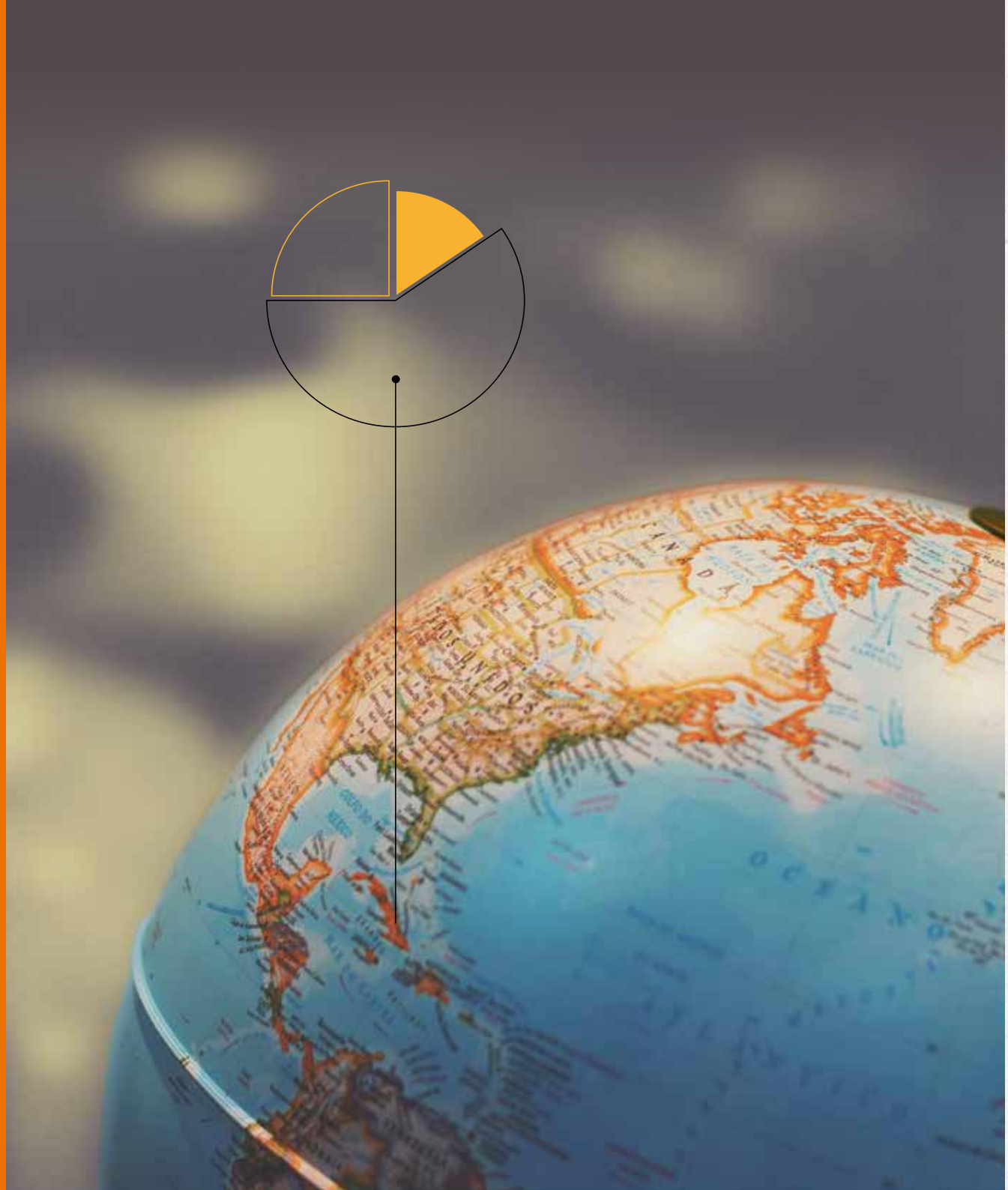


MARKET STUDY OF FRUIT AND VEGETABLES FROM ACP-CARIBBEAN COUNTRIES

SEPTEMBER 2021

COLEACP

ABOUT COLEACP, ITS PROGRAMMES AND SERVICES

The Europe-Africa-Caribbean-Pacific Liaison Committee (COLEACP) is a private sector association of companies, associations and experts from African, Caribbean and Pacific (ACP) and European Union (EU) countries committed to sustainable agriculture. COLEACP's mission is to develop inclusive and sustainable trade in agricultural and food products (particularly fruit and vegetables), primarily within the ACP States and between these countries and the EU. For 45 years, COLEACP has been pioneering a new model of collective social responsibility, combining global reflection and local action for the benefit of the ACP-EU fruit and vegetable sector by focusing on the development of human capital. COLEACP is committed to combining economic, social and environmental transition to lay the foundations for new partnerships within agri-food value chains.

Since its creation, COLEACP has been managing development cooperation programmes in the ACP agriculture and food sector. COLEACP's two main programmes currently being implemented are Fit For Market and Fit For Market SPS, funded by the French development agency (Agence francaise de developpement, AFD) and the European Union (EU, both programmes) in agreement with the Organisation of African, Caribbean and Pacific States (OACPS, formerly the ACP Group of States). Fit For Market and Fit For Market SPS are part of the Intra-ACP Indicative Programme (2014–2020) for cooperation between the EU and the OACPS. They form part of EU support for medium- and long-term policies aimed at strengthening productive capacity, stimulating innovation, and improving the sustainability and competitiveness of the ACP private sector. The overall objective of the two programmes is to contribute to poverty reduction, improve food security and food safety, and achieve sustainable and inclusive growth by strengthening the ACP agri-food export sector. The specific objective is to enable smallholders, farmers' groups and organisations, and micro, small and medium-sized enterprises (MSMEs) to access national and international horticultural markets by complying with sanitary and phytosanitary (SPS) standards and market requirements in a sustainable framework.

Since the launch of Fit For Market (2016) and Fit For Market SPS (2019), COLEACP has received nearly 900 requests for support from companies and private and public actors representing the collective interests and diversity of challenges facing the agri-food industry in ACP countries. The volume and frequency of requests for support addressed to COLEACP demonstrate not only the growing needs, but also the dynamism of the sector in these countries in domestic, regional and international markets. COLEACP individually or collectively supports all these actors in improving their managerial, technical and educational skills with the objective of improving their competitiveness through the adoption of sustainable practices.

