

Free Trade and the Development of Sustainable Agriculture in the Caribbean



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LC/CAR/L.19
6 August 2004
ORIGINAL: ENGLISH

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Abstract

This study examines the options for Caribbean countries in pursuing development of their agricultural sectors given the changes taking place in the international economy. The most significant of these changes is the liberalization of the trading regimes for primary agricultural products, in particular banana, by the European Union. This has serious implications for small Caribbean countries that rely on exports of one or a few commodities and are unable to compete in free markets. However, countries could reposition their agricultural sectors to take advantage of export niche markets and/or growing regional and tourism markets. The approach examined and recommended, based on case studies in selected Caribbean countries, is sustainable farming using organic methods of production. This type of farming sustains the livelihood of farming communities as well as preserves the environmental resources. To be successful, the approach would require policy and institutional support especially for small-scale farmers, as this method of production is knowledge intensive, requiring access to information and management capability.

1. Introduction

Caribbean economies evolved from export-oriented plantation agriculture based on slave labour and the production of sugar as the primary export commodity. After the abolition of the slave trade in 1807, and of slavery itself in 1838, plantation agriculture (sugar cane) production declined. In the mid-nineteenth century, sugar cultivation was further affected by the development of free trade in Great Britain and the abolition of protective sugar duties in 1856. The United States then became the principal market for West Indies sugar. The problems of the Caribbean sugar industry were the focus of the British-appointed Royal Commission in 1897, which recommended, among other things, diversification into alternative export crops. The result was the development of crops such as coffee, cocoa, bananas, ginger, nutmeg, arrowroot, rice and citrus. Nevertheless, sugar and bananas (and rice in Guyana and Suriname) have remained dominant agricultural export products. The dominance of these products has been facilitated by preferential access to the markets of the European Union (EU).

The dependence on export earnings from agriculture determined to a large extent the nature of agricultural production systems. The plantation system was the model on which the development of the sugar industry was based. Alongside plantations were small peasant farms established by freed slaves on marginal lands producing subsistence crops. The need to increase agricultural production for domestic consumption led to land distribution through the division of plantations on marginal lands and, hence, the development of peasant farming systems. Nevertheless, peasant holdings constituted only about 20% of arable land.

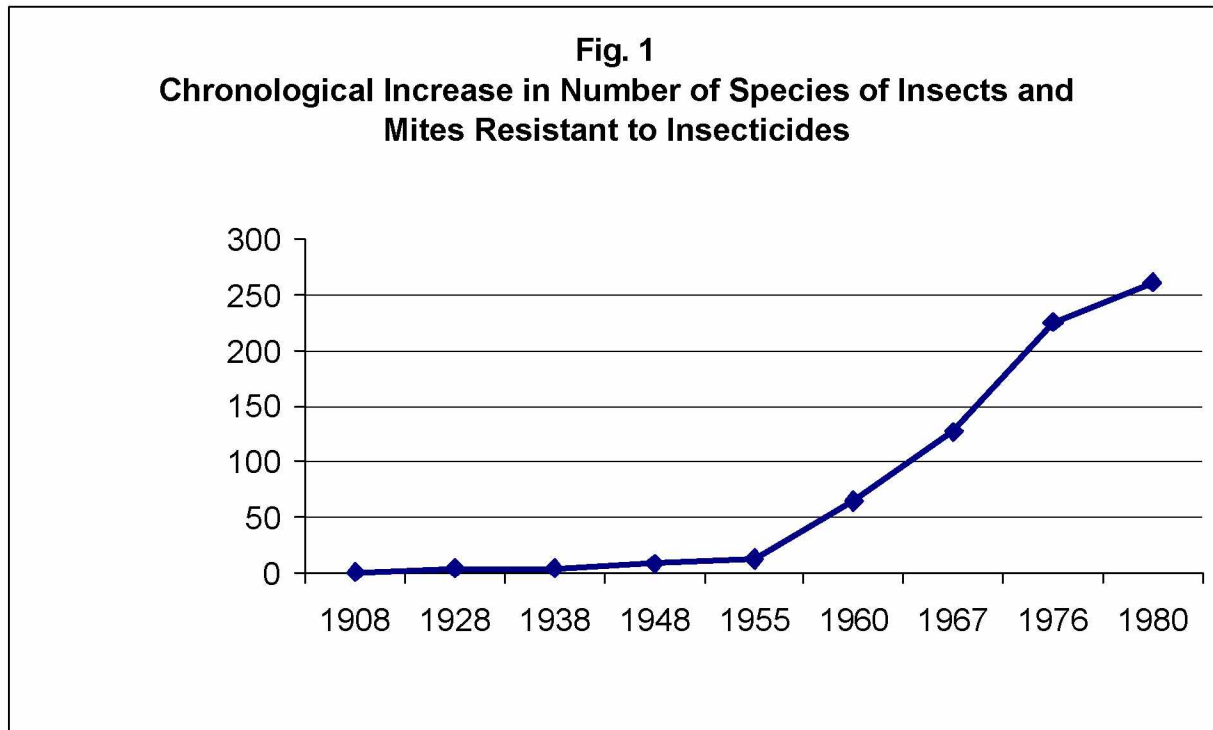
The two agricultural systems differed significantly in terms of resources (land, labour and capital), scale of production and specialisation. The plantation system was characterized by large-scale production units on fertile land using significant inputs of hired labour and specialising in mono-crops mainly for export markets. These units also had significant access to financial capital and were major beneficiaries of research programmes. On the other hand, the peasant system was characterised by small-scale production units on infertile, mainly marginal, land relying heavily on family labour and indigenously-owned resources to produce multi crops mainly for domestic markets.

The agricultural practice (prior to 1960) of large-scale, mono-crop cultivation with limited soil amelioration practice resulted in extensive soil depletion by the mid-twentieth century. The long period of plantation sugar production had resulted in extensive deforestation, which was only exacerbated by peasant farming of areas that were not previously under cultivation. The shift to banana cultivation also contributed to the loss of biodiversity. Although the sugar cane plant had a positive effect on land because of its soil binding quality, the single crop cultivation had an adverse effect because of nitrate depletion. The banana plant, on the other hand, has poor soil binding quality and contributes to potassium depletion in mono-crop cultivation.

The decline in soil fertility and the lack of increase in arable land especially in the island economies resulted in intensive production from the 1960s as countries sought to maintain and/or increase export earnings. Significant quantities of artificial fertilizer were used to improve soil

fertility and maintain crop yield, which was reflected in increased agricultural production during subsequent decades. Significant reliance on chemical pesticides was also developed on account of past agricultural practice, which resulted in the growth of pest population. Pesticide imports and use increased significantly over the three decades since 1960, despite legislation that was enacted to control the importation, storage, manufacture, sale, use and transportation of pesticides.

Caribbean agriculture has benefited from the use of agro-chemical pesticides and fertilisers in terms of crop protection and the addition of soil nutrient for increasing food production. However, Caribbean countries are faced with the problem of abuse and misuse of these chemicals. Farmers' misuse of agro chemicals has a negative effect on both humans and the environment such as occupational diseases, accumulation of pollutants in the ecosystem and impairment of agricultural productivity. The Caribbean is also faced with the problem of increased pest resistance as a result of the abuse of agro chemicals. The number of agricultural pests that are resistant to one or more chemicals grew significantly from 1908 to 1980 (Fig.1).



Source: Based on data from Georghiou, G.P. "Implications of the Development of Resistance to Pesticides: Basic Principles and Consideration of Countermeasures" in CICP/USAID. *Pest and Pesticide Management in the Caribbean. Volume II.*

The misuse and abuse by farmers of synthetic chemicals has been influenced more by consumers' demand for blemish-free products than by the lack of knowledge of good agriculture practice. However, the use of such chemicals could adversely affect developing countries' access to international markets in light of the World Trade Organization (WTO) Sanitary and PhytoSanitary (SPS) agreement, United States bio-terrorism policy and the growing concerns of

developed countries regarding food safety and environmental conservation. This is significant given the process of trade liberalisation that has been pursued at regional and multilateral levels.

The process of trade liberalisation and the resulting importance of export competitiveness have had a significant impact on Caribbean economies, in particular on the smaller economies in the Eastern Caribbean. Those economies have been able to export their traditional agricultural goods under preferential arrangements to European and North American markets. Sugar, important to Caribbean countries except those in the Organisation of Eastern Caribbean States (OECS); bananas, important to most of the OECS countries and Jamaica; rice, important to Guyana and Suriname, all have preferential market access to the EU under the Lomé and its successor Cotonou agreements. Citrus, important to Belize, Jamaica and Trinidad and Tobago, benefits from preferential market access to the United States under the Caribbean Basin Initiative (CBI). The impending cessation of preferences in favour of free trade leaves Caribbean countries vulnerable on account of their significant dependence on earnings from primary exports.

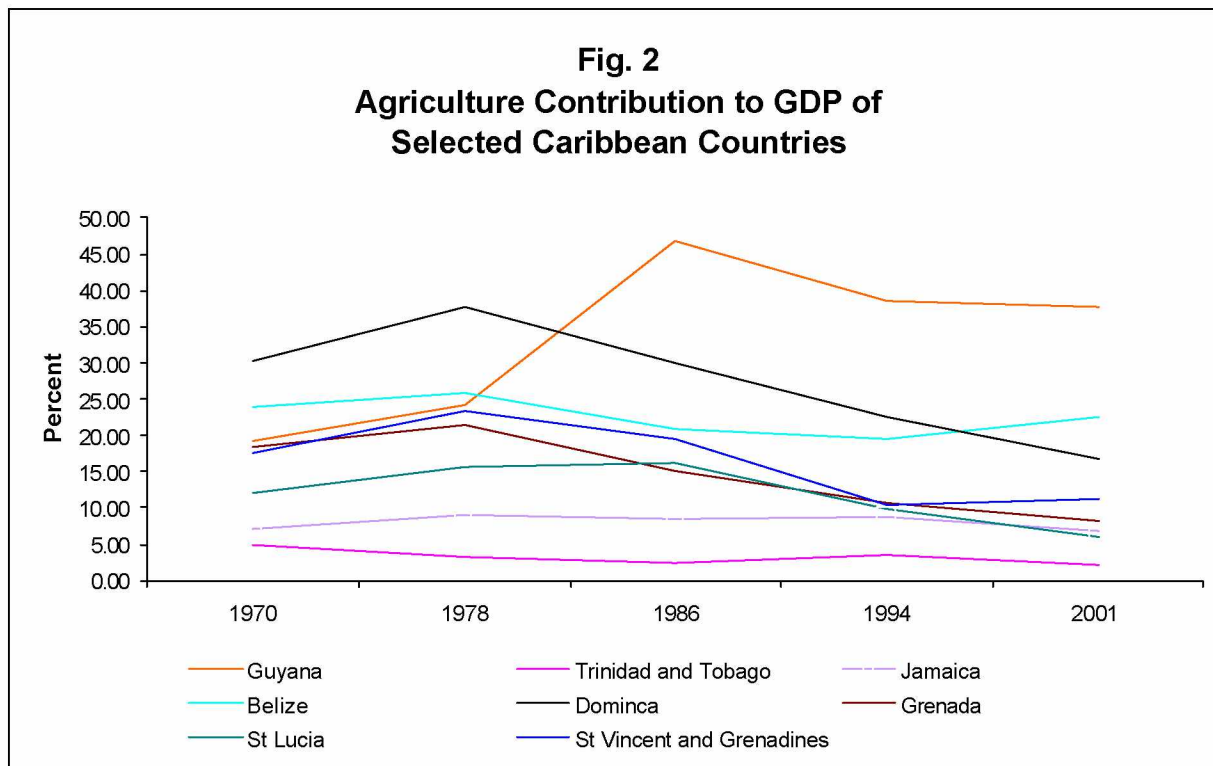
Diversification, in particular diversification away from agriculture has been proposed on account of the poor performance of export agriculture, despite the availability of preferential market access for traditional agricultural commodities [Kendall 2003]. However, past attempts at agricultural diversification have had limited success. Switching resources from agriculture to areas such as tourism and other services may not guarantee greater economic viability and may even compromise the food security of Caribbean countries. Moreover, despite the decline in the agriculture sector's contribution to output since the 1990s (Fig.2) significant proportions of the population in a number of Caribbean countries are located in rural areas and depend on earnings from agriculture for their livelihood.

This study examines the possibilities that exist for a renewed emphasis on the development of agriculture in the Caribbean. Its point of departure is the development of sustainable agriculture to preserve the region's ecosystem, to sustain the livelihoods of agricultural producers and as a response to the challenge of agricultural trade liberalisation. To this end, field work was undertaken to determine the prospects for developing organic agricultural production given the type of production that has been pursued in the Caribbean region.

The intention was to survey a number of farms – conventional, organic and those in conversion to organic – in selected countries in the region. However, limited time and resources dictated the alternative case-study approach. Field visits were made to Grenada and Guyana where existing (certified) organic production existed. Organic production was also observed in Tobago. The Guyana case study expanded into a study of Amerindian development and sustainable organic agriculture on account of a unique project that has been pursued in Guyana's hinterland.

