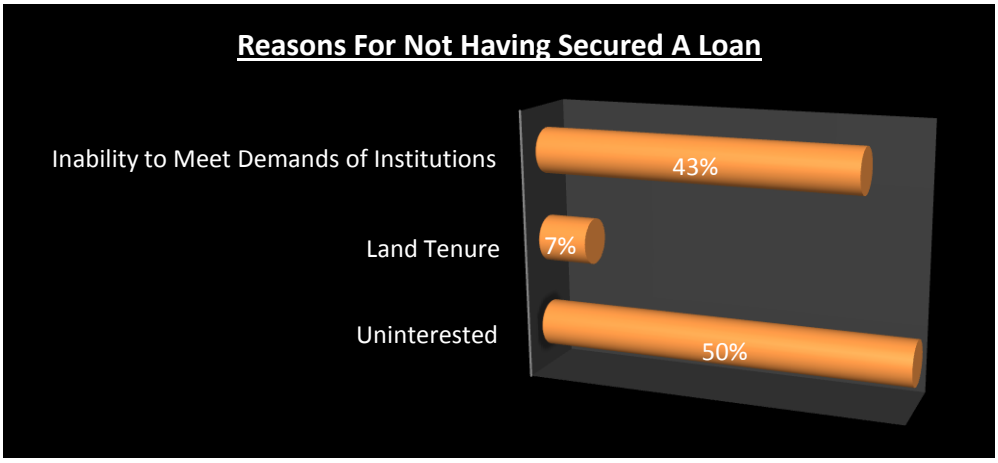

Figure 31. Farmers' reasons for not having secured loans

[19] FAO Study on Rural Financial Institutions and Risk Management

[20] One observation is the traditional use of land title as collateral has shifted to this article being used to secure loans from Development Banks and the commercial banks to pay for a university education for their children.

[21] Adopted from FAO Study Rural Financial Institutions and Risk Management

Notwithstanding the above many farmers, including small farmers at the higher end of the small holder farm size do benefit from loans for farm equipment and other infrastructure such as small greenhouses, irrigation systems and pumps, farm vehicles; small fishing equipments and for small livestock and poultry rearing facilities.

Disaggregated data for credit to small scale farmers is not available, however annual loans to the sector by the ADB in Trinidad and Tobago increased by just over 50% in the period 2008-2011[22]. Over the same period there was a decline by 4% in annual loans from the commercial banks. In the case of Jamaica the annual value of loans issued in 2007 by the Development Bank of Jamaica[23] increased by 59.9% in 2011 over the year 2007.

With respect to the amounts disbursed domestic crop farmers usually receive the largest share of annual loan allocation by the Jamaica Development Bank. Domestic crop portfolio increased by 10.9% in 2011 over 2007. Based on the information loans were also allocated for livestock sector (pigs, sheep, and goats) and beekeeping. Annual allocations for the agro-processing sector (commodity) increased by 33.5% in 2011 over 2007. The data made no reference to the fisheries and aquaculture subsectors.

Perceived needs for assistance by OECS small farmers: Small holders from time to time express their needs for preferred assistance from various partners, including development partners. This information was available only for OECS small farmers. The perceived needs were expressed as follows:

- Access to irrigation when necessary.
- Market information, contracts and better prices.
- Access to affordable credit and training.
- Access to production information.
- Assistance in the management of pests and diseases.
- Access to better quality land for farming, and more productive labour.
- Access to or partnerships with organizations that provide training, production/product information and assistance in managing pests and diseases.

Crops of choice by small scale farmers of the sub-region: Most of the farmers (65%) indicated in 1999 that they choose crops based on tradition. However over the years the mix of food crops grown by small farmers have not changed significantly. Lead crops grown in

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[22] ADB Business , Vol. #1, January March, 2012
Central Bank of Trinidad and Tobago-Annual Economic Survey 2011

[23] Ministry of agriculture Jamaica data bank- sourced from the Development Bank of Jamaica

1978 in OECS and Belize, preferred small scale crops identified in 1999, and crops reported in 2008 and 2012 are shown in Table 3 below.

Table 3 Main crops grown in small farming in the sub-region

Small farm crops grown in 1978[24] in OECS and Belize	Crop choice of OECS Small farmers in 1999	Lead crops from OECS sub region data 2008[25]	Belize 2012	Jamaica 2012	Guyana 2012
Mangoes Avocados Yams Tannia Sweet potato Carrot Tomato Beans Vegetables corn	Vegetables Sweet potato Bananas Mangoes Pineapple Dasheen Peppers Golden apple Plantain Tannia Other	Vegetables Okra Sweet potato Yams Dasheen Tannia Ginger Golden apple Julie mangoes Oranges Watermelon Plantain Pineapples Pumpkins Coconuts Mangoes Peanut White potato	Cabbages Hot pepper Lettuce Pumpkin Tomatoes Water melons Coconut, Corn Beans, Citrus,	White potato Vegetables Yams Sweet potatoes Bananas Mangoes Oranges, Grapefruits Papaya Pineapples	Pumpkins Pepper Papaya Vegetables Pineapples Tannia Dasheen Eddoes Oil palm, Coconuts, Fruits Peanuts, Cocoa, Cashew,

Information on the performance of these crops and of their relative value was unavailable at the sub-regional level. Data available from St Vincent and the Grenadines and for Saint Lucia are representative of the OECS sub-region and are shown in Figures 32-35 below. According to Figures 32 and 33 there was no real trend in performance of the crops selected except for sweet potato and to a lesser extent dasheen. On the other hand while the 13 crops from Saint Lucia showed no real trends in production over the five year period, farmers received best prices for root crops(sweet potato and yams) and selected vegetables (tomatoes, cabbages and sweet peppers) over the five year period. The performance and value of the root crops, in particular sweet potato would suggest consideration be given to the development root crop industries in the OECS sub region.

[24] Small farming in less developed countries of the Commonwealth Caribbean-Prepared for CDB 1980

[25] 2008 Annual Reports of the Windward Islands, St Kitts and Nevis and 2008 Highlights of Antigua and Barbuda