In addition to its intra-ACP activities, COLEACP also manages national programmes (Cameroon, Guinea and Togo) in sub-Saharan Africa financed by the Standards and Trade Development Facility (STDF). The main objective of these programmes is the strengthening of SPS control systems in agricultural value chains. COLEACP started a new national programme in May 2020: NExT Kenya, funded by the EU and implemented in collaboration with the EU Delegation in Nairobi. NExT Kenya aims to increase the resilience, inclusiveness and sustainability of Kenya's horticultural value chains.

COLEACP is organised into seven services. The activities of each service are financed by cooperation programmes (mentioned above) and can be accessed by programme partner-beneficiaries and by members of the association. This market study was carried out by the COLEACP Market Intelligence service and published by the Information & Communication service.

CONTENTS

ACRONYMS AND ABBREVIATIONS

ACP	African, Caribbean and Pacific Group of States (now OACPS)
AFD	French development agency (Agence française de développement)
Brexit	Withdrawal of the UK from the EU
CAFTA-DR	Dominican Republic-Central America Free Trade Agreement
CARDI	Caribbean Agricultural Research and Development Institute (Caribbean Community)
CARIRI	Caribbean Industrial Research Institute
CARICOM	Caribbean Community
CARIFORUM	Caribbean Forum (OACPS)
CEPII	Centre d'Etudes Prospectives et d'Informations Internationales
CARIRI	Caribbean Industrial Research Institute
CBI	Centre for the Promotion of Imports from Developing Countries
CIAT	International Center for Tropical Agriculture
CIF	Cost, Insurance and Freight
COLEACP	Europe-Africa-Caribbean-Pacific Liaison Committee
COVID-19	Coronavirus disease 2019
EU / EU27	European Union that consists of 27 countries (excluding the UK)
Eurostat	European Commission Statistics Office
EXW	Incoterm: Exworks
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO Corporate Statistical Database
FOB	Incoterm: Free on Board
GDP	Gross Domestic Product
GLOBALG.A.P	International set of farm standards for the certification of good agricultural practices
GMO	Genetically Modified Organism
HACCP	Hazard Analysis Critical Control Point
HS	Harmonized System
Incoterm	International Commercial Terms
JAD	Junta Agro-Empresarial Dominicana
MRL	Maximum Residue Limits
NCD	Non-Communicable Disease
NGO	Non-Governmental Organisation
OACPS	Organisation of African, Caribbean and Pacific States
SPS	Sanitary and Phytosanitary
SWOT	Strengths, Weaknesses, Opportunities and Threats
UK	United Kingdom of Great Britain and Northern Ireland
USA	United States of America