Economic analysis of the profitability of organic agricultural production in comparison with conventional production was limited by the scope of the study, which constrained extensive field work. It was also limited by the fact that organic production is a very recent undertaking and hence requires the lapse of sufficient time for data collection and analysis to be meaningful.

Nevertheless, insights were obtained that should be useful for policy makers, agricultural producers and researchers, among others.



Source: Based on FAO data.

2. International trade in agricultural commodities

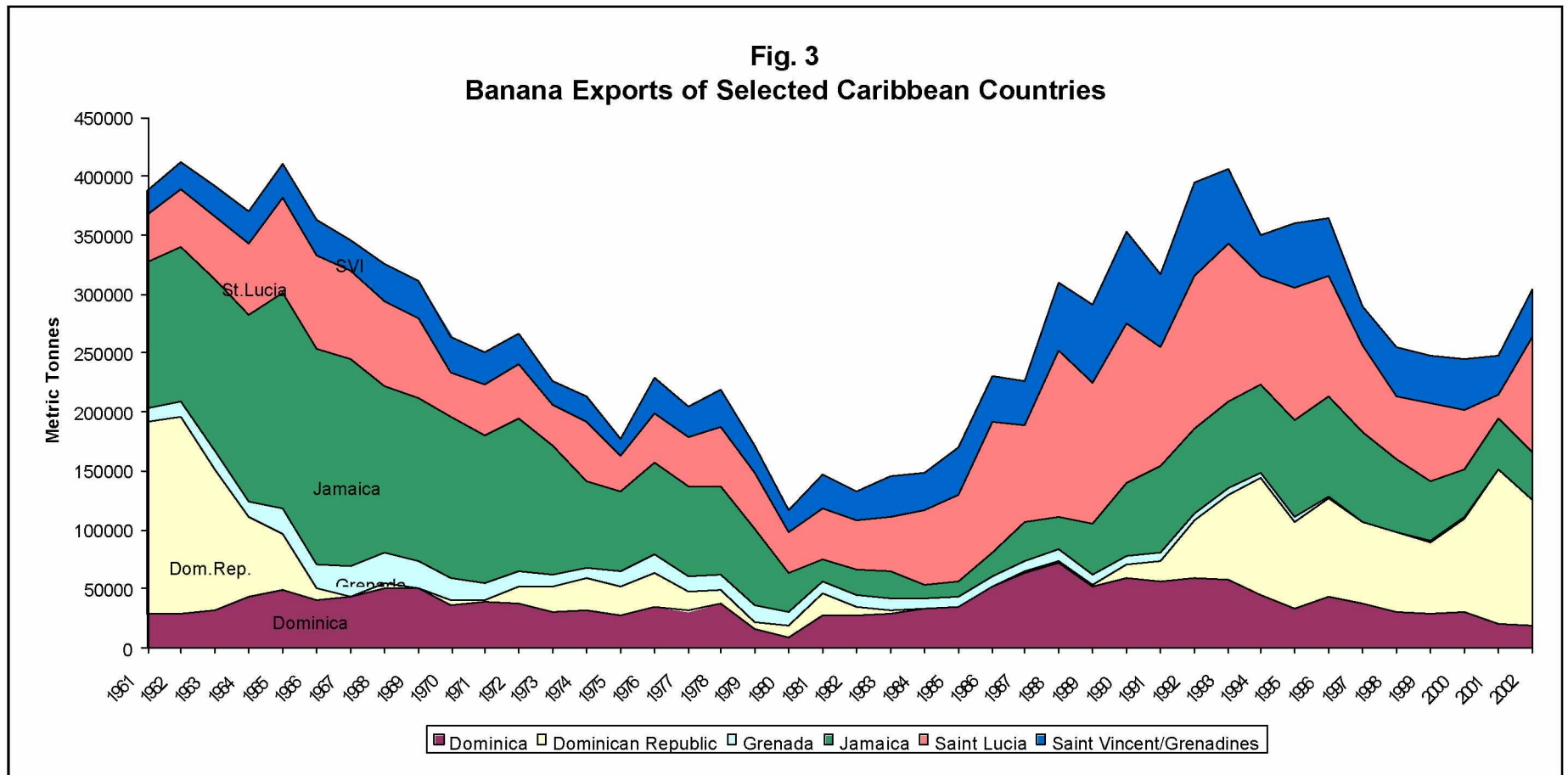
Export performance

Global trade in agricultural products has been increasing significantly since the early 1970s. World exports increased significantly from 1972m peaking in 1997. Agricultural exports from the Caribbean constitute a miniscule proportion of world exports. Total exports of agricultural products from Caribbean countries (excluding Cuba) experienced their most significant increase during the first half of the 1970s. Increases thereafter have been modest. The major agricultural exporters in the region are the Dominican Republic, Guyana, Jamaica and Trinidad and Tobago.

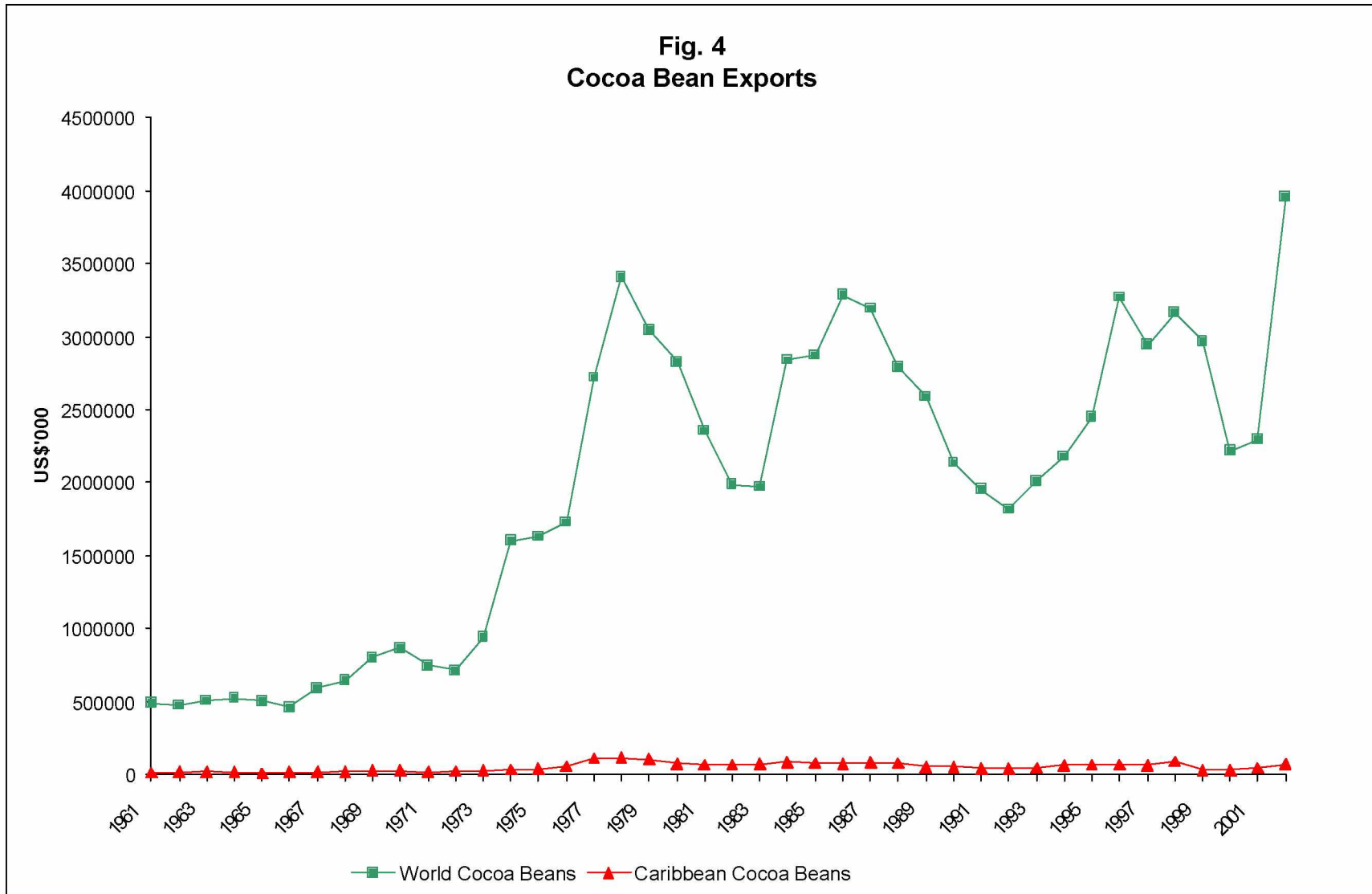
The Latin America and Caribbean region is the third largest exporter of agricultural products. However most of the exports are from a few large countries, namely Argentina, Brazil and Mexico. The five most significant agricultural commodities in world trade are, in order of importance, cereals, sugar, coffee, cocoa and bananas. The main agricultural exports from most Caribbean countries are sugar and bananas; coffee, cocoa and rice have also been important for specific countries in the region. The export performance of Caribbean countries vis-à-vis the world in respect of bananas and cocoa is instructive.

World exports of bananas grew significantly from around the mid-1980s. Caribbean exports of bananas increased significantly in two phases: 1961–1966 and 1981–1992. The decline in exports began after 1993. During the first phase, the most significant exporters were the Dominican Republic, Jamaica and Saint Lucia. In the second phase the most significant exporters were Saint Lucia, Dominica and St. Vincent and the Grenadines. Since 2001, the most significant exporters have been the Dominican Republic, Saint Lucia and Jamaica. Jamaica was the dominant exporter until the late-1970s when it lost that position to Saint Lucia, which remained the dominant exporter until the mid-1990s. The Dominican Republic, which was a major exporter during the early part of the 1960s, regained that position since 2000 (Fig.3).

World cocoa exports grew significantly during the 1970s. In subsequent decades the growth experienced was in peaks and troughs (Fig.4). Caribbean exports of cocoa followed a more or less similar trend. The Dominican Republic remains the dominant exporter of cocoa beans. Other significant exporters in the region, such as Grenada, Jamaica and Trinidad and Tobago, experienced steep declines in their exports from the 1980s.



Source: Based on FAO data.



Source: Based on FAO data.

Trade regime

International trade is conducted within the framework of the General Agreement on Tariffs and Trade (GATT). However, it was not until 1995 that agricultural trade was subject to a multilateral agreement resulting from the conclusion in 1994 of the Uruguay Round of trade negotiations. Significant achievements of the negotiations in relation to agricultural trade were the conversion to tariffs of all non-tariff barriers to trade and the binding of tariffs. Of significance also were the targets set for reduction of tariffs as well as export subsidies by both developed and developing countries – 36% in the case of developed countries and 24% in the case of developing countries. The average most favoured nation (MFN) agricultural tariffs in 2000 based on the 36% reduction from the bound levels were not significantly different from the commitments made by the United States and the EU. Tariffs are still high on agricultural products and escalate with the degree of processing. Nevertheless, developing countries have greater access to the EU market than the United States market on account of their preferential access to the EU market. The launch of the DOHA Round of multilateral negotiations in 2001 is intended to achieve further reduction in agricultural tariffs and export subsidies.