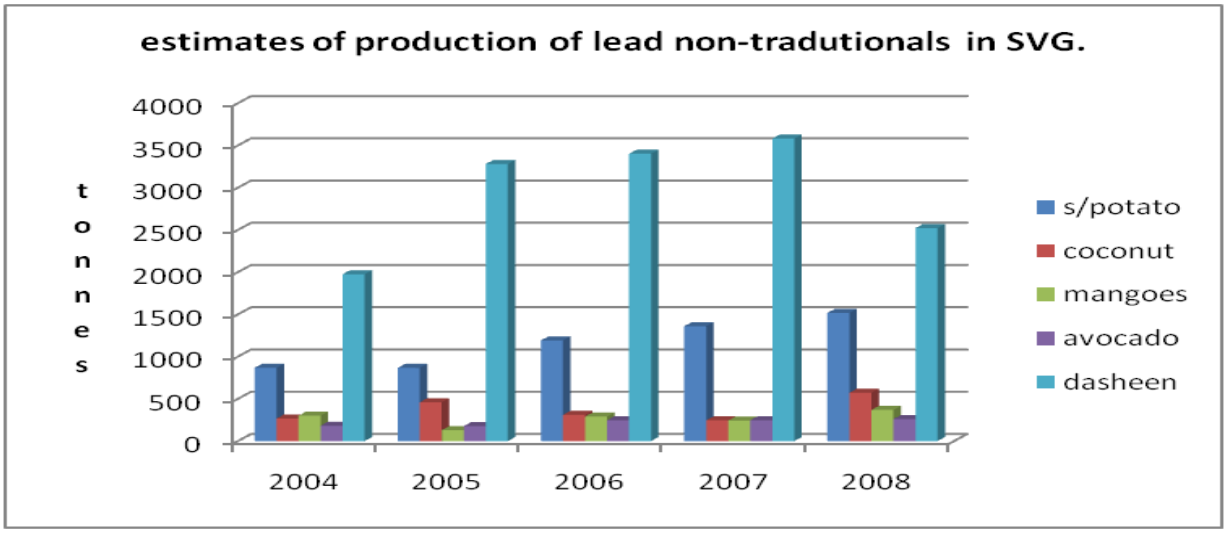

Figure 32 Source: Annual Regional Agriculture Review in the OECS- FAO/SFA 2006

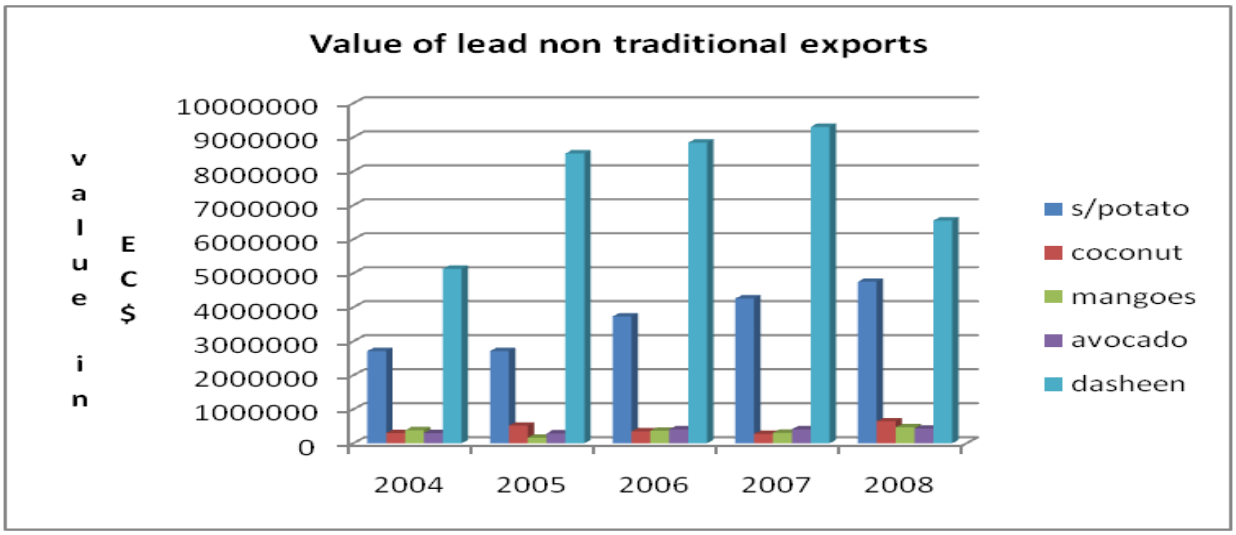

Figure 33 Value of lead non- traditional exported representative of the OECS sub-region over five years[26]

[26] Annual Regional Agriculture Review in the OECS –FAO/SFA 2008

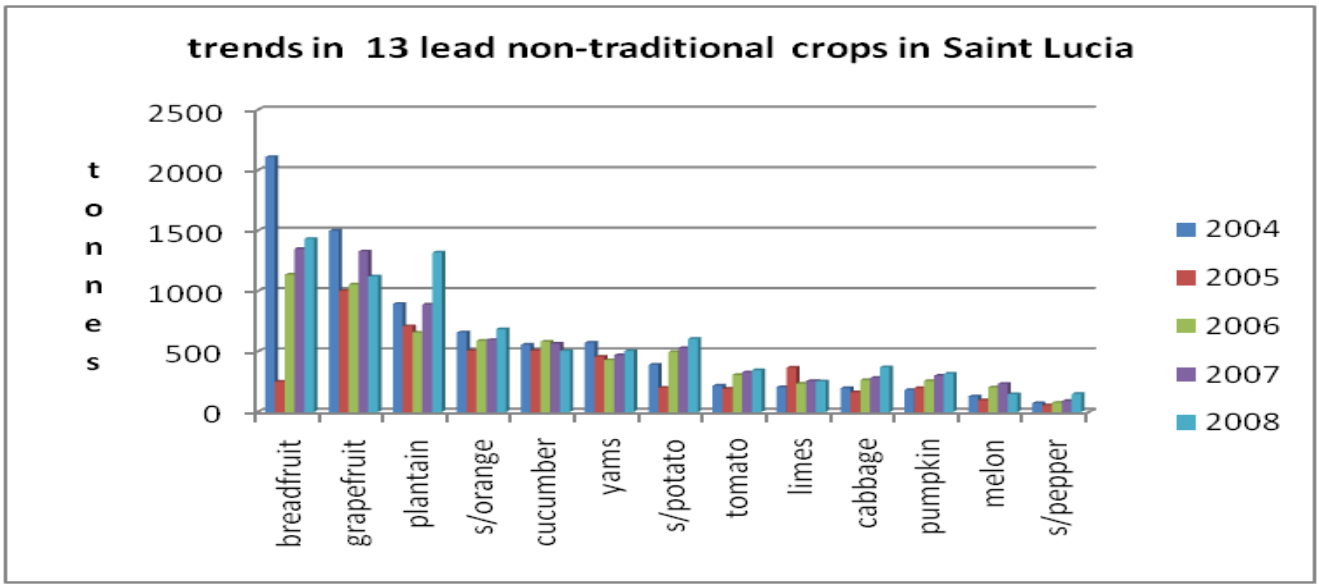

Figure 34 Typical domestic crop production trends in lead non-traditional in OECS as recorded in Saint Lucia 2004-2008[27]

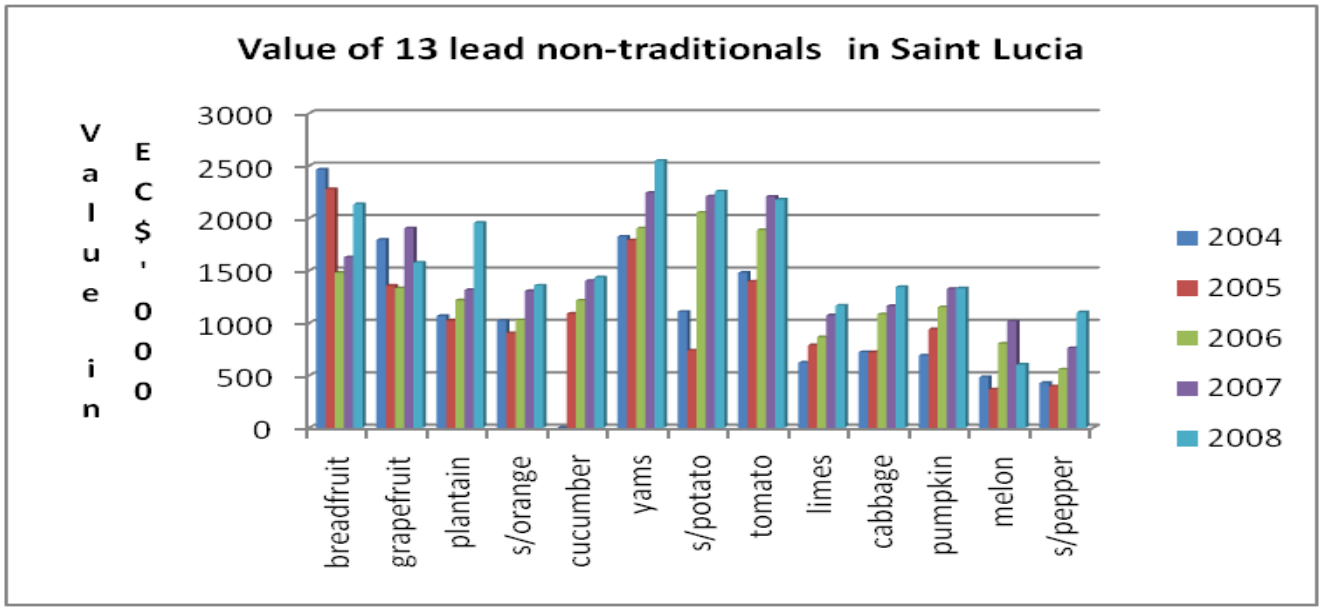

Figure 35 Typical value of domestic crop production in lead non-traditional in OECS as recorded in Saint Lucia 2004-2008. [28]

