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**THE COMMODITY SYSTEMS APPROACH TO SUSTAINABLE AGRICULTURAL DEVELOPMENT IN ST. VINCENT AND THE GRENADINES WITH REFERENCE TO SPECIFIC CROPS—CHALLENGES AND OPPORTUNITIES**

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**ABSTRACT:** This paper explores the practical application of the commodity systems approach to agriculture in St Vincent and the Grenadines with specific reference to hot pepper, dasheen and sweet potato. The analysis of the forward and backward linkages among the researchers, producers and the marketing agency led to targeted interventions that resulted in the selection of suitable varieties, increased production, improved quality, expanded markets and increased revenue for the agricultural sector. These results are expected to form a platform for the implementation of this approach to the development of other competitive agricultural commodities through expanded production, targeted marketing and the introduction of value added products.

**INTRODUCTION**

The total land area of St. Vincent and the Grenadines (SVG) is estimated at 38,785 ha, and of this amount some 7,202 ha is currently used for agriculture (National Agricultural Census, 2000). The agricultural sector contributed 10.6% of GDP in 2000, and its performance has been directly linked to trends in the banana industry. Changes in the international trade milieu, globalization, trade liberalization and erosion of market preferences and shares have led the Government of SVG to promote agricultural diversification and tourism.

The major components of the Government's agricultural diversification policy framework include export development, food and nutrition security and import substitution (Agricultural Diversification Plan, 1997). In this context, a number of priority commodities were selected on the basis of their measure of competitiveness in extra-regional, regional and/or domestic markets.

The priority crops of importance include: Fruits –mango, citrus, golden apple; Root crops -dasheen, eddoe, sweet potato, yam, tannia, cassava, arrowroot; Vegetables –tomato, cabbage, sweet pepper, hot pepper; Food crops –cowpea pigeon pea, peanut, maize.

In the face of globalization and free trade markets, the potential for production, marketing and utilization of these commodities in SVG can be further developed when the tried and proven Commodity Systems Approach (CSA) is employed. A commodity chain entails tactical interventions at critical nodes of the commodity chain to attain simultaneous development of production, services and marketing.

The methodology produces the following outputs:

- A description of the commodity system, identifying the principal components of the system and major participants and their roles;
- Identification of the priority problems with each component of the commodity system and their causal relationships;
- Identification of possible solutions to the problems and their order of priority;
- An adequate database to identify project ideas and prepare project profiles (La Gra, 1990).

Figure 1 illustrates the different types of participants functioning at diverse points in most commodity systems. The system, which is a consortium of farmers, marketing intermediaries (transporters, exporters, etc.), Ministry of agriculture and research institutions, farmers' organizations and marketing boards, reflects a team approach to problem identification and solving. The dynamic interaction of participants in their respective roles defines the limitations and determines the viability of the process. The commodity system can be sustainable when agro-industry participants and farmers realize profits upon supplying goods and services to their respective markets within the system.

The specific results include one or all of the following:

- Enhanced crop husbandry practices and production levels,
- Enhanced quality of the product,
- Developed and improved access to markets at the local, regional and international levels,
- Improved institutional delivery services to farmers,
- An enabled private sector, especially traders and exporters, to support farmers in producing commodities that have high market demand,
- Improved responsiveness of policy to smallholders' needs,
- Empowerment of farmers,
- Improved farmers associations that are business oriented.