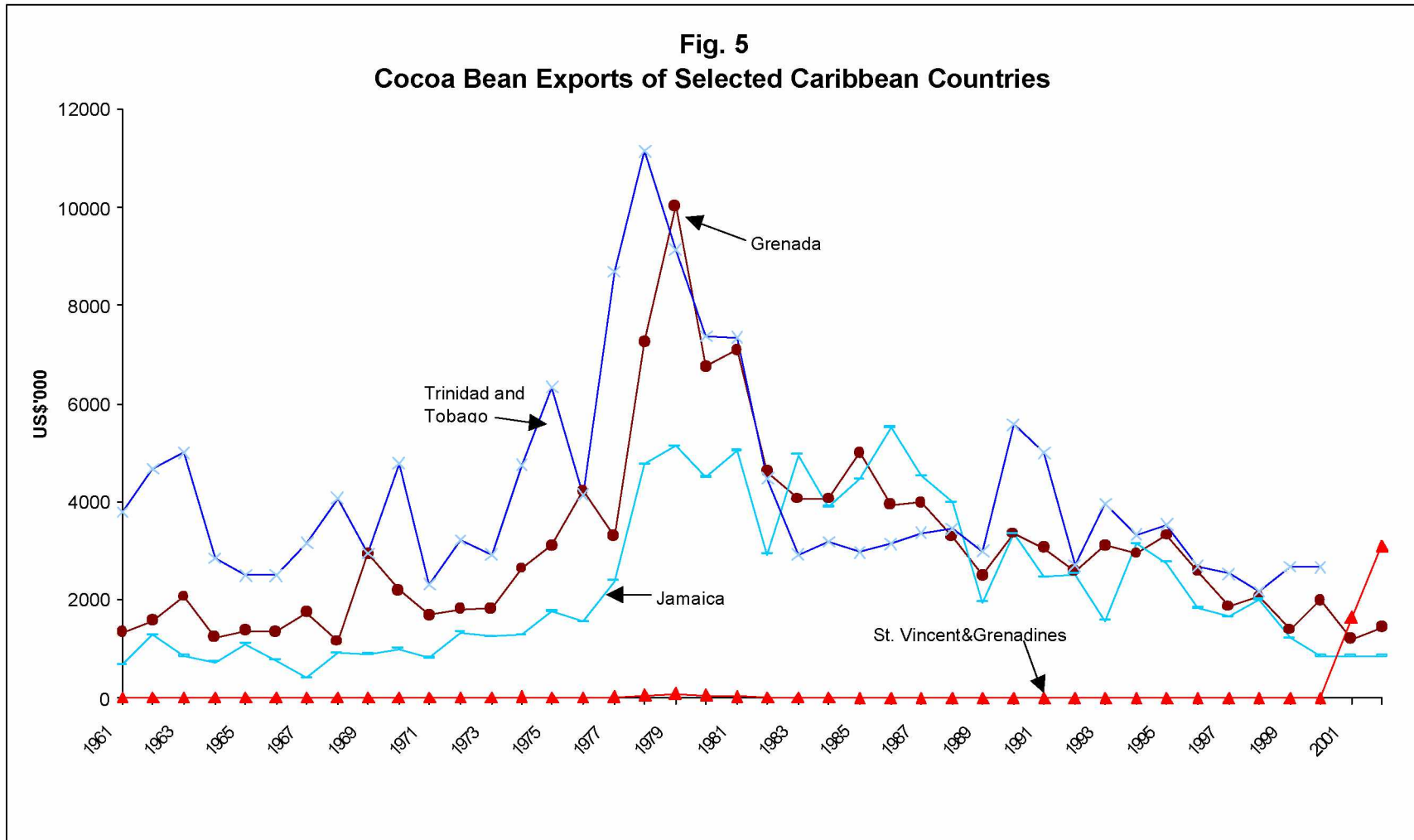
As part of the African, Caribbean and Pacific (ACP) Group, Caribbean countries have free access to the EU market for their cocoa products. Nevertheless, the cocoa market is characterised by monopolistic competition among a few large companies. Prices are determined on the world cocoa market. The main cocoa exchanges are in London and New York. Cocoa prices respond to demand and supply factors linked to the cocoa cycle, which consists of boom and bust periods. The fall in cocoa prices from the late 1970s due largely to the build up of surplus cocoa stocks on the international market led to the significant decline in cocoa production and exports of Caribbean countries (Fig.5). World cocoa prices fell from over US\$3500 per tonne in 1977 to less than US\$1000 per tonne in 2000. Prices have however been on the increase since 2000.

The trade regime governing the exportation of banana is somewhat different from that governing the exportation of cocoa. Bananas have been traded on European and North American markets under different arrangements. Most of the bananas imported into North America are from Latin America and enter on a free-market basis or without tariff or quantitative barriers. The EU, which is as significant an importer as the United States, has a complex system governing imports.

Prior to the establishment of the European Single Market in 1993, banana-exporting countries had different types of access to the markets of European countries. Former colonies of Britain and France, as part of the ACP, exported their bananas to those countries free of tariffs under the Banana Protocol of the Lomé Convention. Bananas from Latin America entered Germany free of tariffs whereas they were subject to a 20% tariff in Italy and Portugal. All bananas that entered the markets of Belgium, Denmark, Ireland, Luxemburg and the Netherlands were subject to a 20% tariff.

A harmonised banana regime based on quotas and tariffs was the result of the coming into being of the European Union. Its features were the following:

- The “traditional” ACP producers were allowed tariff-free export of an annual volume of 857,700 tonnes allocated on the basis of licences issued by the European Commission.
- An annual quota of 2 million tonnes with a tariff of 100 Euros per tonne for bananas from Colombia, Costa Rica, Nicaragua and Venezuela. The quota was raised to 2.1 million in 1994 and then 2.2 million the following year with the tariff reduced to 75 Euros per tonne. These countries were allocated almost half of the import licences.
- In 1995 an additional tariff quota of 353,000 tonnes was allocated to Latin America and non-traditional ACP exporters (e.g. Dominican Republic and Ghana) as a result of the entry of Austria, Finland and Sweden into the EU. Licences covering 66.5% of the quota were reserved for United States companies marketing dollar bananas; 30% for European companies marketing EU and ACP bananas; and 3.5% for new EU companies marketing non-traditional bananas since 1992. The tariff quota import licences were allocated based on past trade in bananas.
- In 2001 the EU and the United States agreed on a tariff-only banana import regime by 2006.
- In 2002 reallocation of quotas resulted in 100,000 tonnes being shifted from the ACP tariff-free quota to the tariff quota of Latin American bananas. The distribution of licences was 83% in favour of established importers and 17% in favour of newcomers since 1984.



Source: Based on FAO data.

Implications of free trade for agriculture

Liberalisation of trade in agricultural products will have differential impact on the economies of developing countries. Countries with competitive advantage in agricultural exports will be the major beneficiaries. The effect on Caribbean agricultural sectors will depend on the export competitiveness of specific commodities, such as cocoa and bananas, and/or the ability of producers to develop alternative production systems in order to maintain preferential access to the markets of developed countries.

Caribbean competitiveness in cocoa lies more in the area of quality than price, although Trinidad and Tobago has a comparative advantage in cocoa production in relation to importation of cocoa beans.¹ Nevertheless, the movement of cocoa in international markets as well as the return to farmers largely determined the downward trend in cocoa production and exports. Liberalisation of cocoa import tariffs will not necessarily lead to increased exports of cocoa from Caribbean countries as these countries already have tariff-free access to EU markets. Price stabilisation, which is more relevant for developing countries and which was a feature of international cocoa agreements since 1972, was eventually abandoned in 1994 after failing to prevent the downward spiral of prices in the 1980s.

A greater challenge to cocoa exports is the European proposal to allow the use of cocoa butter substitutes in the manufacture of chocolate. This would increase the position of chocolate manufacturers at the expense of the producers of cocoa beans. However, Caribbean producers would not be significantly affected because of the demand for their high quality cocoa beans used for manufacture of chocolate for the high end of the market. What is of concern is a fair return to farmers for their commercially traded cocoa.

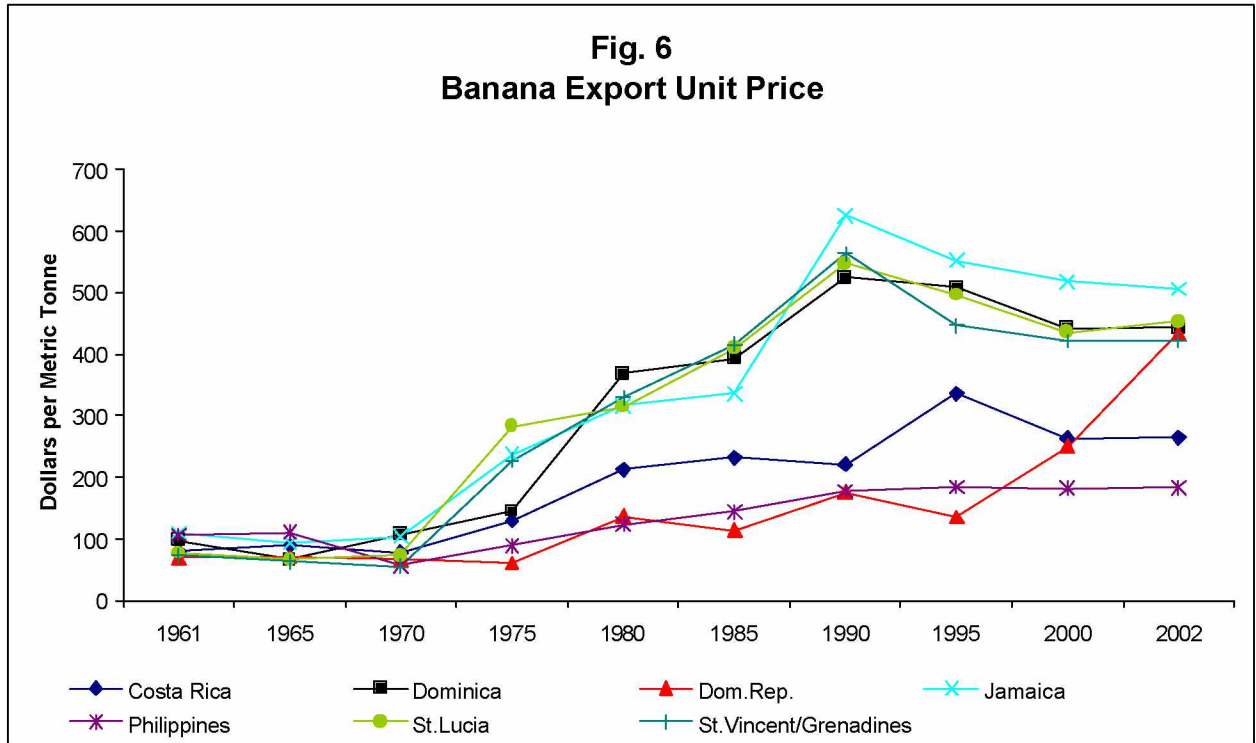
Trading in cocoa is dominated by large scale trading entities which, along with the chocolate industry, receive most of the returns from the sale of chocolate. However, Fair Trade organizations have been established to ensure a fair return to cocoa farmers. A direct link is set up between the cocoa producers and the chocolate manufacturers, thus bypassing the intermediate traders [European Free Trade Association www.eftafairtrade.org].

Caribbean countries, especially those in the English-speaking Caribbean, would be adversely affected by liberalisation of trade in bananas. These countries are less competitive in banana exports, measured by export unit price, than their Latin American and Asian competitors (Fig.6). It costs more than twice as much to produce bananas in Caribbean countries as it does to produce bananas in Latin American countries.

As is the case with cocoa, international trade in bananas is dominated by large-scale organizations (transnational corporations), which receive most of the returns from sales. Most of the bananas from Latin American countries are produced on plantations where the price of labour is much less than that on small farms. Low wage cost is the major contributor to the competitiveness of Latin American banana exports vis-à-vis Caribbean exports. The possibilities

¹ Reported in the “Competitiveness Study of the Cocoa Sub-Sector of Trinidad and Tobago” produced for the Government of Trinidad and Tobago, September 2003.

for Caribbean countries lie in the export of “Fair Trade” and “organic” bananas, that is, bananas produced using methods of production that preserve the environment.



Source: Based on FAO data.

3. **Alternative production and trading systems**

Organic and Fair Trade agriculture

Fair Trade agriculture

Fair Trade is an initiative that was launched in 1996 to facilitate the development of vulnerable farmers and workers who have been disadvantaged by unfair international trading structures. It provides market access and a fair guaranteed price that allows farmers and their families to satisfy their basic needs. Fair Trade also responds to the social and environmental conditions² under which goods have been produced. It is concerned with protecting the environment as farmers minimise the use of fertilisers and pesticides and partially and gradually replace them with organic fertilisers and biological disease control. Fair Trade encourages farmers to work towards organic certification in order to earn premium prices.

Fair Trade is really a trading partnership. Small farmers who use mainly their own and their family's labour can be part of this partnership, providing they are organized, for example, in cooperatives or associations that they control and which could contribute toward their economic and social development. The organization of small farmers has to be able to administer and manage the Fair Trade Premium³ transparently in accordance with the standards of the Fair Trade Labelling Organisations International (FLO)⁴. The price premium has to be invested in projects to promote social and environmental improvement.

Workers can also participate if they are unionised and if their employers meet, as far as possible, the requirements of the International Labour Organisation (ILO) conventions on working conditions and provide them with any additional revenues earned from Fair Trade. Gender equity is a criterion that must be adhered to, as women's work has to be properly valued and rewarded. Thus whereas organic trade focuses on environmental protection, Fair Trade goes beyond organic trade in addressing the social and economic conditions of farmers as well as workers. However, social criteria have been recently considered for inclusion in the requirements for organic certification.

The Fair Trade initiative is particularly relevant to small producers in the Windward Islands, namely Dominica, Grenada, Saint Lucia and St. Vincent and the Grenadines, which have been adversely affected by the change in the EU banana trade regime. Farmers' organizations in the islands have been promoting the development of the banana industry based on Fair Trade criteria. The first Fair Trade shipment of bananas from the Windward Islands was made in July 2002 and has grown significantly since then especially for the island of Dominica from which shipments increased fivefold between 2002 and 2003. [WINFA 2004]

² The intensive plantation method of production has resulted in low cost products but at the expense of the well being of workers who are subject to low wages and poor social and economic conditions. The environment is also damaged in the process.