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[27] Annual Regional Agriculture Review in OECS 2008 - FAO/SFA 2006

[28] Annual Regional Agriculture Review in the OECS 2008- FAO/SFA 2006

Farm practices and Technologies: The farming systems and associated practices of small scale farmers are common across the sub-region. Most farmers have been exposed to good soil conservation and land preparation practices either through the Ministry of Agriculture or the Forestry Units. Most farmers use fertilizers and other agri chemicals and most have been exposed to capacity building in food safety and fresh produce quality control. However the extent to which GAPs is practiced is perhaps not well known except among export farmers and those farmers who are part of farm certification programs with domestic marketing outlets, such as supermarkets, hospitality sector and marketing institutions such as NAMDEVCO.

Most of the countries are focusing on the use of improved germplasm, through tissue culture and or well managed plant seedling nurseries. Seedlings are usually available through the agriculture extension system or private nurseries for those who can afford to make purchases. The Centre of Excellence in Jamaica is beginning to share its expertise across the sub-region through partnerships with CaFAN. All of these activities benefit small scale farmers but the spread of the knowledge building may be well below what is required.

Figure 36 below was adopted from the Report of the Census of Agriculture for Antigua and Barbuda. The extent to which this data is representative of the sub-region is not known. For example in the case of water for irrigation, many small scale farmers' only source of water for the farm is from rainfall and rainwater harvesting. In St Kitts and Nevis 60% of farms are rainfed and in Jamaica this is expected to be much higher as most of the farmers are on the hillsides. In the absence of available water from irrigation schemes many small scale farmers have developed innovative ways of intercepting rainwater runoff and storing same but the quantities are nowhere near the amounts required. In practice small farmers schedule their planting to avoid the traditional drought seasons before harvests

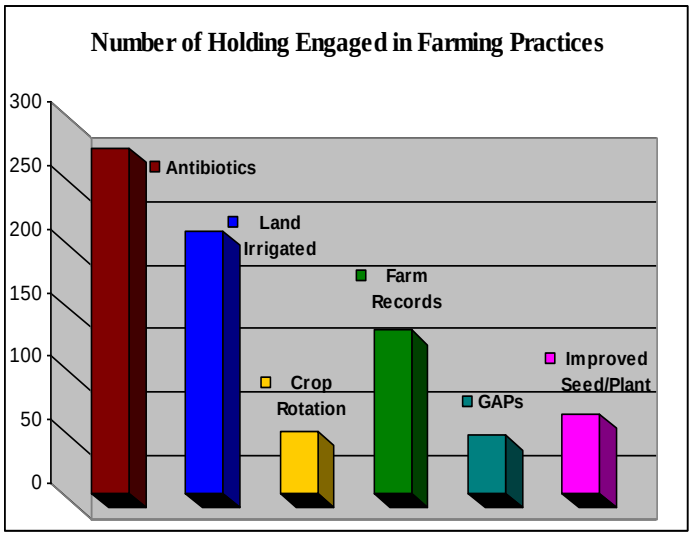

Figure 36 Source: Report of Census of Agriculture Antigua and Barbuda

Figure 37 – Hand watering of nursery seedlings

In general water for irrigation when necessary is a major constraint for most small scale farmers. Rainfed agriculture is the common practice. In some countries where the farms are on the plains small farmers will benefit from small public irrigation schemes managed by the Ministry of Agriculture. Water users groups have not worked well neither has a communal approach to water, except for in the case of livestock. The Charts below (Figure 38) provide some insight on the circumstances of small scale farmers relative to access to water for irrigation and the efforts made by small farmers to secure water for the crops. While the challenges to access available water are most severe for hillside farmers such as those in Jamaica, the majority of small farmers are exposed to the potential risk of crop loss and poor pasture performance due to drought conditions.

Rainwater harvesting in Dominica

Rainwater harvested in Montserrat

Small farmer using harvested rainwater in Jamaica

Rainwater harvesting in Antigua and Barbuda

Figure 38 Rainwater harvesting practices across the sub-region[29]

[29] Feasibility Study on Rainwater Harvesting for Agriculture in the Caribbean Subregion – FAO

Small farmers employ practices to enhance the efficient use of the limited rainwater stored, including the use of micro-irrigation systems (Figure 39). Mulching is also quite popular especially on the dry plains in Jamaica but the practice is common across the sub-region. The use of plastic covers in row planting is also quite popular as a means of storing water in the soil.

Figure 39 Use of micro-irrigation systems for increase water use efficiency

Figure 38 Dry land mulching in Jamaica to store water in soil in rainfed farming[30]

[30] Courtesy of IICA –Saint Lucia

Figure 39 Plastic mulching in pineapples in Grenada[31]

Farming systems: Many of the tradtionals practices still exist in small farming. These practices include various forms of mixed systems with crops, livestock and freshwater fish.

Cropping systems include a wide range of food crops in rotation cropping, intercropping, and agro-forestry. Some farmers practice organic farming or a form of it but which often does not satisfy requirements for certification. Nearly all farms use agri-chemicals for improved soil fertility. Other practices include various forms of mulch and composts both to improve soil fertility and to conserve soil water. Various forms of pesticides are applied. Some of the more frequently used crop combinations are shown below:

a) Rotation cropping

- Carrots → String Beans → Cabbage; Dasheen → Ginger→ Yam ;
- Ginger → Passion Fruit →Pineapple: Melons → Peanuts → Okras
- Carrots → String Beans → Cabbage; Tomatoes → Sweet Potatoes →Yams
- Cucumbers → Tomatoes →Lettuce; Cucumbers→ Carrots → Eddoes → Cabbage
- Sweet Potatoes → Yams → Eddoes; Sweet Potatoes → Tomatoes → Yams

[31] Adopted from FAO Study on Sustainable Agriculture 2012

- Yams & Eddoes → Tomatoes → Ginger; Tomatoes & Cabbage → Eddoes → Yams →Tannias

b) Intercropping: Most frequently used combinations include:

- Cowpeas with corn; cassava with pigeon peas and corn; sweet potato with corn and cowpeas; bananas with sweet potato; bananas with cowpeas and pigeon peas pea, coffee with bananas, coffee with forest trees.

Many of these systems mentioned above were developed through extensive research by CARDATS and the UWI –Trinidad and Tobago based on economic returns, integrated pest management and integrated nutrient management. However many of the farmers now express that they use the systems simply because it has been handed down and it is what they know best.

c) Organic

Most of the organic systems focus on vegetables, herbs and some exotics such as coffee and cocoa. Small farmers also practice other environmentally sound practices such as composting as shown above and vermiculture often described as natural farming.

d) Monocultures

Small scale farmers who grow for export market practice monocultures. The more common monoculture systems are limes, mangoes, golden apples, wax apples, pineapples, coconuts, avocado and dasheen. Invariably these crops are grown with in mixed systems with other crops until full canopy cover of the main crop or with small roaming livestock.