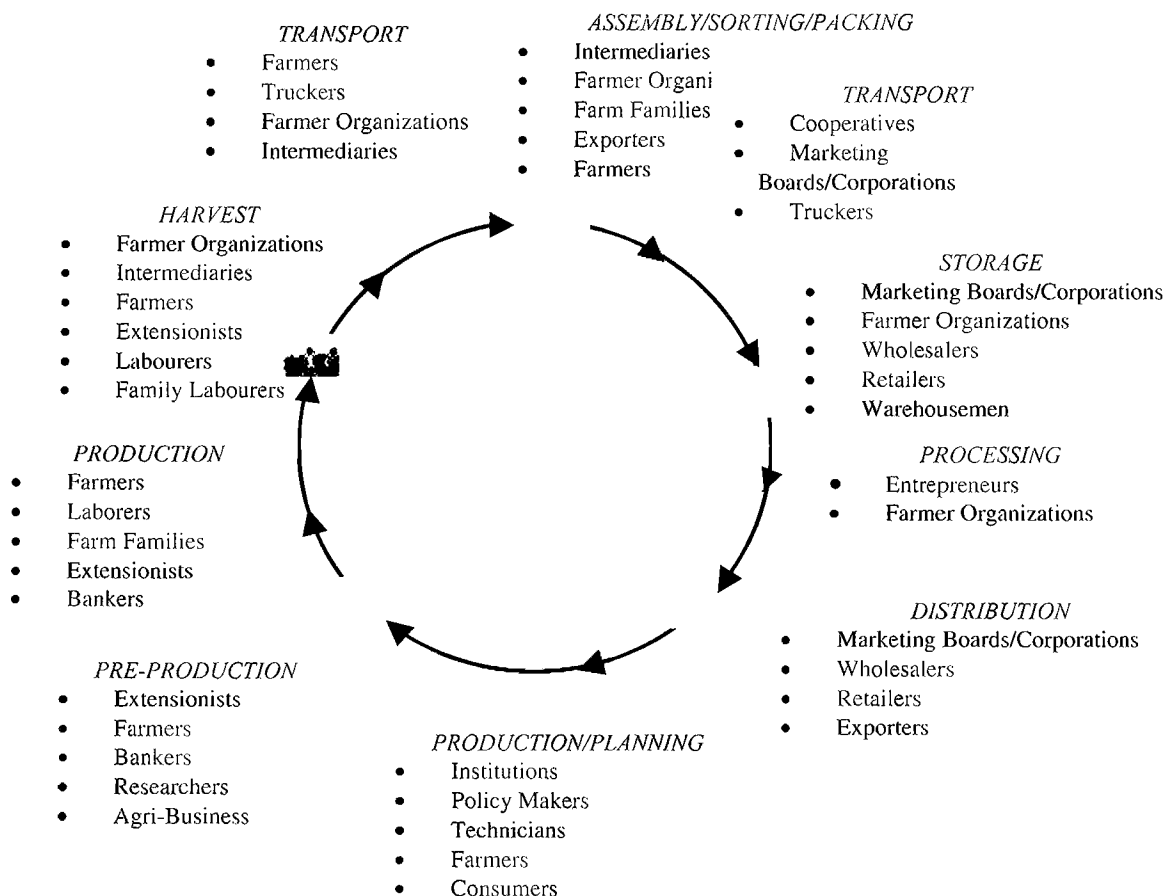
The CSA was successfully utilized in support of the agricultural diversification programme in SVG for the production and export of dasheen. In 1998 a working group on dasheen production and marketing was established to execute the phased establishment of 180 acres of dasheen. The participants of the group included representatives from the Ministry of Agriculture, the Inter-American Institute for Cooperation on Agriculture (IICA), St. Vincent Marketing Corporation (SMC), National Farmers Union, the Caribbean Agricultural Research and Development Institute (CARDI), Development Corporation (DEVCO) and other cooperating institutions. Activities within the work plan and the agencies responsible for its execution are outlined in Table 1.

Through the CSA, there has been a steady increase in the production and marketing of dasheen in SVG. The export volumes moved from 1,479,013 kg in 1998, to 1,621,125 kg in 1999, and a high of 2,137,331 kg in 2000. This approach was applied to hot pepper and has led to major improvements in the performance of the commodity chain.

Table 1. Work plan of the working group on dasheen production and marketing in SVG.

Objective	Activities	Responsible
Schedule phased establishment of 180 acres of Dasheen. Jun.–Dec.1998	Identification of suitable agro-economic zones for dasheen production.	MOA, CARDI, Exporters
	Meeting of farmers at district level in identified areas to encourage dasheen production.	Working Group
	Mobilization of resources (farmers, land, etc.) to establish 180 acres of dasheen at the rate of acres per month.	MOA
	Selection, rapid multiplication and distribution of suitable planting material.	MOA, CARDI, IICA
	Technical Support to farmers and monitoring of production.	MOA, CARDI, Exporters
	Training workshops in dasheen production, harvesting and post harvest handling (farmers and extension officers).	MOA, IICA, CARDI
	Field tours, local and regional (farmers and extension officers).	MOA, IICA, IFAD
	Training workshop in post-harvest handling and packaging (extension officers and exporters).	MOA, CARDI, IFAD
	Project promotion and dissemination of market information.	IFAD, MOA, Exporters
	Harvest and export.	Farmers, Exporters
Maintenance of database in dasheen production.	MOA	

Figure 1. Participants in the commodity system. (Source: La Gra, 1990)



## CASE STUDY: HOT PEPPER (*CAPSICUM SPP.*) PRODUCTION AND MARKETING IN ST. VINCENT AND THE GRENADINES

Hot pepper is of special interest to every CARICOM country as it is viewed as an export crop of considerable potential in the international markets of Europe and North America. According to Stewart and Fletcher (2000), the major exporters in the region are Jamaica, Trinidad and Tobago, and St. Lucia, with smaller volumes from Barbados, Dominica and Belize. Regional exports of hot pepper, fresh and processed, from 460 tonnes in 1991 to 3416 tonnes in 1997, with 99% exported to extra-regional markets. Concomitantly, a significant amount of hot pepper products (pepper sauce, ground/crushed pepper, etc.) are imported into the region, primarily from countries in Asia and Latin America. Imports in 1995 were 954 tonnes, 1193 tonnes in 1996 and 763 tonnes in 1997. St. Vincent and the Grenadines contribute a limited volume of hot pepper, fresh and processed, to total CARICOM exports.