³ The Fair Trade Premium is paid on top of the Fair Trade minimum price. Part of the premium (43%) goes towards business support and the remainder (57%) towards social, environmental and business development.

⁴ The Fair Trade Labelling Organisations International (FLO) was established in 1997 to promote trade in products produced to Fair Trade standards.

There were 1,368 members of the Windward Islands Fair Trade producer organization at June 2003 farming a total of 1,885 hectares. [WINFA 2004]. More than half of the members were from Dominica. Only 26% of the members are female farmers. A Fair Trade Premium of EC\$4.67 per 40lb box of bananas is paid, more than half of which (57%) is used for social projects and business development. The rest is used for implementation of the criteria for the Fair Trade Mark. Some of the social projects implemented in Dominica, Saint Lucia and St. Vincent and the Grenadines, for example, include support for educational institutions such as pre-schools and basic schools as well as community centres.

Although there is support for Fair Trade bananas in the EU, the farmers in the Windward Islands are able to produce more bananas than the British market demands. The largest markets for Fair Trade bananas are Switzerland and the Netherlands. However, the Caribbean's traditional market is the United Kingdom. The trade in Fair Trade bananas is subject to the EU quota system. Farmers are therefore diversifying into other Fair Trade produce such as mangoes, sweet potatoes and limes. Since Fair Trade is seen as a stage in the conversion to organic farming, the possibilities of the latter need to be explored.

Organic agriculture

Organic agriculture is defined as a holistic production management system that uses as far as possible organic inputs, namely manure and compost, produced on the farm and organically produced seeds. It avoids the use of synthetic pesticides, herbicides, chemical fertilisers, growth hormones, antibiotics or gene manipulation and relies instead on the ecosystem for controlling pests and diseases. For example, weed control is done by crop rotation and pest control by the use of predators such as flowering plants. Nevertheless, it is difficult for the practices of organic farming to ensure that products are completely free of residues due to general environmental pollution.

World organic production and trade have grown significantly over the last decade. Most of the world's organic land (42%) is in Australia, Latin America (24%) and Europe (23%). Australia has 10 million hectares under organic management followed by Argentina with about 3 million hectares. The Caribbean region has a relatively small amount of land under organic management, about 0.5% of the total area in Latin America and the Caribbean. Most of the organic farmland in Latin America and the Caribbean as well as in Africa is used to produce products for export markets.

The growth of trade in organic foods became significant from around the mid-1990s although production of organic agricultural products goes back to the 1980s; for example, organic agricultural production began in Argentina from around 1985. Growth in production and trade of organic products has been facilitated by health concerns and the growth in demand for food produced under environmentally safe conditions. Organic production and trade are regulated by standards and certification procedures.

Organic standards and regulations

Standards for organic production are classified as private, national and international. Private standards or guidelines were established in some European countries prior to the development of national and international standards. Such standards and associated “quality” labels provided the fillip for growth in consumption of organic products. They also facilitated the development of the International Federation of Organic Agriculture Movements (IFOAM) Basic Standards for Organic Production (IBS), which was published in 1980. The function of the IBS is to set the framework for the development of certification standards by certifying organizations. The other international standard is the *Codex Alimentarius* that sets out, in its organic chapter, guidelines for the various processes of organically produced food. The Codex document has contributed toward the harmonisation of international rules.⁵

European (EU) and American regulations for organic produce are important for Caribbean and other developing countries that seek to gain access to EU and United States markets. Products from developing countries have to be produced, processed and certified according to standards that are equivalent to those in EU and United States regulations. The EU regulations set out only the minimum standards for producing, inspecting and marketing organic goods. Most EU countries developed national regulations before the establishment of EU regulations. They retain responsibility for their monitoring and inspection procedures.

United States regulations, in the form of the National Organic Programme (NOP), came into force in 2002. Unlike EU regulations, which set only minimum standards and therefore allow some variations, United States regulations require that products imported into the United States fully meet the NOP provisions. In this as well as in the EU case certification is critical.

Certification of organic products

Organic exports from Caribbean countries can enter the EU in one of two ways. The country or certification entity can be added to the list of third countries by supplying required information and be assessed by the EU or its representative. The country has to have enacted organic farming legislation as well as set up inspection and monitoring procedures. The other method is through an import permit, which is issued on the basis of equivalence with EU standards.

For access to the US market, exporters must be certified by entities accredited by the United States Department of Agriculture (USDA). In order to be certified, information has to be provided that includes: type of operation and history of substances applied to the land for the previous three years; organic products being grown or processed; organic plan describing the practices and substances used in production as well as the monitoring practices to be performed to verify that the plan is effectively implemented; the record-keeping system, and the practices to prevent commingling of organic and non-organic products and to prevent contact of products

⁵ The various standards and certification procedures are discussed in the IFOAM publication, *The World of Organic Agriculture: Statistics and Emerging Trends 2004*, www.ifoam.org

with prohibited substances. In addition, applicants have to keep for five years accurate post-certification records that verify the information provided to the USDA

Production guidelines for crops

Agricultural production that avoids the use of synthetic inputs, such as chemical fertilisers and pesticides, fulfils the minimum requirement for certification as organic production. There are additional requirements to ensure that organic crops are produced in an economically efficient and environmentally sustainable way. Some of these are: crop rotation or intercropping to maintain the balance of the ecosystem; organic manure in the form of compost and mulch to sustain soil fertility; weed control by the use of cover crops and/or manual or mechanical methods; and pest control through intercropping with plants that encourage natural enemies of plant pests.

Caribbean organic production

Traditional peasant production in the Caribbean involved the use of some organic techniques in terms of crop rotation, soil management through fallowing and the use of organic manure. The subsistence form of agriculture practised by farmers did not necessitate or make affordable the use of chemical fertilisers and pesticides to increase yield. Farmers with access to agricultural land practised extensive agriculture and hence did not require significant chemical inputs to increase production.

The type of organic agriculture that countries are now moving towards is different from earlier practices in that strict standards have to be adhered to, among other things. A number of Caribbean countries began the conversion to organic farming since 2000. That conversion is taking place with respect to traditional crops (banana, cocoa and coffee), vegetables and fruits. Although there is not a precise count of organic farms to date, there are relatively few, with the exception of Cuba and the Dominican Republic, which reported 5,222 and 12,000 certified organic farms, respectively, in 2004. Within the English-speaking Caribbean, Guyana and Jamaica reported only 28 and 12, respectively. Nevertheless, the more important statistic is the percentage of total agricultural area that is devoted to organic farming. In Cuba it is 0.16% and in the Dominican Republic it is 0.40%. The percentages in Guyana and Jamaica are 0.01 and 0.16, respectively.

Conversion to organic cocoa and bananas

Cocoa

Cocoa is a tree crop grown by developing countries in West Africa, Latin America and South-East Asia, particularly in Côte d'Ivoire, Ghana, Brazil, Indonesia and Malaysia. The traditional suppliers have been those in West Africa and Latin America. In Latin America and the Caribbean major producers have been Brazil, Colombia, the Dominican Republic, Ecuador, Grenada, Jamaica, Mexico and Trinidad and Tobago. Most of the processors and consumers of cocoa are in developed countries, the main markets being Europe and the United States.

Cocoa is one of the secondary agricultural commodities produced for export by Caribbean countries, the traditional primary commodity being sugar. Cocoa is usually grown in small farming systems although large farms and plantations can be found in some countries such as Brazil and Malaysia. Almost all of the cocoa production in the Caribbean is exported. Cocoa production in the region declined significantly over the decades – in response to falling prices on the international market between the mid-1970s and early-1990s – although world production of cocoa beans continued to increase over the same period (Fig.7).

Caribbean countries have begun to focus again on the cocoa industry with a view to enhancing its competitiveness and export earnings in light of the erosion of preferential access to European markets for traditional agricultural commodities such as sugar and bananas. Trinidad and Tobago was the main producer and exporter in the English-speaking Caribbean region between the late nineteenth century and the 1920s of the fine flavoured *Criollo* variety of cocoa beans.⁶ However, cocoa production and the area under cultivation have declined significantly over the decades. The focus now is on increasing production of cocoa beans for the export market, developing value added products and increasing the incomes of the producers.⁷

In Jamaica cocoa production declined due to small cultivation and lack of farmers' interest. The Ministry of Agriculture and the Cocoa Board are assisting farmers to increase the cocoa plant population per acre. Jamaican cocoa is used essentially to blend others because of its unique flavour and high quality. In Grenada, cocoa rehabilitation was undertaken on three occasions (1943, 1975 and 1982) prior to the current phase that began in the twenty-first century. Most of the cocoa beans are exported but a small amount is used for the production of organic chocolate for export. In Guyana, cocoa was a major domestic cash crop during the early twentieth century but declined significantly since then.

Cases of rehabilitation of cocoa were observed in Guyana and Grenada. In Guyana, farmers are producing organic cocoa in the hinterland area of Mabaruma as part of the Guyana Mabaruma/Hosororo Organic Cocoa Project.⁸ The farmers used to produce cocoa, with little or no chemicals, in a tropical rainforest that is considered to be the natural habitat of cocoa plants. However, cocoa production was abandoned in the early 1970s because of low returns. In 2000 the Mabaruma project was set up to revitalise and expand cocoa production using organic practices, which were considered to be ideal given the natural methods of production that have been practised by small farmers.

In 2004 there were 62 farmers registered with the project, an increase of 36 farmers since the start of the project in 2000. The total farm size of the project is 249.6 hectares. Over half or 56% is certified organic production. The remainder is in conversion to organic production with full conversion expected within the project period of five to seven years. The time-frame for fulfilment of organic standards is normally estimated as three years. However, the actual length of the conversion process depends on how long the farm has been producing the particular crop.

⁶ Trinidad and Tobago is the leading center of cocoa germplasm in the world. Its International Cocoa Genebank has the world's most valuable collection of cocoa material.

⁷ See Competitiveness Study of the Cocoa Sub-Sector of Trinidad and Tobago 2003.

⁸ Details of the project can be found in the document "Sustainable Agriculture and the Development of the Amerindians in Guyana: The Case of the Mabaruma/Hosororo Organic Cocoa Project", ECLAC, 2004.

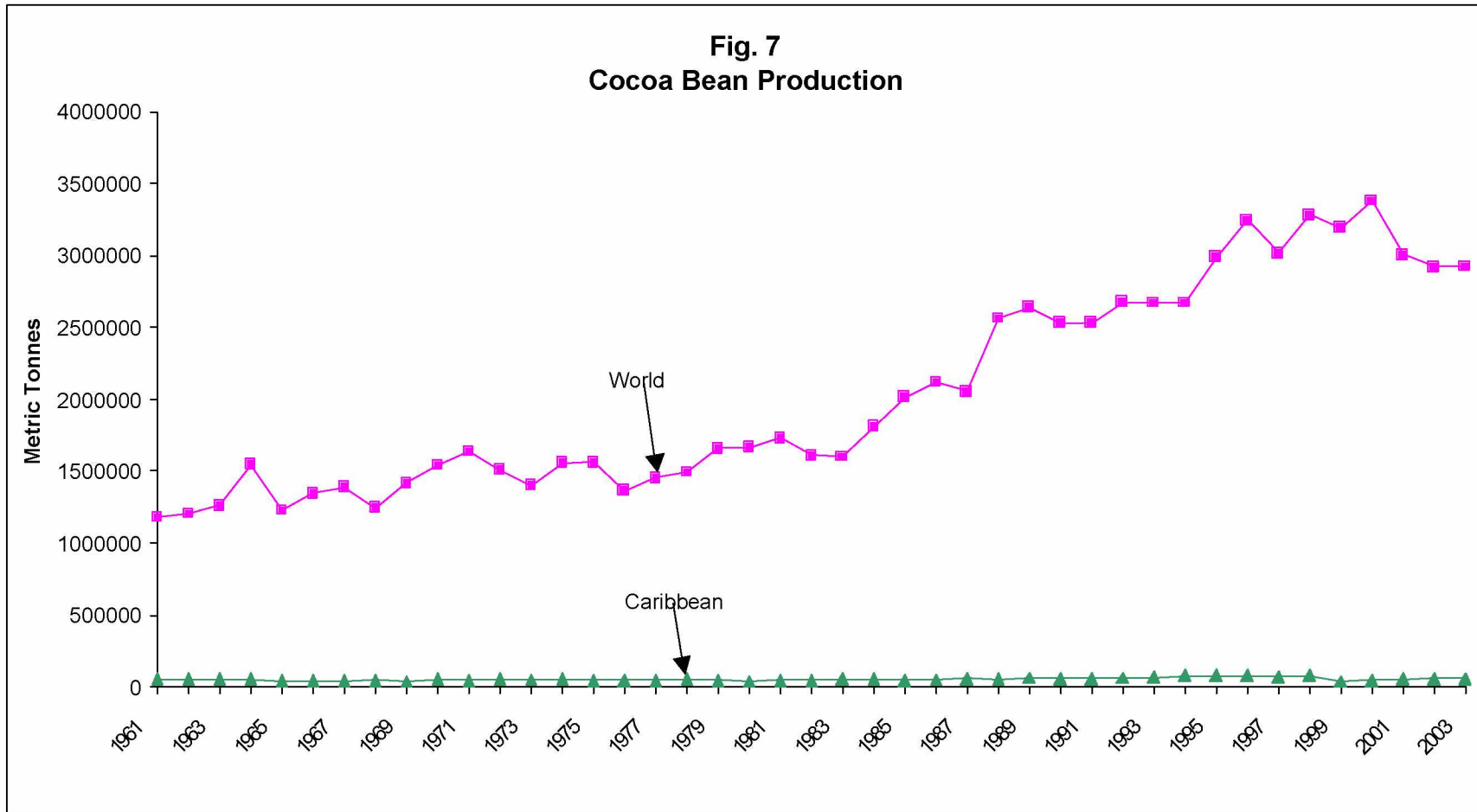
One quarter of the farmland in the project has been in production for less than two years and would, therefore, require the full period of the project before it can be certified as organic.