2. Modernization of production technologies in small-scale farming

Introduction: Small farmers are mostly food crop producers in open field. Productivity levels tend to be lower than desired as most of the farms are rainfed. Many small farmers are also on marginal lands or hillsides and this increases the cost of good land management practices in the establishment of farms. Livestock farmers rear livestock mainly in managed pastures or just allow them to roam freely. Small-scale farmers in the sub-region have therefore been pursuing modern and or environmentally sustainable technologies to improve longer-term productivity.

Protected agriculture: Greenhouse and other forms of protected cover have gained popularity, mostly among vegetable farmers. In the OECS alone there are some 500 small greenhouses of size varying from 200 square meters to 500 square meters. Larger size greenhouses are operated in Barbados, Jamaica, Belize and The Bahamas. The full coverage of green house in hectares is not available but the data accessed record that for the small size greenhouses mentioned above there are at least a total of six hectares shared between Dominica and Saint Lucia, and another one hectare in Belize. There are also reports of a number of these smaller type greenhouses in The Bahamas[32] and Grenada. However except for Jamaica there was no data available on production.

A 2010 FAO/CDB evaluation of greenhouse performance in the sub-region reported low productivity and a myriad of problems relative to the suitability of these greenhouses to the climatic conditions, including tolerance to the frequency of hurricanes. Other problems include poor management of pests and disease and inadequate temperature control in the greenhouses. Currently small farmers sell produce from greenhouses on the domestic market but there is no indication that there is a higher demand for greenhouse quality or a willingness to pay a premium price. The real benefits are the higher productivity as well as production levels from year round planting.

A recent MOA Jamaica/FAO market study show that focused application of greenhouse technology can increase domestic production, sufficient to reduce imports of bell peppers, tomatoes and lettuce (Figure 41). Potentially this could be a major break for commercially oriented small farmers. On the other hand considerations for participating in an export market

[32] These smaller greenhouses were established in each primary school in the Bahamas under a FAO Technical Cooperation Program. The Government of The Bahamas also operates an ultra modern greenhouse with cover of just under three hectares.

Figure 40 Typical small greenhouse and shade house in the sub-region

would be constrained by the high transaction costs and limitations in the number of commodities that could be exported (Figures 42-43). Notwithstanding the supply demand gap[33] for fruits, vegetables and protein replacement (plant legumes) across the sub-region creates a favourable domestic market for expansion of greenhouse technology, using the small greenhouses suitable to small farmers. This will require careful planning in the selection of the commodities with a focus on import substitution and import replacement of selected vegetables and fruits in order to avoid gluts.

[33] According to a 2007 FAO/CFNI Study, most recent data on food availability (calories/grams) in CARIFORUM shows the supply of fruits and vegetables (including imports) consistently fell below RPG despite increases over the period 1991-2002. Another FAO Study conducted in Trinidad and Tobago in 2007 indicated combined total of food import value for vegetables fruits and nuts was 15.7%, Annual Agriculture Review in Saint Lucia 2008 show vegetable imports grew by 44.7% during the period 2004-2008 and Caribbean Agribusiness/CARICOM data show vegetable imports in 2008 at 45 million kgs (data was missing for all countries and all of the vegetables selected except for onions).

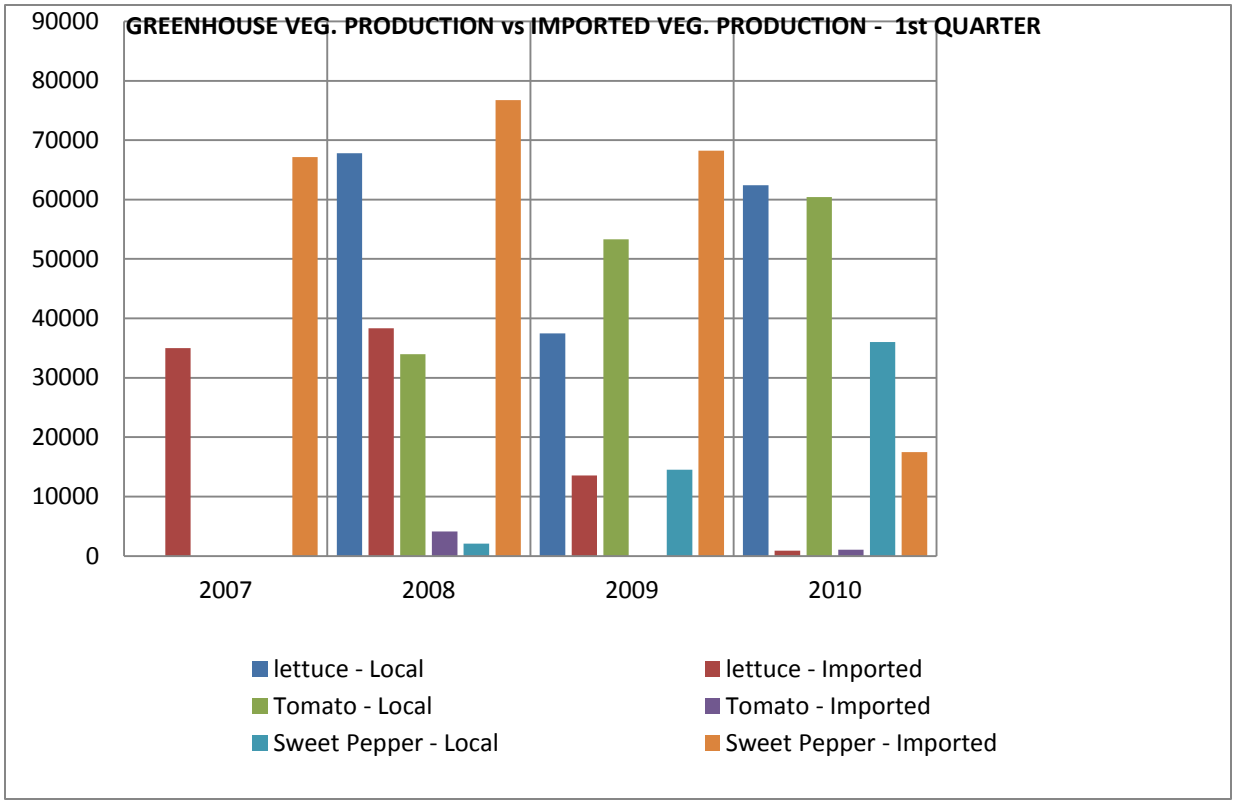

Figure 41 Potential for selected greenhouse vegetables to reduce demand for imports in Jamaica[34]

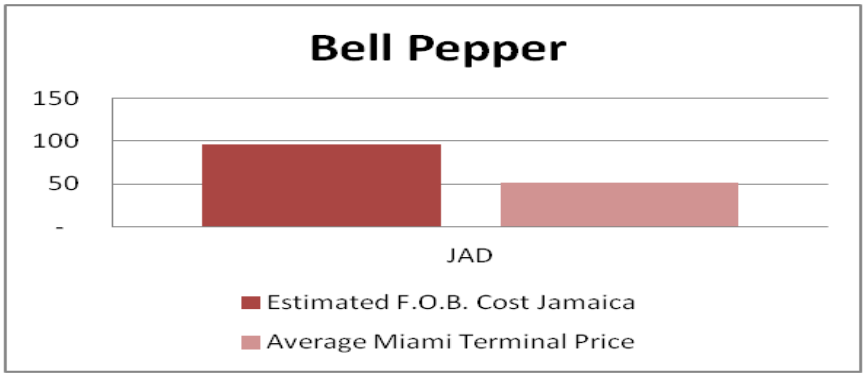

Figure 42 Transaction cost versus terminal price for greenhouse bell peppers exported from Jamaica to Miami, Florida