SYNTHESIS

The horticultural sector is going through a complicated decade in the ACP-Caribbean countries. It has been negatively affected on many occasions by weather events of all kinds like hurricanes, floods, and droughts, but also pests and diseases have had a significant impact on the production of several citrus crops, with oranges being the most affected. The COVID-19 crisis caused a drop in domestic and international sales, mainly because of the huge contraction of incoming tourism and logistical problems to reach customers abroad. The tourism industry is a big consumer of the horticultural sector and its processed products, especially in the Dominican Republic.

However, over the last decade, the horticultural sector registered an important growth of 28% with 18,541,000 tonnes of produce, with Grenada, Guyana and the Dominican Republic the countries registering the biggest growing trends. Concerning more specifically organic agriculture, the Dominican Republic leads the continuous growth of regional production. To be noted : there is also an untapped potential to develop large scale organic production in bigger land mass countries like Guyana and Suriname.

This COLEACP market study includes a complete analysis of the flows of imports and exports with main commercial partners of ACP-Caribbean countries. The study also provides a tool to assist producers, exporters, and importers aiming to look for new market opportunities. It will also identify the challenges to overcome regarding the impacts of COVID-19, Brexit and climate change.

The local market is very important for horticultural produce and the linkages with the tourism and food industry have showed to be of paramount importance in countries like the Dominican Republic and Jamaica. Caribbean countries are flooded mainly with imported processed food products. Major vegetable imports include fresh and processed potatoes (frozen), all kinds of dried beans, garlic and onions. In the fruit category, apples, apple juice and grapes are at the top of the chart. Jamaica is making efforts to produce potatoes and reduce the dependency on imports but it is hard to compete with imported potato products, since the US and Europe have large scale plantations. Some dried pulses and beans are produced locally but not enough to cover the demand of this important staple of Caribbean cuisine. If some of these products could be produced even on a small scale by encouraging subsistence agriculture and permaculture, a large part of these imports could be reduced while providing the population with larger quantities of fruits and vegetables required for a better health and quality of living.

From a regional perspective, there is no real dynamism in the trade relationship between the Caribbean countries, but rather a few specific transactions among some countries. The main aspects blocking a better exchange are a lack of logistic services and poor implementation of the commercial treaties. Relaxed individual phytosanitary requirements in line with the intent of regional agreements should dynamize the flow of commerce within the region. Intra ACP-Caribbean commerce does not register big flows except for some trade of orange juice between Belize and the Dominican Republic, processed groundnuts from Trinidad and Tobago to Jamaica, coconuts between Guyana and the Dominican Republic, and bananas from St. Lucia and St. Vincent and the Grenadines to the neighbouring islands. Regional trade is mainly constrained by a poor logistic service across the islands (air and sea), needing in some cases a transit through Miami or Puerto Rico, and, many non-tariff barriers like phytosanitary restrictions that complicate the free movement of goods.

Regarding international trade, between 2009 and 2019, the volume of exports has fallen by 17.5% and the value reduced by 10.26% (constant US$ 2010) while the volume of imports remains almost unchanged, and their values seen a slight increase of 2.4%. In 2019 exports registered a value of US$857 million versus US$938 million of imports, leaving a deficit of 81 million of horticultural produce. As a conclusion, we could say that even if exports have dropped considerably, the increase in overall domestic production has avoided a bigger growth of imports.