In Grenada, cocoa production replaced the production for export of sugar, coffee and cotton from the late nineteenth century. Cocoa was produced mainly on large estates in pure stand using intensive methods. Fall in production on the large estates due largely to increased labour and other input costs and expropriation of such estates led to a decline of the cocoa industry. In the late 1980s the number of small farm holdings increased significantly due to the subdivision of large estates. This led to an increase in mixed farms relative to pure cocoa farms that had been the dominant practice.

The only certified organic cocoa production in Grenada is on 20 hectares (or 16%) of an estate leased to a company which produces organic chocolate for export. The estate is a resort that comprises a restaurant, among other things. It produces its own cocoa; buys and processes cocoa for export on behalf of the Grenada Cocoa Association, and handles the fermentation process of the organic cocoa produced by the chocolate company⁹, which started production in 2002. The cocoa on its leased land is intercropped with forest trees and tree crops. The processed cocoa serves as input into the production of the chocolate. Both the cocoa and chocolate¹⁰ production processes were certified as organic by BCS-Oko Garantie GmbH, which adheres to USDA-NOP and EU regulations. The company intends to expand production by leasing more land from existing cocoa farms.

⁹ The estate has separate fermenting facilities for organic cocoa and conventional cocoa.

¹⁰ The non-cocoa inputs into chocolate production are either organic certified or natural such as sugar cane, vanilla and soy lecithin, which acts as an emulsifier.



Source: Based on FAO data.

Banana

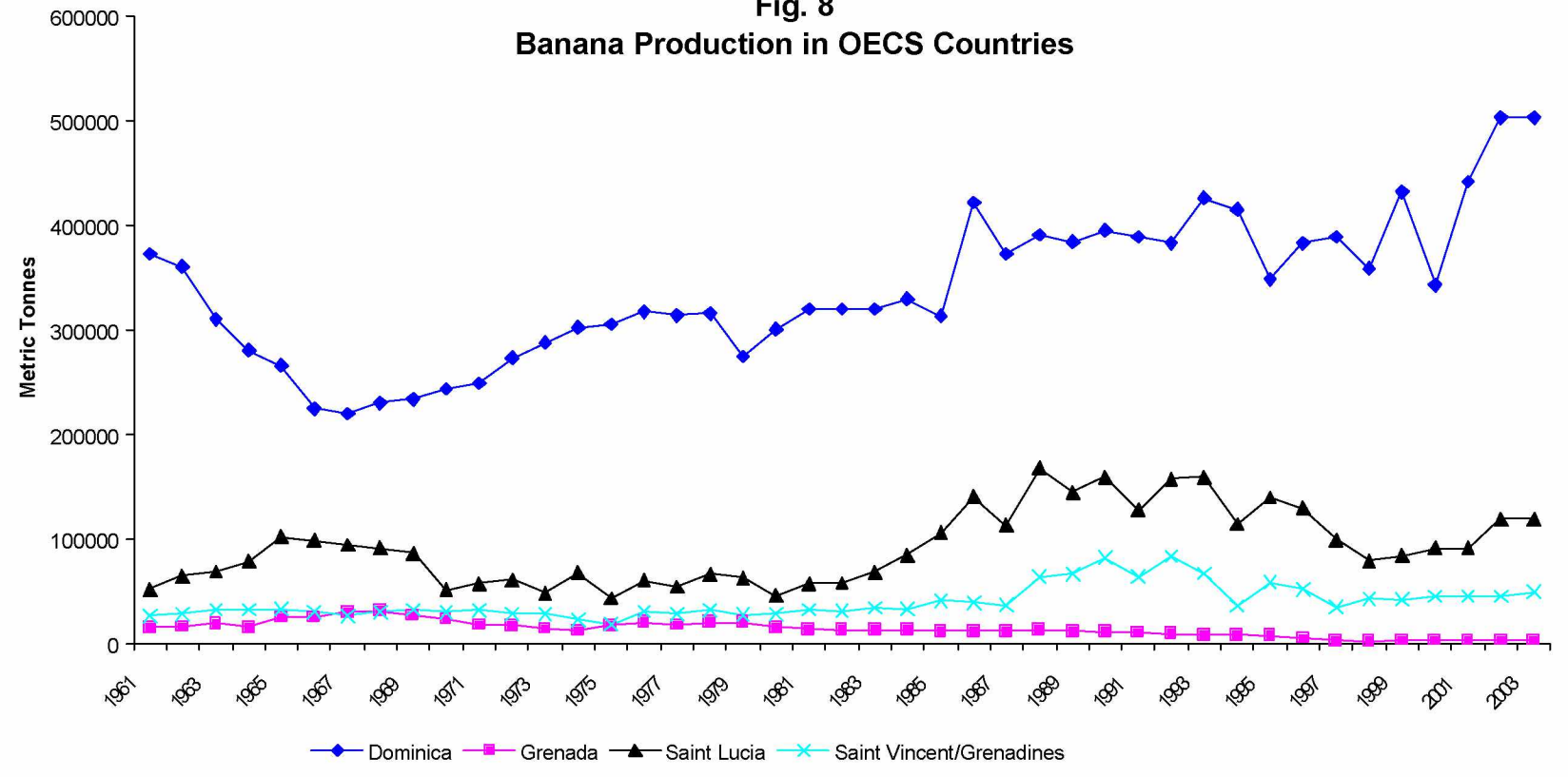
Banana is another of the secondary agricultural commodities produced in the Caribbean, which has now become the primary agricultural export of countries in the Eastern Caribbean. Bananas, like cocoa, are produced in tropical areas and hence are produced mainly by developing countries. Caribbean and Latin American countries were the dominant producers of bananas up to the 1980s. Since then Asian countries, in particular India, the Philippines, China and Indonesia, have taken the lead in banana production. Only about 20% of world banana production is internationally traded. Caribbean and Latin American countries account for over three quarters of world exports of bananas. Caribbean exports of bananas constitute only a small fraction of world banana exports. However, they represent a significant part of the economies of the exporters.

Banana production declined significantly in the banana-producing Windward Islands from about the mid-1990s (Fig.8). It recovered somewhat since the late 1990s mainly in Saint Lucia and St. Vincent and the Grenadines. Production in Dominica declined significantly in 2000 after increasing significantly in 1999 consequent on the decline during 1994-1998. Production recovered from 2001 to 2002 levelling off during 2003. Grenada's banana production declined from 1996 to its lowest level in 1997 and remained at that level throughout the period up to 2003. Banana exports have declined even more significantly than banana production. The consequence of this is a significant increase in domestic consumption of bananas especially in Jamaica (Fig.9).

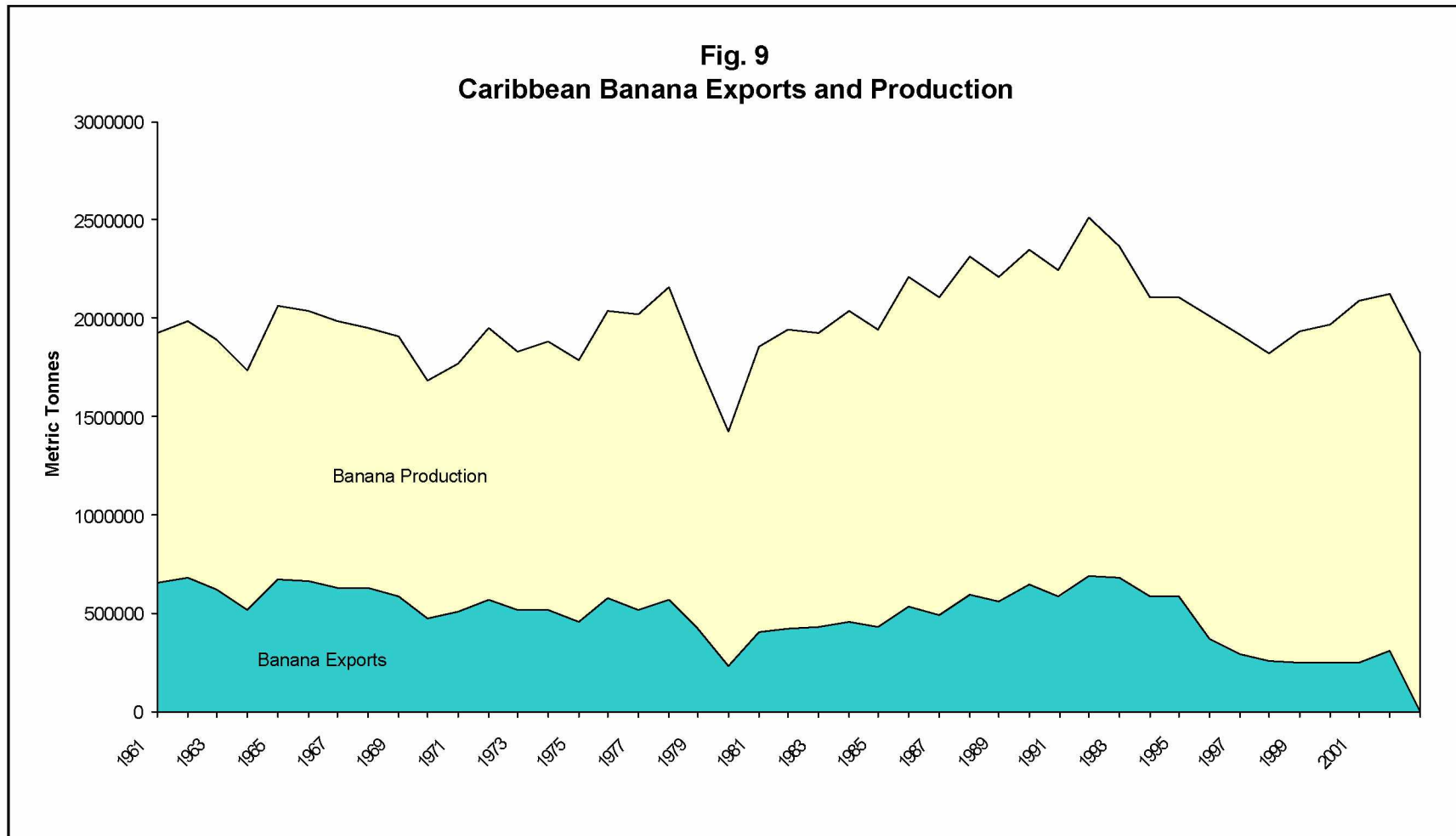
The changes in the EU banana regime warrant a focus on the viability of the banana industry in the smaller economies of the Eastern Caribbean. The difficulty in achieving competitiveness in banana exports in the short to medium term means that countries have to determine how to retain preferential access, especially in terms of premium prices, for their bananas. The options for access to premium prices are the production and export of Fair Trade and organic bananas.

There is only one organic certified banana farm in the Windward Islands (Grenada) that produces and markets organic bananas. The farm is located on 161 hectares of estate land that has been producing sugar cane, cocoa and citrus since the mid-eighteenth century. Banana production began in 1960. In 2002 the estate, under new owners, started a five-year project to cultivate organic bananas on 60 hectares of land in fallow for more than 15 years. In 2004, 31.3 hectares have been cultivated in commercial bananas. The project received EU Organic certification by the Soil Association of United Kingdom (IFOAM accredited) in 2002. The main criteria the farm had to satisfy in order to be certified were: the land had to be free from agro-chemicals for three years; a border of 10 meters had to be created between the organic farm and other farms; natural windbreak (trees) had to be put in place; and the water used for crop irrigation had to be potable drinking water.

Fig. 8
Banana Production in OECS Countries



Source: Based on FAO data.



Source: Based on FAO data.

4. From minimum requirements to sustainable agriculture

Developing countries produce and market Fair Trade and organic products according to the production guidelines set by the certifying organizations in developed countries. The method of production employed in Fair Trade agriculture minimizes the adverse effects on the environment. The method of production employed in organic agriculture goes further by eliminating the adverse effects. However, these methods do not necessarily satisfy the objective of ecologically sustainable agriculture, even though organic farming is about sustainability in a wider sense than preservation of environment, as it relies on management of the ecosystem.