[34] Jamaica Green house Market Study (TCP/JAM3301) 2012

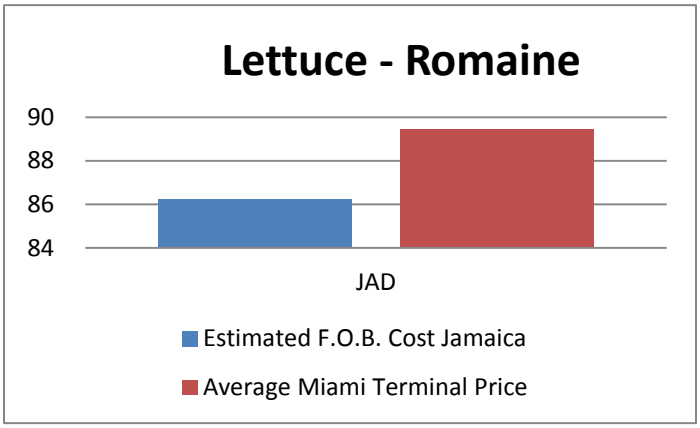

Figure 42 Transaction cost versus terminal price for greenhouse lettuce exported from Jamaica to Miami, Florida

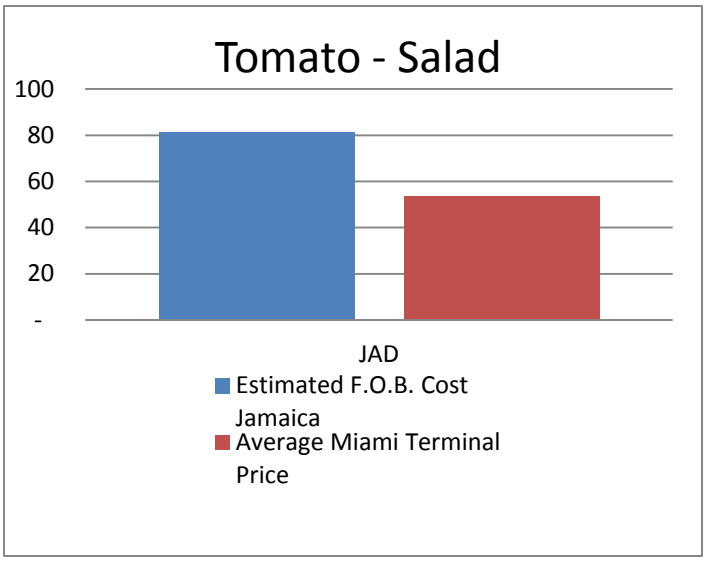

Figure 43 Transaction costs versus terminal price for greenhouse salad tomato exported from Jamaica to Miami, Florida

Livestock: The livestock sector is not well developed in small farming. Primarily small ruminants (pigs, goats and sheep) are reared. Rabbit rearing is also popular among small scale farmers more so for home use as the meat is not widely accepted in the sub-region. In many cases these small animals run freely on open lots during the day and they are brought back to a place of safety close to the household at nights. This place of safety may be another open area or a small covered shed. However some small farmers are now operating modern small livestock facilities (Figure 44 below). Also many small poultry producers operate under

contractual agreements with the large processors and usually have modern facilities with good access to SPS services and established feeding regimes.

Figure 44 Modern facility for goats established under MOA/EU/FAO in Jamaica

Use of improved genetic material: The use of improved genetic material among small scale farmers is more common among those rearing livestock such as goats, sheep and pigs. Some small farmers also have access to better quality seedlings from tissue culture and improved nursery facilities. However the majority of small scale farmers purchase improved hybrids seeds from the farmer's store, others access from the nurseries of the respective Ministry of Agriculture. In some of the countries such as Guyana, Dominica and Suriname the use of indigenous planting material is still practiced and encouraged, both for biodiversity conservation and for health reasons.

GAPs: Small farmers are exposed to the national capacity building programs in good agriculture practices. There is policy support for GAPs in nearly all the countries. However some crop farmers are challenged by the lack of on farm requirements for infrastructure for compliance. From time to time small farmers get ill from improper use of pesticides or from eating food contaminated with agri-chemicals in the field. Water is not always available on the farm for washing and sanitary facilities may be poor or lacking. Small scale farmers who market under

food certification programs with local buyers[35] do comply with standards and are often assessed and evaluated during unannounced visits by clients, but this is a small percentage of the population. Many farmers who sell in the open markets still place produce on the ground or transport in containers or vehicles which do not meet required food safety standards.

Figure 45- Famers receive training in GAPs under the Regional Food Security Project.

[35] Hotels, supermarkets, upscale restaurants

3 Markets and marketing arrangements.

Introduction: Most small scale farmers sell their produce in all of the segments of the domestic markets. Some have business arrangements as suppliers to exporters of fresh produce, including farmer networks, in the export of root crops and vegetables. Others continue to benefit from arrangements for traditional exports such as bananas and rice.

Domestic outlets: Domestic outlets for small farmers include village and urban open fresh produce markets, green groceries, periurban roadside markets, supermarkets, higglers and other middle men, hotels and restaurants and marketing boards. The reviews did not show any clearly identifiable markets. A few countries have experimented with farmers markets, some with support of the respective Ministry of Agriculture, but the success is unclear. The major concern appears to be the cost effectiveness as the farmers had to be transported to the site and sanitary facilities and other similar arrangements put in place.

Marketing arrangements include listed farmers, marketing cooperatives and farmers association. Small scale farmers however have not had the desired contractual arrangements with domestic markets. In response many farmers' associations have formed smart partnerships with the hospitality sector and the upscale supermarkets and have preferred listing status with these establishments. These partnerships include willingness of the farmers to participate in training sessions on GAPs through to certification endorsed by the Ministry of Agriculture and the Bureau of Standards. Through this process these same farmers are able to satisfy the private quality standard set by these upscale purchasers.

Payment arrangements: Payment arrangements and timely payments is a major issue for small scale farmers. As a result small scale farmers are involved in different types of payment arrangements, which will vary from cash on delivery, farm gate sales to extended credit over varying periods. Many small farms who sell to the upscale buyers use credit arrangements which are not always favourable to the farmers as they are often exposed to long delays before receipt of monies owing. The more organized farmers have been able to arrange buffer market credit arrangements. While there is not a strong preference by buyers to establish contracts with the local small scale farmers some very good relationships have been developed with a few corporate bodies, resulting in these buyers' willingness to assist their listed farmers with seeds and other inputs after a natural disaster, such as hurricane or flooding.

Other products marketed by small scale farmers: Some farmers grow ornamentals mixed with their crops or in separate plots while a few manage seedling nurseries. These are marketed to hotels, garden shops and housewives. Small farmers also offer services linked to their agro-ecosystems or their unique farm operations.

Services offered include agro forestry, agro tourism, and eco-tourism, tour guides, craft, small restaurants or processed foods linked to the farm produce such as fruit juices, cassava and other root crop products, as well as a range of coconut, cocoa and spice products.

Figure 46 Farm families receive training in solar drying of farm produce under FAO/SFA/Saint Lucia project.

Figure 47 Farm related processed products offered by small farmers in Grenada.

Figure 48 Craft and agro-tourism offered by small farmers in St Vincent and the Grenadines

4. Backyard gardens and small farming

The contribution of backyard famers to household food security has not been evaluated and published except for Antigua and Barbuda. This is despite the fact that several Ministries of Agriculture have dedicated substantive resources to promote and to provide technical support to the practice. Some of the common practices are shown below.

Figure49. Earth box technology introduced by FAO in Jamaica, Trinidad and Tobago and Saint Lucia[36]

[36] Courtesy of EarthBox Mexico www.earthboc.mx

Backyard gardening in used old tires in Saint Lucia

Backyard gardening in used Styrofoam packaging in Saint Lucia

Figure 50 Backyard gardening in Saint Lucia – World Food Day Competition

4. Problems and Constraints

Small scale farmers are exposed to all of the nine key binding constraints highlighted in the Jagdeo Initiative[37]. These constraints have been discussed in many forums in the sub-region and addressed in several CARICOM policy and strategy documents on the sector. The constraints may be more pressing among small scale farmers because of their weaker capacities to participate in technical assistance and capacity building programs. The situation worsens in the circumstances of farmers operating at subsistence levels. In this regard while the Common Agriculture Policy (2010) recognizes subsistence farmers in small scale farming, the document is almost silent on a prescription to transition this large grouping of farmers.