The major export markets for fresh hot peppers from the Caribbean exist in the United States, Canada and the United Kingdom. The total imports of US fresh hot peppers have consistently grown over the past 5 years. In 2001, imports totaled over 150,000 MTs valued at \$181 million with almost 99% of imports from Mexico. Stewart and Fletcher (2000) reported that Caribbean countries account for 0.3% of the US imports of fresh and chilled peppers, 5% of the UK imports of fresh hot pepper and less than 0.5% of the Canadian fresh hot pepper. Caribbean producers are able to compete on the basis of product differentiation and by focusing on niche markets comprising people of Caribbean origin who generally prefer Caribbean varieties of hot pepper.

The ethnic populations in the UK and US have also driven the demand for hot peppers, and importers believe that their crossover into mainstream consumer market is both real and sustained. Apart from exposure to ethnic dishes (Indian, Caribbean, and Latin America) in their own country, other factors that have led to this development include international travels abroad and exposure to new ingredients via popular gourmet television programs. In addition, a lesser reported trend in the US is the use of hot spices and ingredients to add more flavors to relatively bland foods. CARICOM countries and specifically St. Vincent and the Grenadines can capitalize on the increasing markets for hot pepper, both fresh and processed, and those niche markets comprising peoples of Caribbean origin.

St. Vincent and the Grenadines have produced and exported relatively small quantities of hot pepper during the 1990s. The quantity of annual exports from 1997-2001 is shown in Table 2. During this period, 1998 had the highest quantity and value exported, 189,536 kg and EC\$122,526, respectively. This coincided with the execution of the IFAD Project when a task force was formed comprising the MAF, CARDI, IICA, SVMC, and farmers. This was not sustainable after the closure of the Project resulting in decreased yields.

Table 2. St. Vincent and the Grenadines total exports of hot pepper and hot pepper products from 1997 to 2001.

Year	Quantity (kg)	Value (ECS)
1997	43,698	31,313
1998	189,536	122,526
1999	80,016	88,901
2000	49,416	39,644
2001	3,461	2,233
2002	207,905	124,836
2003 – First Quarter	98,531	137,830

Source: Ministry of Agriculture, St. Vincent and the Grenadines

## IDENTIFICATION AND DESCRIPTION OF THE PROBLEM

The hot pepper industry in St. Vincent and the Grenadines from 1991 to 2000 was characterized by low production, and demonstrated limited response to the demands of the market. In 1995 an export market was identified for fresh hot pepper from SVG by the FAO Project via the Agricultural Diversification Co-operation Unit of the OECS based in Dominica. The St. Vincent Marketing Corporation was given the responsibility for the export marketing and the Ministry of Agriculture, Lands and Fisheries was given the responsibility to implement the production program.

The problems were identified in the following areas:

1. Planning
  - a. Unavailability of credit
2. Production
  - a. Lack of proper irrigation systems
  - b. Poor quality and inadequate seedling supply
  - c. Inadequate supply of production inputs (fertilizers, pesticides, fungicides, etc.)
  - d. Low yields
  - e. Pest and disease problems (mites)
  - f. Inadequate post harvest infrastructure
3. Marketing
  - a. Under utilization of markets
  - b. Inability to consistently supply produce in the quantities and quality demanded by the market

## FORMULATION AND EXECUTION OF THE SOLUTION

A commodity systems approach was adopted in 2001 with the formation of a National Integrated Marketing and Production Strategy Task Force (NIMPS). A fifteen-member hot pepper task force committee was appointed, drawn from the St. Vincent Marketing Corporation, Ministry of Agriculture Lands and Fisheries, Inter-American Institute for Cooperation on Agriculture (IICA), the Caribbean Agricultural Research and Development Institute (CARDI) and other collaborating institutions.