The guidelines for organic production are based on standards such as the Codex Alimentarius, which define organic agriculture as a holistic production management system geared towards enhancing the health of the ecosystem as well as the health and economic and social welfare of people. The demand for organic food has been determined by the concern for health and food safety. The higher returns from the sale of organic products increase the income of small farmers and allow them and their families to improve their social standard of living. Therefore, farmers have an incentive to switch from conventional to Fair Trade and to organic farming. However, they have little incentive to satisfy more than the minimum requirements for organic certification.

Requirements for sustainable cocoa

The Caribbean cocoa producing countries produce fine flavour cocoa¹¹, which is a small proportion of the world's cocoa production and hence commands a premium price on the world market relative to ordinary or bulk cocoa. The decline in cocoa production over the years was partly due to the fall in world market prices, but more importantly to the degradation of the stock of trees and the environmental conditions caused by poor cultural practices and field management.

The two main cocoa production systems have been pure stand and intercropping. Pure stand is the system used mostly by large farms and some medium farms. Intercropping or mixed crop is the system practised by the bulk of small farmers¹². Production guidelines for organic certification specify crop rotation or intercropping to maintain ecological balance. Crop rotation does not make much sense in relation to cocoa, which takes five years before the first harvest and can be harvested for up to 60 to 100 years. Most farmers already practise intercropping although the mix of crops is not necessarily ideal from a sustainable perspective.

The type of intercropping pursued was determined by the nature of the agricultural environment. In the hinterland of Guyana cocoa was developed in its natural tropical rainforest environment. Intercropping was therefore achieved by having cocoa trees interspersed with

¹¹ Caribbean cocoa is largely of the Trinitario variety, a hybrid of the high yield/low quality *Forastero* type and the high quality/low yield *Criollo* type of cocoa. The *Forastero* or "ordinary" cocoa is used to manufacture cocoa butter and bulk chocolate whereas the *Criollo* or Trinitario "fine flavour" cocoa is used for high quality chocolate.

¹² Some sources classify small farms as <5 hectares, medium farms as 5-50 hectares and large farms as >50 hectares. See for example, "Competitiveness Study of the Cocoa Sub-sector of Trinidad and Tobago".

forest trees in their natural habitat. In Grenada, cocoa was intercropped with nutmeg or bananas, which affected the closer spacing of cocoa trees that was required to achieve high production levels. Intercropping was therefore unplanned and reacted to price fluctuations of agricultural commodities. For example, higher relative price for banana resulted in greater spacing of cocoa plants to facilitate increased banana production.

Cocoa requires deep soil of equal proportions of sand and clay with the addition of organic matter. It also requires stable and high temperatures and rainfall that is well distributed. Cocoa trees need adequate overhead shade and windbreaks. Some trees, such as breadfruit and immortelle, function as both shade and windbreaks. Trees such as mango, which provide dense shade, are better placed strategically as windbreaks rather than intercropped with cocoa as has been the practice in some countries.

A sustainable cocoa production system, therefore, requires that cocoa be planted in suitable soil and optimal climatic conditions. Special attention has to be paid to intercropping in order to achieve not only balance in the ecosystem but also sustainable livelihoods for small farmers and rural communities. Where production is for export, farms must conform to organic certification standards and procedures. The models in Diagrams 1 and 2 illustrate sustainable organic cocoa systems. The model in Diagram 1 proposes a strip cropping system that allows for the harvesting of companion crops to augment farm income. The model in Diagram 2 is of a mixed cropping system that is typical of small farms with unplanned distribution of cocoa plants. Shade and border trees are selected for their contribution to nutrients in the system and to serve as natural barriers to neighbouring farms that practise conventional farming.

Diagram 1
Cocoa Row Intercropping System

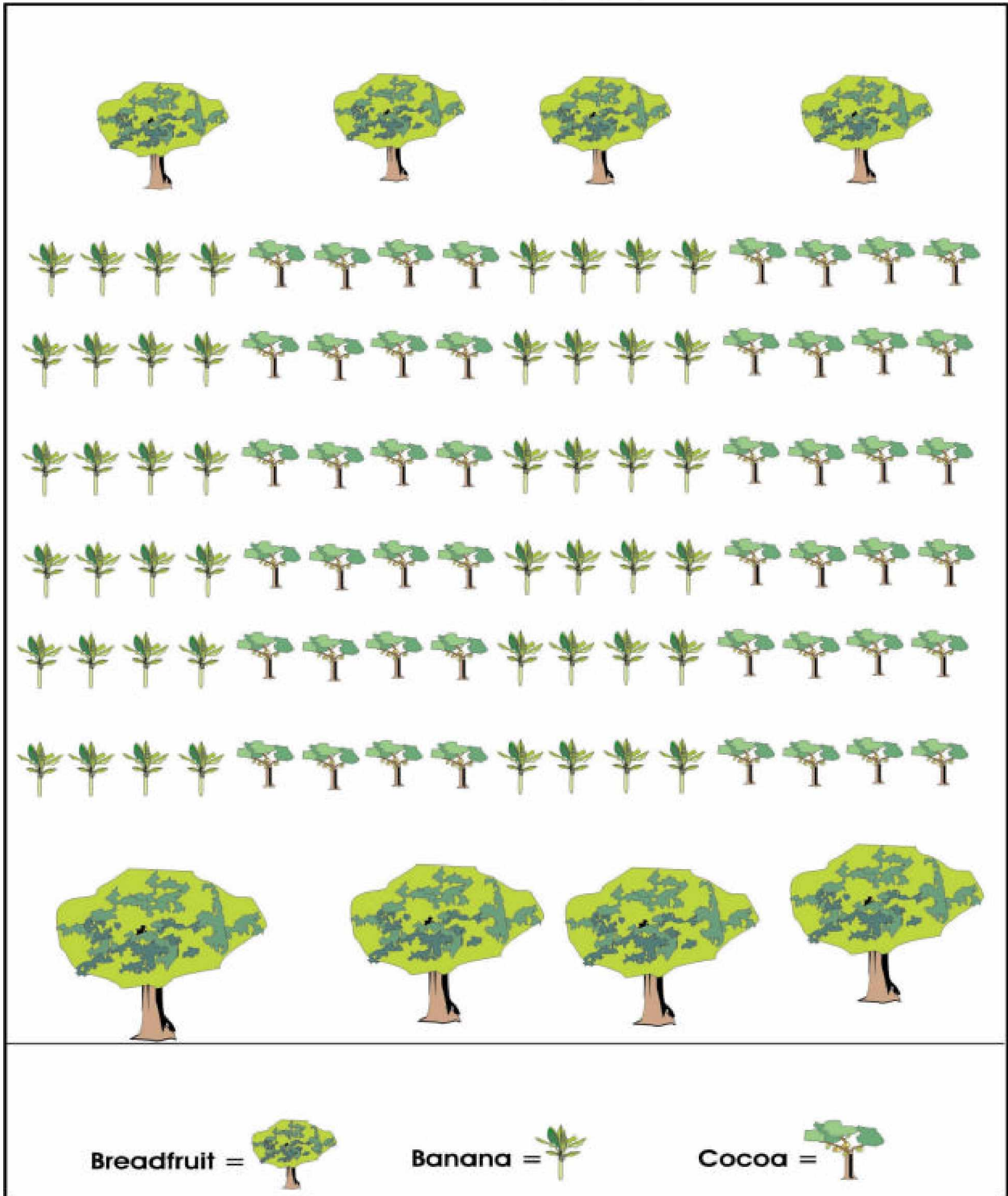
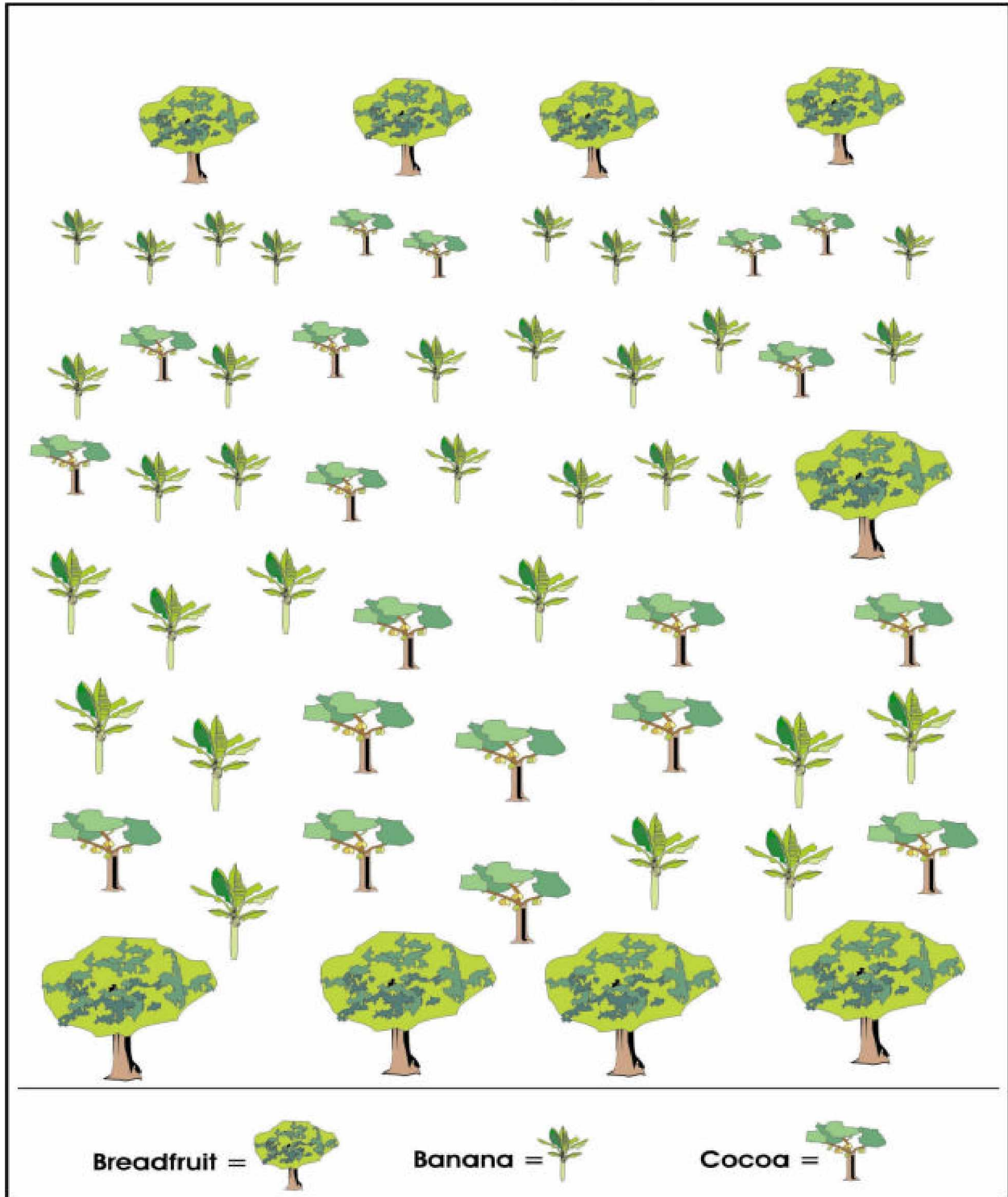


Diagram 2
Cocoa Mixed Intercropping System



Requirements for sustainable banana

Caribbean countries produce a variety of bananas. Like cocoa, banana has been produced in pure stand on large estates as well as on small farms. Most of the production in the Windward Islands is on hilly marginal lands, which necessitated use of intensive methods of production. To move towards a sustainable organic farming system banana farms will have to undergo a three-year period of conversion during which organic practices, among other things, must be put in place. The planning of the organic farm system may be less difficult in cases where banana fields were left uncultivated for several years.

There are two methods of planting used by farms – pure stand and mixed crop. The farm in the organic banana project in Grenada produces banana in pure stand. It, therefore, has to carefully manage its field where banana is planted at close spacing (1 metre x 1 metre). The banana plant is shallow rooting and removes significant amounts of nutrients from the soil, which have to be replenished. One of these is potassium, which can be replaced by adding potassium sulphate. However, this input may be costly since it would have to be imported into the Caribbean. In addition, potassium sulphate is not considered organic by most certifying organizations.

The organic banana farm relies on fertiliser from a compost mixture of farm manure (extensive husbandry), bagasse (sugar waste) and banana waste. The farm manure is the only input that has to be procured from outside the farm. Since this farm is on an estate with a considerable amount of land, a practical solution to maintaining soil quality and satisfying the requirements of organic farming is to establish livestock farming to supply the necessary input.