Three areas are identified below as needing special considerations for public and private institutional support.

Small farmers and the domestic markets: Small scale farmers are pursuing value chains as the preferred strategy to expand activities in domestic food marketing. As a result the value chain[38] approach is high on the agenda for small scale producers. The focus is on farmer organizational arrangements for strengthened capacities to define and map markets in commodity value chains. However as shown in Figure 51 below the demands of successful commodity value chains are complex and reach outside of the sector. Major challenges will emerge for Caribbean small farmer beyond the stage of mapping of products flow, which is normally where the extent of the programs in capacity building in commodity value chain development. In the absence of the approach taken by the FAO/MOA Greenhouse Market Study of earlier reference there has been an under recognition of the important role of financing arrangements and private and public support institutions support including those outside of the sector. These are institutions with which traditionally the majority of small farmers have had difficulties and failures to establish mutually satisfactory and lasting connections. In the absence of public policy and adequate public financing support for commodity value chains development, a formula will have to be reached at national or sub-

[37] Deficiencies in land and water issues; marketing, risk management, transportation, agriculture health and food safety, financing and investment, research and development, organization of the private sector, human resource development.

[38] A value chain can be defined as the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services),delivery to final customers, and final disposal after use.

regional levels to engage the support of relevant players outside of the sector, through organic and financing linkages.

The key constraints to overcome are small volumes, poor risk coverage and the unmanaged heterogeneity which defies any semblance of the desired levels of organized and consolidated enterprise approach in small farming. As a result to date attempts at value chains established on criteria as simple as branding for ***fresh*** have been short lived. Three important hurdles are recognized (a) the lack of willingness of off farm chain clients and consumers in the domestic market to pay more for quality and differentiation in domestic production(b) the growing tendency of wholesale and cooperate buyers to pursue shorter market chains through cooperative arrangements and (c) the unattractiveness of cooperatives to Caribbean small farmers. .

Figure 2

JAMAICA GREENHOUSE VEGETABLE VALUE CHAIN MAP

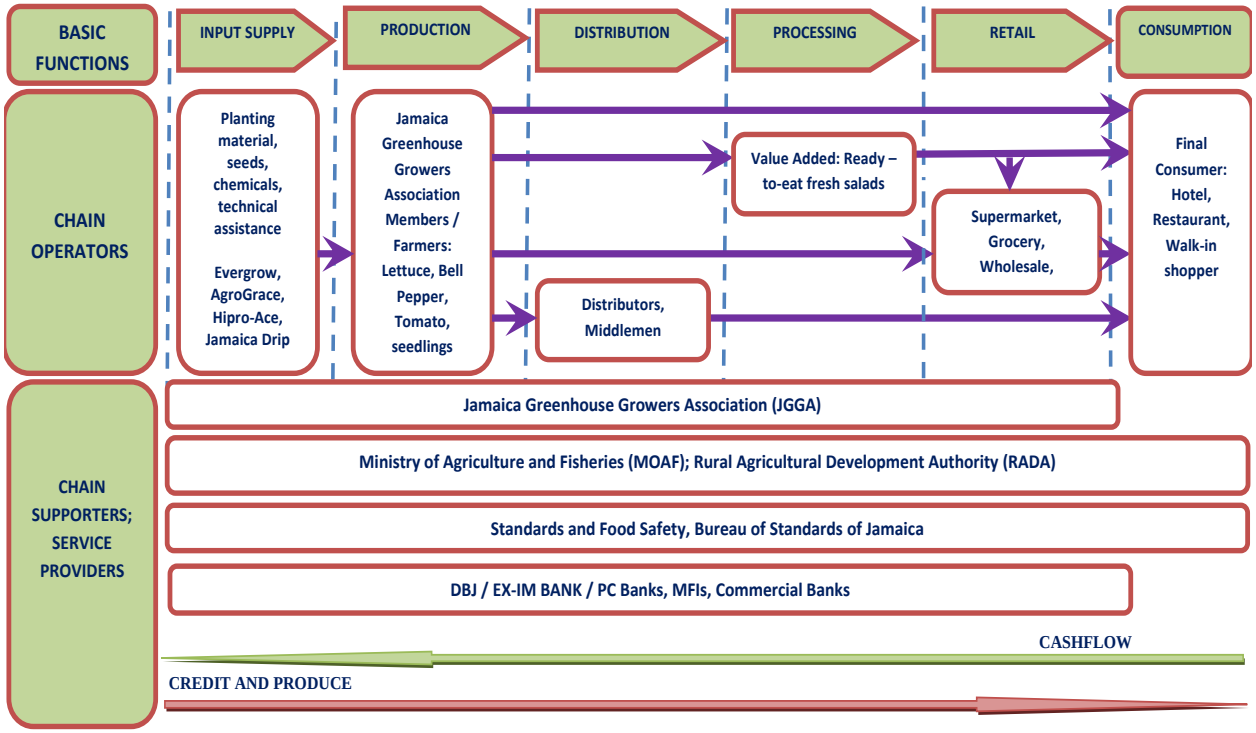

Figure 51 The value chain as presented from the market perspective[39]

[39] Adopted from Jamaica Greenhouse Market Study (TCP/JAM/3301) 2012

Domestic farmers including small farmers are also challenged by the type of competitiveness in the sub-regional domestic fresh food market, owing to the high levels of food importation. The model[40] below (Figure 52) was developed to explain the challenges to public policy proposals for enhancing international competitiveness in CARICOM Regional Transformation Programme for Agriculture[41]. While the intention was to focus on exports, the high levels of food importation being experienced in all of the sub-region except Guyana, Belize and Dominica coupled with the relatively high content and cost of agri-input present an intense domestic market situation not far removed from that presented in the model. As more fresh produce moving through supermarket chains and other importing wholesalers become evident in rural and urban food outlets, small farmers will need to reach for similar levels of efficiencies and resource capacities identified in the model, in order to survive in the domestic market. In this manner small farmer will require technical assistance to identify and phase priority areas in order to achieve short to medium term results with longer term sustainability.

Raw materials imported for food industries also compete with the outputs of small farmers for the same reasons. Domestic production efficiencies are low and costs are high, as are market efficiencies and effectiveness and resource quality and quantity. As already indicated there is much that is required in terms of public physical and institutional infrastructure to address the issues of land and water for agriculture and for intra-island transportation. Value-added will require inter-sectoral arrangements, including from outside of the sector. Financial and technical resources from development partners as well as public/private sector incentives will need to be increased or reorganized with time based targets. While the demands may seem overwhelming, this population of farmers represents almost 90% of the food producers of the sub-region, whose household food security, livelihoods and contribution to national food security must be preserved over the longer term. The longer term capacity of small farming to function well in production and marketing systems of the sub-region could determine the extent to which many rural families will participate in the goals of the HFLACI.