The key members in this commodity chain and their functions are hereunder listed:

1. The Ministry of Agriculture Lands and Fisheries
  - a. Research and Development
  - b. Extension Division:
    - i. monitoring production practices
    - ii. identification of pest and disease problems
  - c. Communication Division – Dissemination of information to farmers via radio programs, fact sheets and newsletters
2. Mission Taiwan
  - a. The production of high quality seedlings
3. CARDI
  - a. Provide certified seeds for seedlings production
  - b. Conduct research on the agronomy of hot pepper
  - c. Demonstrate improved production practices
  - d. Selection of suitable varieties for the export markets
4. St. Vincent Marketing Corporation
  - a. The Marketing Corporation entered into contractual arrangement with farmers to provide a guaranteed price and markets for hot peppers
  - b. This arrangement also ensures that farmers produce varieties that meet with market requirements and production synchronized with periods of high price and demand for hot pepper
  - c. The provision of credit for agricultural inputs
5. National Development Foundation (NDF) and Credit Unions
  - a. Credit to farmers for startup activities
6. Farmers
  - a. Production and marketing of hot peppers

## METHODOLOGY

The major elements of this approach included the establishment of a multidisciplinary task force to critically assess the commodity chain with respect to backward and forward linkage and to elucidate the constraints arising therefrom. A series of interventions were arrived at and each agency was given responsibility to execute the constituent activities. Regular meetings were held to monitor and evaluate the composite interventions.

## RESULTS

### QUANTATIVE INDICATORS OF THE SUCCESS OF THE CSA

Exports began in 1995 with weekly shipments of 4500 lbs. (2045 kg) from November 1995 to April 1996. The variety cultivated from 1995-2001 was the West Indies Red. However, to meet the changing market demands, varieties which are dark green at maturity were also planted in 2002.



At the start of the program in 2001, some 15 farmers were involved in hot pepper production. There was a 10 fold increase in the number of farmers from inception to 2003 and almost a 20 fold increase in the production acreage from 33/4 in 2001 to 65 in 2003 (See Table 3). The export of hot peppers from the St. Vincent Marketing Corporation also showed dramatic increases after the implementation of the Commodity System Methodology in 2001 (Table 4).

Table 3. Number of hot pepper farmers and acreage under cultivation during the implementation of the Commodity System Approach.

Years	Number of Farmers	Production Acreage
2001	15	3.75
2002	65	28
2003	150	65

Table 4. Hot pepper exports from the St. Vincent Marketing Corporation (1994-2003).

Year	Quantity (kg)	Value (EC\$)
1994	253	604
1995	369	1,140
1996	861	3,027
1997	2,121	8,315
1998	1,076	46,999
1999	29	137
2000	80	308
2001	508	1,803
2002	32,106	112,424
2003 (January – June 16)	123,339	392,632

## INTERVENTIONS ALONG THE COMMODITY CHAIN

Critical nodes along the commodity chain	Changes
Production/Planning	<ul style="list-style-type: none"> <li>- improved understanding of the roles of participants along the commodity chain</li> <li>- increased access to information on production and marketing</li> <li>- greater availability of credit facilities to farmers for agricultural inputs</li> <li>- empowerment of farmers and increased levels of farmer participation in the hot pepper industry</li> <li>- better planning of production activities to meet the demands of the market</li> </ul>
Production	<ul style="list-style-type: none"> <li>- better quality seedlings</li> <li>- introduced varieties from Trinidad (Faria and Hood), CARDI green, Scotch Bonnet, Orange Habaneros, Yellow Santa Fe, Fresno, Cherry to meet with the changing demands of the market</li> <li>- improved delivery and timeliness of extension services to farmers</li> <li>- improved crop husbandry practices with better agricultural inputs</li> <li>- better quality produce and increased yields</li> </ul>
Harvesting and Post harvest	<ul style="list-style-type: none"> <li>- improved harvesting techniques</li> <li>- improved post harvest handling, sorting and grading</li> </ul>
Marketing	<ul style="list-style-type: none"> <li>- greater responsiveness to the demands of the market for quality and varieties of peppers</li> <li>- Guaranteed price and market for farmers produce</li> <li>- Identification and penetration into new niche markets</li> </ul>
Distribution	<ul style="list-style-type: none"> <li>- improved handling, transport and marketing of produce</li> </ul>

## CONCLUSION

The success of the Commodity System Approach was evident by overall improvements in production and marketing of hot peppers. This is exemplified by the increased participation of farmers and the proven success of the dasheen and hot pepper industries. Currently the Task Force Approach is being applied to sweet potato production. Given the thrust towards agricultural diversification, this method and its application will continue to hold great promise for the viability of the agricultural sector in SVG. The introduction of value added products could also be the catalyst for the expansion in production and utilization of these crops.

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