In the case of the small farm, intercropping bananas with other crops will help maintain the balance of soil nutrients as well as provide the farmer with an additional source of income. The alternative crops can also be rotated to improve soil condition. Crop rotation also helps to break the life cycles of pests and weeds [Sullivan 2003]. Two recommended systems of intercropping for banana farms are shown in Diagrams 3 and 4. The spatial arrangement in Diagram 3 is one based on strip intercropping where two crops, banana and legumes, are grown in adjacent strips. The system is also referred to as alley cropping. The arrangement in Diagram 4 is one of mixed intercropping where two crops, banana and citrus, are grown but in no definite pattern.

The topography and climatic conditions in the Windward Islands determine, to a large extent, the type of crops that can be produced. Since most crops, especially those planted by small farmers are on steep slopes the most suitable agricultural crops are tree crops, such as cocoa and the banana, which is classified as a herb because of its shallow rooting properties. However, the cultural practices (intensive agriculture) associated with the production of these crops have resulted in significant soil erosion in most of the countries in the region.

The switch from an intensive method of production to a sustainable organic method would address the problem of soil erosion due to intensive production of bananas. However, attention has to be paid to irrigation especially in drought prone areas and proper drainage

systems in areas prone to flooding from torrential rains. Other critical questions in relation to the switch include the costs associated with the conversion to sustainable organic farming.

Small farms tend to be more labour intensive than large farms and labour costs in the Eastern Caribbean are higher than in competitor countries in Latin America, for example. Moreover, labour use on organic farms is usually greater than on conventional farms since more functions such as weed control are reliant on the use of labour. However, the reduction of expenditure from cessation of pesticide and chemical fertiliser use should result in lower total variable costs. This would only be the case if small farms do not have to purchase expensive organic fertiliser. Small farms can minimise labour cost through some level of mechanisation in new cultivation and rehabilitation of old fields and/or through a labour pool organized, for example, by an association of small farmers.

Diagram 3
Banana Alley Cropping System

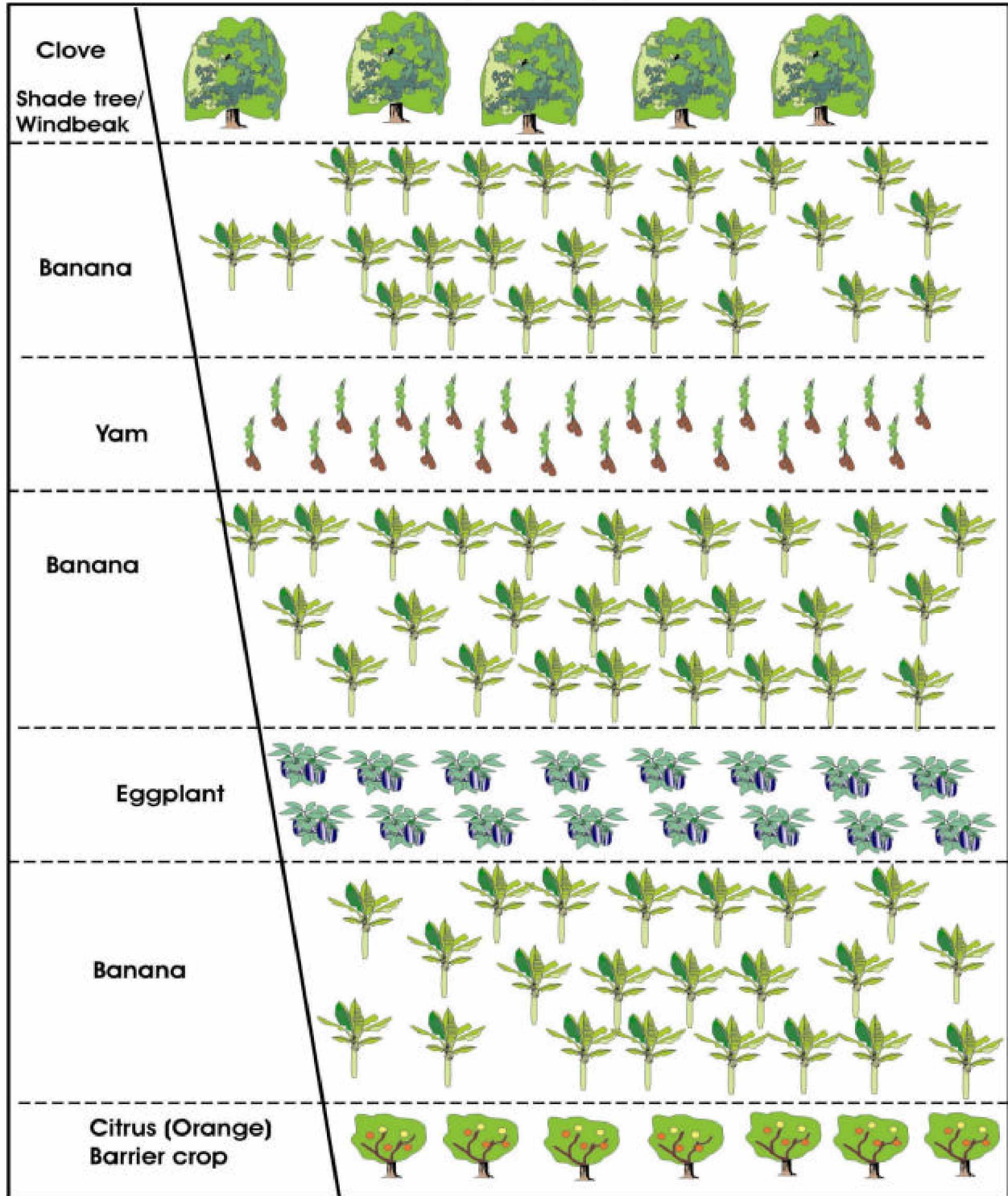
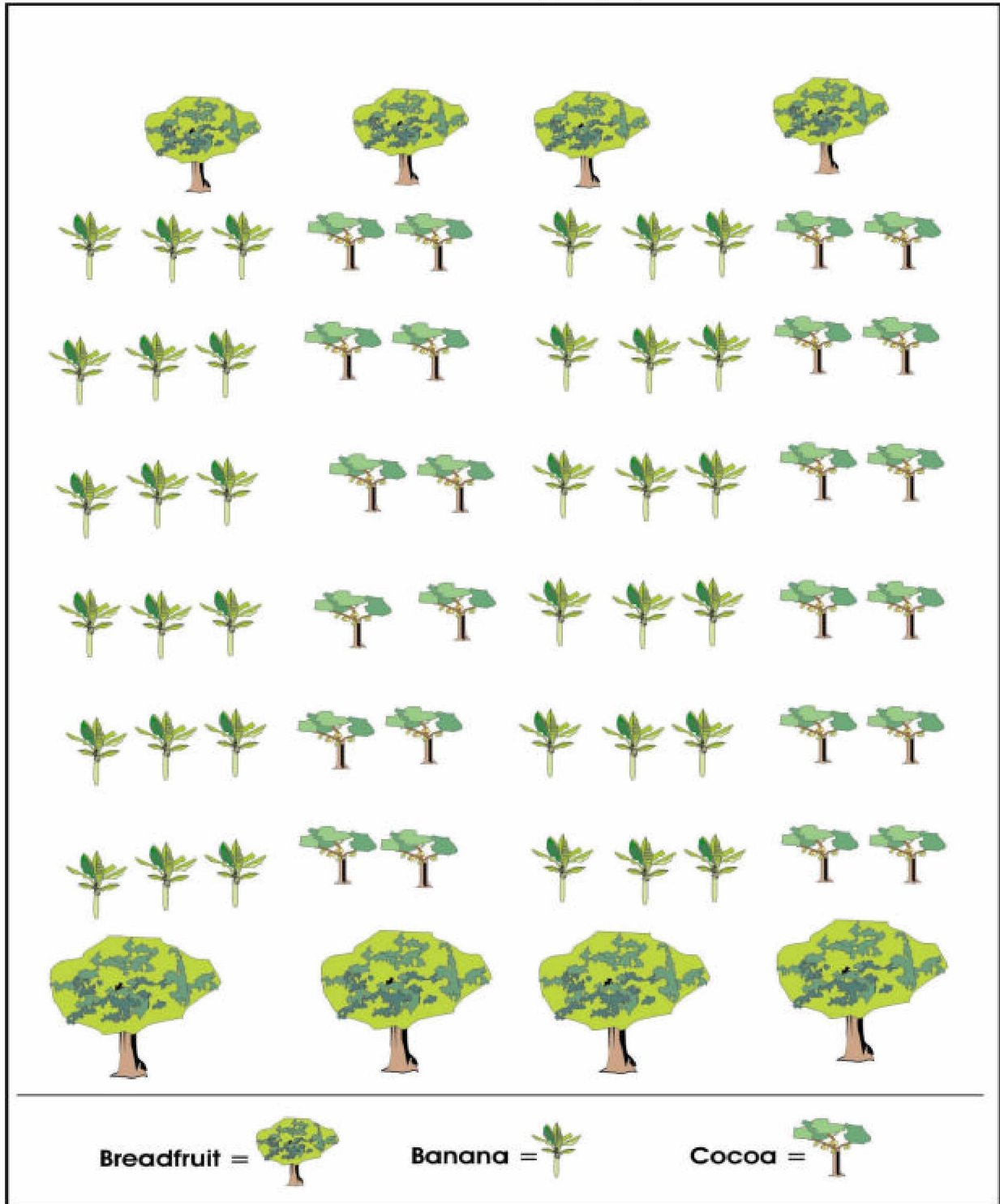


Diagram 4
Banana Mixed Cropping System



Support for sustainable organic agriculture

Policy support

The positive externalities (social and environmental) to be derived from organic farming as well as the costs of conversion require governmental support for the switch to sustainable organic agriculture. Caribbean governments have, from time to time, supported agriculture, in particular export agriculture. Support has taken the form of subsidised interest rates, technical assistance through the provision of extension services, subsidised inputs such as fertiliser and pesticides and specific incentive payments. Government support in the form of subsidised inputs contributed in no small way to the environmental degradation that resulted from indiscriminate use of pesticides and chemical fertilisers. It is therefore only fitting that government should contribute to the conversion toward sustainable organic agriculture, which would reverse the process of environmental degradation facilitated by previous government support to intensive production of export crops.

Policy support can take the form of financial and non-financial incentives. European, especially Scandinavian countries, established conversion aid schemes for farmers pursuing organic farming during the late 1980s. Financial incentives included one-off grants to farmers. These were supported by technical and other support schemes. Grants were provided to research institutes to support research in organic farming. Funding that is already provided to tertiary institutions in the Caribbean could be specifically targeted at research in appropriate organic agriculture for countries in the region.

Extension services in Caribbean countries would have to be reoriented away from their support to conventional farming. In the interim, reliance may have to be placed on private consultants for advice relating to organic farming. Farmers in the region have been relying on private advisers or on other farmers for technical advice. Farmers also need support for training in organic methods. The constraints on the fiscal budgets of most Caribbean governments may limit the extent of support that can be provided. However, there are sources of support that governments can access such as EU funds under the Cotonou agreement.

Institutional support

Institutions are important for the development of sustainable organic agriculture. Organic farming legislation and regulations as well as monitoring procedures would facilitate such development since they would foster consumer confidence in the authenticity of organic products. No Caribbean country has yet developed and implemented organic legislation. Saint Lucia is the only country in the region that is in the process of developing such legislation. On the other hand, a number of Central American countries have developed (Costa Rica, Guatemala and Mexico) or are in the process of developing (Nicaragua) organic legislation.

Private sector organic organizations/associations have been established in some countries, such as Jamaica and Trinidad and Tobago. These can be helpful in providing information as well as technical support to farmers. However, a regional institution is needed to develop regional

labelling standards and organic logos in light of the implementation of the Caribbean Community (CARICOM) Single Market and Economy (SME). The establishment of local certification organizations operating in line with the procedures of international certification organizations would help to reduce the high cost of certification.

European Union support

Assistance could be provided for the development of sustainable agriculture in Caribbean countries through development financing under the Cotonou Agreement of 2000. Funds are provided from the ninth European Development Fund (EDF). There is an initial allocation to CARIFORUM countries¹³ of €57 million. Since the Cotonou agreement is geared towards the establishment of a new trade regime based on reciprocity, additional financial instruments have been allocated to facilitate economic adjustment. One such instrument is the Special Framework of Assistance (SFA) with an average allocation of €33.5 million per year to facilitate adjustment by traditional suppliers of bananas.

The EU funds are channelled through a National Indicative Programme (NIP) or a Regional Indicative Programme (RIP). The EU has been financing Caribbean RIPs since 1975. The objective has been to contribute towards improving the living conditions of Caribbean people as well as facilitate the region's integration into the world economy. The STABEX mechanism has been used under successive Lomé agreements to provide compensation for fluctuations in earnings from major traditional agricultural exports.

Under their respective NIPs drawn up with the EU to cover the period 2000-2007, Dominica and Grenada are to benefit from allocations for long-term development under the ninth EDF. SFA allocations were approved in 1999 for a period of 10 years to facilitate restructuring of the banana industry. Allocations at the beginning of the programme were directed towards irrigation and road infrastructure.