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[40] CARICOM RTAP Competitiveness Study 2007

[41] Include papaya, hot peppers, coconut, sweet potatoes and small ruminants

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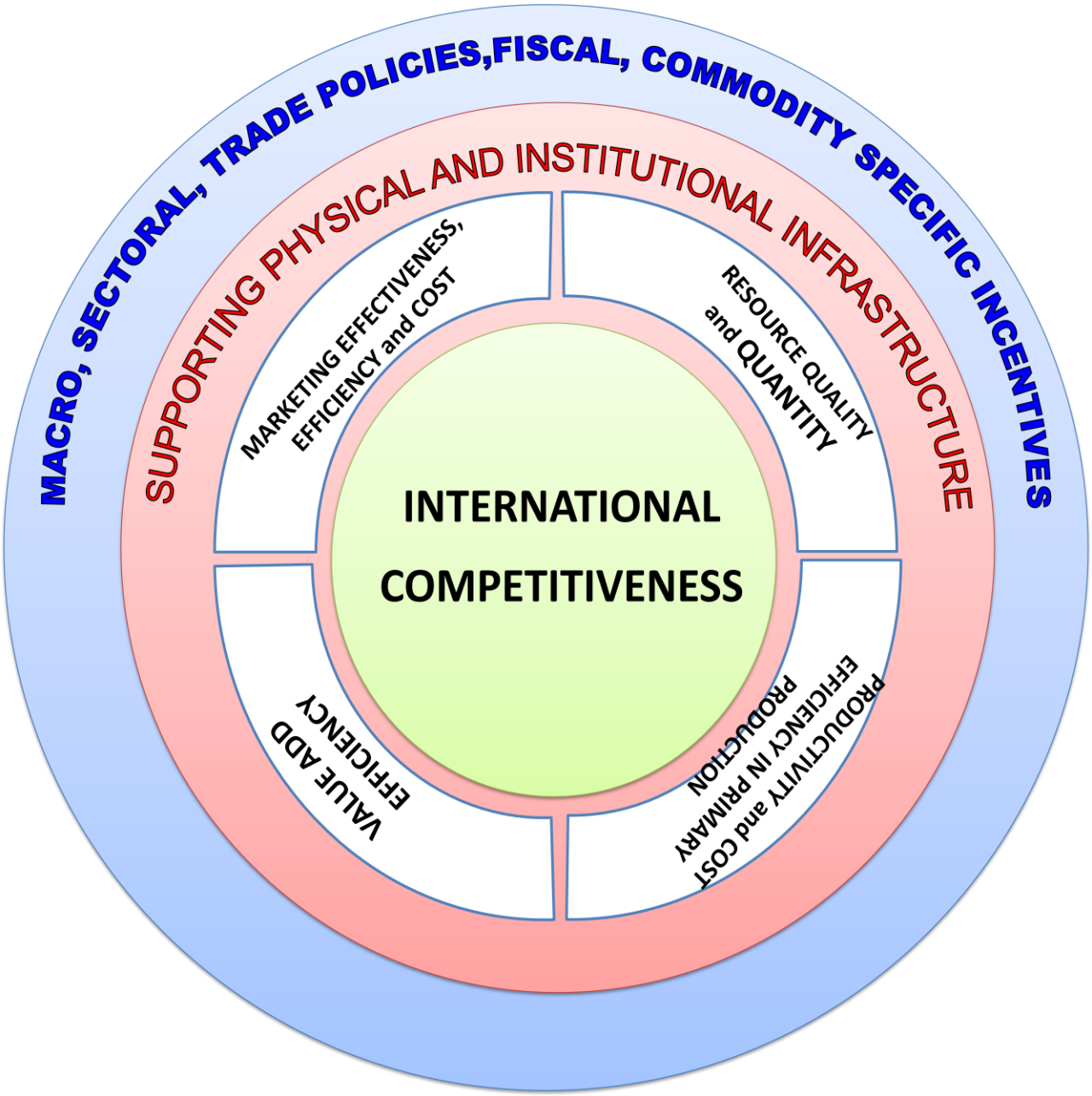


Figure 52 Model of the competitiveness – in CARICOM RTP[42]

[42] Adopted from The CARICOM REGIONAL TRANSFORMATION PROGRAMME FOR AGRICULTURE: Competitiveness Study: Policy proposals for enhancing International competitiveness. Report Prepared for the CARICOM Secretariat 2007.

Risks experienced from natural disasters and praedial larceny. Small-scale farmers are exposed to the frequency of hurricanes, variability in rainfall patterns and extended droughts. There is limited access to irrigation and to praedial larceny poses a serious risk to all types of farmers. The impact of hurricanes on farming in this sub-region and the wider Caribbean is well established. In addition small scale farmers experience serious loss of harvest in crops, livestock and fisheries including freshwater aquaculture from theft (praedial larceny) (Figures 53 &54).

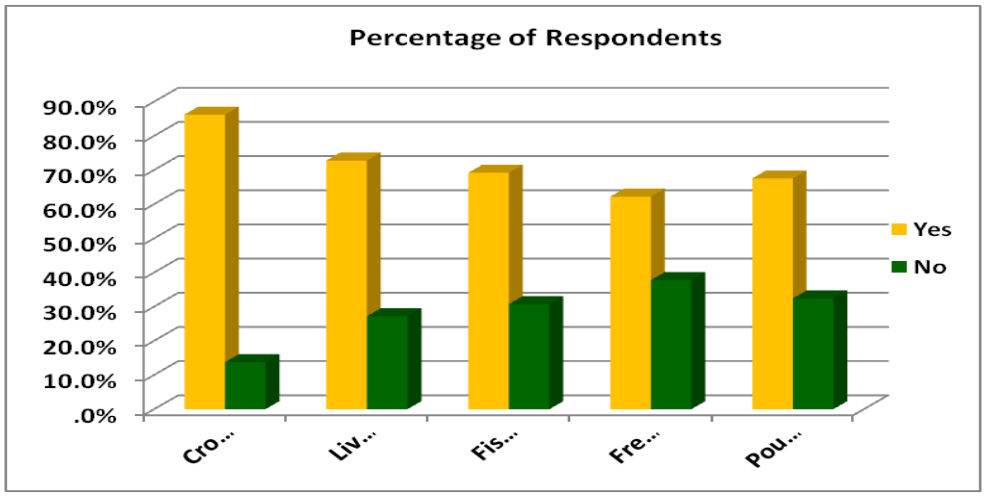
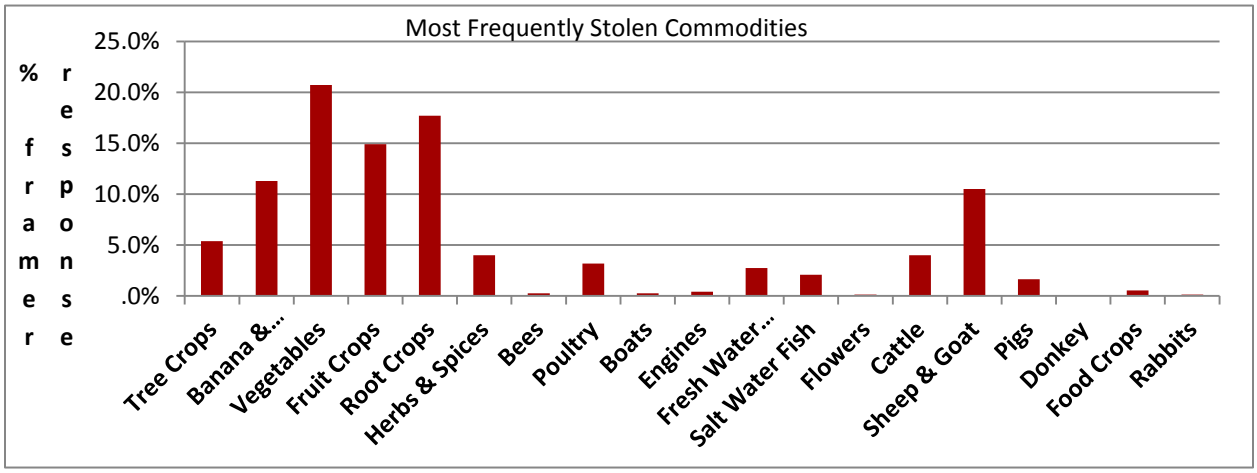


Figure 53 Frequency of praedial larceny in the sub-region according to crops[43]



Figures 54 Theft of harvest from all farmers in the sub-region

[43] Adopted from FAO/CDEMA – Analysis of the State of Praedial Larceny in Member States of CARICOM

Most of the countries have praedial larceny prevention legislation in place but the problem persists. Small farmers are more vulnerable to theft as they often live distances away from the farm and many do not have protective fencing, cannot afford guards and often animals are let loose in communal pastures or left in the field where they are preyed upon at nights. As seen above crops, in particular vegetables and rootcrops are frequently stolen, but everything that can be harvested is threatened. Many framers also experience theft of agri-inputs, equipment including fish equipment and machinery. Development of integrated risk mitigation policies and legislation, including agriculture insurance should benefit small farmers. However the discussions on-going in the sub-region suggest that implementation will require substantive public financing perhaps beyond the means of current national budgets. In this regard small farmers continue to operate under the threat of losing a part of and sometimes the entire harvest to praedial larceny.