Although specific mention is not made of support to sustainable organic agriculture¹⁴ funds under the EDF (A) allocation could be directed towards this objective. Under the reform of the EU Common Agricultural Policy (CAP), member countries are able to make direct aid payments to farmers in support of measures to preserve the environment such as organic farming. It should be noted that the CAP reform is intended to replace price support measures that have benefited Caribbean exporters with higher than world market prices. The implication for the Caribbean is that farmers would have to significantly reduce their costs of production or switch to production for niche markets.

¹³ These are the countries of CARICOM plus the Dominican Republic.

¹⁴ In its Action Plan for Organic Food and Agriculture, the EU indicated its support for the development of developing countries' organic agriculture and in particular trade in organic products from those countries. See EU "Communication from the Commission to the Council and the European Parliament: European Action Plan for Organic Food and Farming". Brussels [COM (2004)415].

5. Transition to organic farming

The transition to organic agriculture can be facilitated by Fair Trade agriculture. The main requirements of Fair Trade agriculture are centred on measures to protect the environment and record keeping of production and marketing activities, which would verify that the requirements have been met. Farming under Fair Trade arrangements can be considered an interim phase in the transition to organic farming.

The conversion phase of Fair Trade is appropriate for small farmers, especially those producing bananas in the small islands of the Caribbean, as it allows them to move gradually and in a less costly manner towards sustainable agricultural practices. In this phase, the farmer is prohibited from using herbicide. The use of insecticide and nematocide has to be based on a diagnostic analysis conducted by authorised Fair Trade representatives. The use of fertiliser is minimised rather than abolished. This allows for the maintenance of soil quality and hence yields during the process of conversion. Yields can decline during the conversion phase to organic farming where the use of chemical fertilisers is prohibited, especially after years of intensive production, which significantly depletes soil quality.

The Fair Trade premium can compensate for the inability of government to provide adequate financial support to farmers in transition to organic farming. Fair Trade prices for banana in Europe are about 30-35% higher than prices for conventional bananas. Part of the higher earnings can go toward upgrading labour skills and increasing farmers' capacity to effectively manage the production and processing of organic products. A critical, if not the most critical, requirement of sustainable organic agriculture is the ability to manage the process.

Since organic farming is essentially about a different method of production rather than a new product, management of the process is a major skill that farmers will have to master. Some of the main elements in the process are: weed control by non-chemical methods such as crop rotation and manual weeding, composting to replace chemical fertilisers and record keeping, which is essential for both Fair Trade and organic certification. Although Fair Trade premia can support some of these requirements, they are available only for agricultural commodities, such as banana and cocoa. Conversion to organic farming in relation to other crops would necessitate strong reliance on government support, both financial and technical.

6. Marketing of organic agriculture

Exporting abroad

World retail sales for organic products were estimated at about US\$16 billion in 2000 and US\$19 billion in 2002 with a forecast for 2003 of US\$23-25 billion based on world retail sales in 23 European countries, the United States, Canada, Japan, Australia and New Zealand [Kortbech-Olesen 2003]. However, although organic agriculture is currently one of the fastest growing food sectors, certified organic agriculture represents only about 1-2% of total food sales.

The traditional markets for Caribbean exports of agricultural commodities have been the countries of the EU, in particular the United Kingdom, based on its historic relationship with its former colonies. This relationship has continued to determine the market orientation of Caribbean organic products. Imports account for more than three quarters of the United Kingdom organic market for vegetables and fruits. Bananas represent the largest volume of imports followed by oranges, pineapples, mangoes and guavas. Most of the bananas are imported as Fair Trade bananas from the Windward Islands in the Caribbean. However, EU banana quotas and slow growth in demand in the United Kingdom limit the growth of imports.

Organic export prices are 10-20 % higher than prices of similar conventional exports. The price premium tends to be high for produce such as sweet potatoes, limes, pineapples and mangoes. In order to take advantage of these markets, Caribbean exporters would have to ensure that they maintain consistent quantity and quality of products at competitive prices. They would also have to meet certification criteria of accreditation organizations based in the United Kingdom (such as Soil Association). In addition, attention needs to be paid to the marketing end of the chain if Caribbean exporters want to realise the full benefit from premium prices. Latin American exporters derive greater benefit by marketing their products themselves rather than relying on middlemen.

The Dutch market is considered a gateway to European markets. However, growth in organic imports has been constrained by the difficulty in obtaining a high price premium over conventional products. Moreover, domestic organic production has been growing as a result of government stimulus through subsidies to farmers during conversion to organic farming. Nevertheless, a potential import market exists for vegetables and fruits such as banana, mango and pineapple. The Dominican Republic is the major exporter to the Dutch market for banana, ginger and mango. The country is also a major exporter of bananas to Switzerland where there is strong potential for imports of tropical fruits. However, imports are subject to strict standards and import quotas.

The United States is the largest market for organic products (US\$9.5 billion in 2001). The greatest potential for organic imports into the United States market lies in supplying tropical products not grown domestically, off-season products, in-season products for which there is temporary or more permanent shortage and novelty or specialty products such as ethnic food. As is the case in Europe, exporting countries have to satisfy a number of import requirements in addition to organic certification such as phytosanitary certification, grade and quality standards

and standards for tolerance of pesticides, herbicides and fungicides. In recent times, new requirements have been added to counter threats of bio-terrorism.

Agro-tourism and the domestic market

A potential organic market exists within the tourism sector in Caribbean countries. Caribbean countries have tended to produce fresh and processed food for foreign and domestic markets and import instead food, including fresh produce, for the tourism sector. This has been changing more in some countries such as Jamaica and Saint Lucia where local produce accounts for an increasing proportion of total fresh food purchases by the hotel sector. In addition, a trend has emerged recently of organic production oriented towards the sector. However, it is tourist resorts and hotels that have integrated backwards into organic farming in order to diversify the tourism product.

Interviews were carried out at a number of resorts that are involved in eco-tourism in Tobago. The resorts all have farms on their properties, which range from 10-24 hectares [25->60 acres]. The system is one of mixed crops, cocoa and banana or banana intercropped with forest trees (cedar and mahogany), citrus and vegetables. The farms use, as far as possible, a natural method of production – a compost system along with livestock manure, organic insecticide and manual weed control. The resorts produce (uncertified) organic produce, labelled as naturally produced, for the exclusive use of their guests. There is no premium price paid for the produce. The cost of production could not be ascertained in order to determine the level of profit compared with the profit on conventional produce.

Organic production for the domestic market is done by a farm whose objective is to create a “touch and smell” system for consumers; consumers are allowed to select their purchases directly from the field. The farm products are sold at the same price as conventional products largely because of the farm’s need for quick cash and the type of consumers who buy the produce. On 2.4 hectares of land the farm produces tomatoes, sorrel, herbs (chive, celery and thyme) and cassava. No agro-chemicals are used in production. Livestock manure as well as dry leaves and grass are used to fertilise the field. Weed is controlled manually and through the use of plastic mulch. Organic insecticide in the form of marigold and chive is used as guard crops along the beds of produce.

There are problems faced by the farm that are typical of small farms in the Caribbean. These include unavailability of labour – only four people are employed, two of whom are on a part-time basis – low yield of tomato crops due to nematode infestation, limited land space for producing organic products, flooding during rainy season and low supply of water during dry season. In addition to these constraints, farming using the organic method resulted in slow plant growth compared with farming using conventional methods. In addition, the farm is subject to pollution from a neighbouring conventional farm. Even more important is the absence of organizations to monitor and regulate organic farming.

There is growing awareness of food safety and healthy eating in the Caribbean, which could stimulate development of sustainable agriculture. Such development requires involvement of government, private producers and civil society. Although private producers are the ones who

must assume the risks of switching to sustainable agriculture Caribbean governments would have to set the policy framework within which support can be provided to facilitate the process. Data on production and marketing of organic products would be important for guiding the policy process.

7. Conclusion

The trend towards trade liberalisation at regional, hemispheric and multilateral levels has forced a rethink of the strategy of reliance on export earnings from traditional agricultural commodities. This is largely because Caribbean agricultural exports have not been competitive vis-à-vis other countries, such as those in Latin America. Exports, instead, benefited from preferential access to EU markets. However, that access has been challenged within the framework of the WTO by developing countries (mainly in Latin America) and has resulted in a change, for example, in the EU banana regime. The response has been an effort toward restructuring traditional industries to make them more competitive and/or diversifying into other areas with export potential.

This trend as well as the trend towards increased health and environmental concerns of people, especially those in developed countries, has influenced the development of organic agriculture as an alternative to the conventional agriculture practised in most countries. The adoption of organic production methods in the Caribbean is being driven by market demand and the intervention of external interests rather than by government policy aimed at changing production structures. The organic cocoa project in Guyana, organic cocoa and chocolate production in Grenada and Fair Trade and organic bananas in the Windward Islands are cases in point.

Renewed focus on the agriculture sector in Caribbean countries is justified on account of the sector's contribution to income and employment as well as the need to maintain a level of food security, which in turn justifies the focus on sustainable agriculture. Sustainable agriculture is more than the adoption of organic methods of production to preserve the environment. It is largely about the effective management of farm systems to, among other things, develop and preserve biological diversity to control pests and maintain and replenish soil nutrients. However, while this is a necessary focus it is not sufficient, as it must take into account the human factor in the development process.

Sustainable agriculture must also be geared towards sustaining the livelihoods especially of small-scale producers and rural communities. Organic farming can be profitable as well as sustainable providing variable costs do not exceed those associated with conventional farming and farmers can obtain premium prices for their products. There are problems that farmers could face, among them are, the savings from cessation of pesticide use may not be significant if procurement was heavily subsidised by government; farmland may be too small to facilitate crop rotation or livestock farming, which would obviate the need to purchase expensive organic fertiliser from external sources; and the difficulty in satisfying the demand for labour required to perform increased manual functions associated with organic methods of production.

This raises the question of whether organic farming is more suitable for export agriculture than for satisfying the needs of the local population. Farmers can obtain premium prices for exports of organic produce, for which most of the local population would not be willing or able to pay. However, if productivity and production is significantly increased then reasonable returns could be obtained from regular sales in domestic and regional markets. Unfortunately, this assumption could not be tested within this study because of the short time-frame and lack of resources to undertake field surveys. Nevertheless, the assumption may be reasonable based on the experience in other developing countries. For example, farmers were able to double crop yields using organic methods in Ghana.¹⁵

The switch to sustainable organic agriculture has to be a gradual one on account of the significant costs of conversion from conventional to organic farming and the poor quality of much of the soil in the region due to decades of intensive farming. Fair Trade agriculture is a useful approach for facilitating the transition to organic production. Nevertheless, agricultural producers need financial, technical and institutional support to adopt organic farming methods and conform to standards and certification requirements.

The export of organic products will only remain profitable if export markets continue to be niche markets. Organic bananas could be one such market because production is constrained by limited land, soil fertility and disease, such as Black Sigatoka [Scialabba 2000]. Producers in the Windward Islands, which tend to be free of Black Sigatoka, could have a comparative advantage in organic bananas provided that soil fertility can be enhanced by effective organic farm management.

Caribbean cocoa exports would tend to be in a better position than banana exports because of the uniqueness of the cocoa beans produced in the region. Nevertheless, the vagaries of the international market for cocoa beans and the need to develop an integrated industry would dictate that some Caribbean countries, such as Grenada¹⁶, Guyana and Trinidad and Tobago, integrate forward into organic chocolate and other organic cocoa products. This raises another question regarding the tendency of Caribbean producers to operate mainly at the level of primary production.

Most of the countries in the Caribbean are still significantly dependent on primary commodity exports. Primary products constitute over 40% of the merchandise exports of all Caribbean countries, except the Dominican Republic, Antigua and Barbuda and St. Kitts and Nevis. If Barbados, Dominica and Haiti are excluded, primary products represent over 50% of the merchandise exports of the rest of the region. However, the international trend has been to export products in some processed form. For example, Costa Rica exports culinary herbs in a semi-processed or crushed form rather than as a primary product. Caribbean countries need to market their produce in a processed form that not only adds value to the product and increases earnings, but also reduces the costs of the final processors.

¹⁵ This was reported in a paper entitled "Factors Influencing Organic Agriculture Policies with a Focus on Developing Countries" by Nadia Scialabba of FAO, Rome at the IFOAM 2000 Scientific Conference in Basel, Switzerland.

¹⁶ Grenada has already gone this route through its integrated production of organic cocoa beans and organic chocolate.

Finally, the adoption of organic farming practices would restore the biodiversity lost to conventional farming of monocrops. It would also restore the integrity of rural communities that practised traditional farming to provide a level of food security. A community-based approach would facilitate the sustainability of organic agricultural production systems. A group of organic farmers comprising a community would be able to conserve on labour costs as well as on the cost of preserving the organic integrity of individual farms and share the cost of organic certification of contiguous farms.

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