5. Major initiatives at national and sub-regional level in support of sustainable development of small scale farming:

Small scale farming is expected to benefit from the major policies and programs of the sub-region that impact agriculture but perhaps with some upscale in methodologies.. Most of the benefits are in capacity building to enable participation and listed below:

Policy	Objective
The Regional Food and Nutrition Policy and Action Plan (2011)	To strengthen agricultural production, marketing systems and enterprises including building up institutional capacity to support their development. To improve the capacity of policy and programme frameworks for managing key threats to food security. To promote the consumption of safe and nutritious food. To ensure stability of food supplies.
The Common Agriculture Policy.	The policy supports several issues of interest to small farming including innovative approaches to agriculture credit production (credit and market credit), risk management and disaster, agriculture research and quality control, extension services, value chains and agri-business.
The OECS Agriculture Revised Plan of Action (2011).	Incentives regimes to encourage transition of rural population from poverty and vulnerability poverty. Develop OECS guidelines for agro tourism. Long term access to water for value chains. Early warning systems to build resilience against hurricanes heavy rains an drought in rural/farming communities.

Strategy	
CDM Strategy and Program Framework 2007-2012.	Enhanced institutional support for CDM Program implementation at national and regional levels. An effective mechanism and programme for management of comprehensive disaster management knowledge has been established.
Strategic Action Plans for Sustainable Land Management.	Disaster Risk Management has been mainstreamed at national levels and incorporated into key sectors of national economies (including tourism, health, agriculture and nutrition). Enhanced community resilience in CDERA states/ territories to mitigate and respond to the adverse effects of climate change and climate variability.
Caribbean Invasive Species Working Group [1].	Land degradation and water resources management and the Work plans (2012-2013) under the Caribbean sub-region. [2] PISLM. The program which monitors invasive agriculture species and provides products and services for the management o f incidences.

Projects	
International Fund for Agricultural Development (IFAD) Guyana	Rural Enterprise and Development (READ) Project: This project started in 2009 and is aimed to: (i) offer support and assistance to resources poor producers and rural households; (ii) improve rural incomes by directing improved production activities, including non-agricultural production enterprises, towards existing marketing opportunities;(ii) strengthen linkages between rural producers and service providers involved in the production and diversification efforts; and (iv) integrate improved technologies in the production and marketing supply chain for agriculture and non-agricultural based enterprises.
Canadian International Development Agency (CIDA) Jamaica	This project is being implemented by the Government of Jamaica. Two main components include assistance to establish greenhouse technology involving clusters of a number of small farmers in close proximity to packaging facilities and assistance to small scale fishing. Project known as Promotion of Regional Opportunities for Produce Enterprise and Linkages (PROPEL) funded under the Canadian Hunger Foundation will enable farmers to increase quality of fresh fruits and vegetables and help link to producers to domestic market in Jamaica, Trinidad and Tobago, Saint Lucia, St Vincent and the Grenadines, Dominica, Barbados and Guyana.

[1] The membership of the CISWG includes Caribbean region, hemispheric and international agriculture organizations including FAO, and in this manner facilitates access by all the FAO Caribbean countries to the products and services of CISWG.

[2] The PISLM membership includes all the countries under the FAO/SLC.

6. Role played by major farmers associations and other institutions in small scale farming:

Introduction: The sub-region is not well known for strong agriculture cooperatives in production, marketing and financing. The sub-regional farmers associations active in production and marketing include the Caribbean Network of Fisherfolks Organization, Caribbean Farmers Network and Windward Islands Farmers Association. All the countries have National Farmers Association, which are also involved in production and marketing services. Institutions involved in financing of small farming include the NGOs which provide rural financing and the credit unions. Some of these NGOs are well known for successes in major rural development projects and for managing financing from development agencies.

Some of the major players in the production and distribution of small scale food production and products include the following;

NAMDEVCO: The National Agriculture Marketing and Development Company in Trinidad and Tobago has developed the most modern NAMIS in the sub-region providing real time access to critical information needed by the sector to assist agri-entrepreneurs to make informed timely decisions. In 2010 the system was already serving some 78000 farmers in the country. The system provides easily accessible information on current production data and main crops of its registered farmers, historical trends; daily wholesale prices and production forecast data and cost of production models for main crops. It is first and foremost a quality assurance for traceability as well as for risk assessment. The system has accommodation for crop numbering for all commodities traded, to include crop number, farm number using a consecutive number for each farm and crop. All farmers who sell in the farmer's market must belong to the farm certificate program. NAMDEVCO has shared the system in other countries in sub-region including Saint Lucia, Jamaica and Guyana.

CaFAN: The Caribbean Farmers Association Network represents some 500,000 small scale farmers mainly crops in the sub-region across 12 countries. The Network headquartered in St Vincent and the Grenadines provides farmers with services in production, marketing, risk management, organizational management, resource mobilization and access to participation in national sub-regional and international forum of interest to small farmers.

Marketing Boards: Marketing Boards have been important institutions in the countries serving primarily small scale farmers in crops, livestock and fish. Among the most successful is the DEXIA in Dominica and the Grenada Marketing and Import Board. While marketing boards are expected to assist farmers both in domestic marketing and the bulking of produce for exports there are not many success stories in the sub-region.

WINFA: This Association of Caribbean Farmers provides support to organizational and programme initiatives of farmers and farmers association and agro-processors in the sub-

region. The Association seeks alternative livelihoods of farmers through Fair Trade initiative and agro-processing, build capacities on global and agricultural related issues represent small farmers at the policy level and objectively pursue mainstreaming of gender issues in its programs.

National Farmers Associations: There are many strong national farmers association networking at national and, intra-regional and national level to assist small scale farmers to market their produce and to transform into commercial enterprises. Among them are the National Farmers Associations in Guyana, Trinidad and Tobago, Barbados and Jamaica. Within these national organizations are commodity organizations and farmers association which provide services in quality control, bulking, negotiating with buyers in the domestic markets such as the hotels and supermarkets.

Other bodies would include groups in Jamaica such as ACDI/VOCA and the Environmental Foundation of Jamaica.

Major cooperatives in finance: In general the sub-region does not have any major cooperatives involved in financing of small scale agriculture. People's Cooperative banks and Credit Unions are important in extending credit to members for agriculture purposes in some countries. There are also several not for profit NGOs managing funds entrusted by external sources involved in small scale farming and other rural livelihood activities in the countries. Some of the well known organizations and which have performed with high levels of credibility include GRENCODA, Agriculture for Rural Development Grenada, National Development Foundation in Saint Lucia, Small Projects for Agriculture Transformation in Dominica, Gilbert Agricultural and Rural Development Centre in Antigua and Barbuda, and Projects for People in Jamaica,

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