The Dominican Republic is leading the exports of organic fresh fruits, especially bananas, and has excellent perspectives with other products like avocados, mango and even pineapple. Jamaica is

leading exports of roots and tubers, but also of value added products such as sauces, which are entering the international markets, while other countries like Guyana and Suriname must work harder to have better control on pest and disease management and maximum residue levels (MRL) to avoid produce interception. Trinidad and Tobago are more focused on the value-added activities related to nuts and leads the region in this regard.

Regarding the impact of Brexit, as most Caribbean products used to enter Europe through the UK, it is advisable that Caribbean exporters look for new ports of entry in continental Europe to avoid cumbersome and costly import-export fees.

Many small companies are launching value added products on the domestic market, while they are also looking at possibilities of exporting these products. With a Caribbean diaspora of almost 5 million people concentrated mainly in the East Coast of the US, Canada, the UK and the European Union, there is a good opportunity to promote and develop Caribbean cuisine in those markets and hence increase exports of non-traditional value-added products.

We found that the EU+UK is the largest export market for ACP-Caribbean countries, while the USA is the largest import partner. This demonstrates the attractiveness of the European market despite its geographic distance and demanding regulatory requirements. In the context of the European Union's Green Deal and Farm to Fork strategy, it will be important to support ACP fruit and vegetable value chains to ensure that EU regulatory changes do not constitute obstacles to these value chains accessing this remunerative market. The ACP-EU trade is an important contributor to the development and transformation of local agricultural systems.

Finally, and in greater detail, the market study will have identified the most promising market segments, namely:

Crops \ Market		Domestic	Regional	International
Fruits	Banana	C	C	CO
	Avocado	C	O	CO
	Mango	C	O	CO
	Pineapple	C O	O	O
	Other /ethnic fruits	C O	O	C O
	Coconut	C O	CO	O
Vegetables	Beans & other pulses	C O	O	
	Fresh ethnic vegetables	C O	O	C O
	Roots & tubers	CO	C O	O
	Capsicum Pepper	C	C O	C O
Processed	Bananas	C O	C O	O
	Fruit juices	C O	C O	O
	Pumpkin	O		
	Coconut	C O	C O	O
	Dried fruits	O	O	C O
	Root and Tubers	C O	C O	O
	Tomato	C	C O	
Spices	Purees and condiments	C	C	C O
	Aromatic crops	O	O	CO

Caption: C = currently well-established; O = opportunity

1 INTRODUCTION

1.1 The Europe-Africa-Caribbean-Pacific Liaison Committee (COLEACP)

COLEACP is a private sector inter-professional not-for-profit association established in 1973 by stakeholders in the international fruit and vegetables trade. As a network of companies, professional organisations and experts, COLEACP is committed to inclusive and sustainable agriculture. COLEACP aims at empowering ACP (Africa-Caribbean-Pacific) horticultural enterprises to embrace opportunities on their domestic and regional markets and to improve their access to international export markets.

In this context, the COLEACP Market Intelligence Department carries out market studies on the horticultural sector. This market study focuses on the ACP-Caribbean region. A market study analysing the horticultural sector in sub-Saharan Africa was published in 2020. A third market study dedicated to the ACP-Pacific countries is also published.

This market study provides improved understanding of the economic and commercial status of the horticultural market in the ACP-Caribbean countries to support private and public actors in the countries' horticultural value chain. This market study also provides COLEACP members and partners with an overview of the most recent trends in trade and markets of ACP-Caribbean fruit, vegetables and spices.

1.2 Fit For Market and Fit For Market SPS

In May 2016, the European Commission (EC) and COLEACP signed a five-year grant contract for the programme Fit For Market – Strengthening competitiveness and sustainability of the ACP horticultural sector (CRIS 374–029), with a total budget of €25 million, funded up to €20 million from the 11th European Development Fund (EDF) and €5 million from the French development agency (Agence française de développement, AFD). Fit For Market is supported by the Strengthening Sanitary and Phytosanitary Systems of the ACP Horticultural Sector (Fit For Market SPS; CRIS 401–899), with a total budget of €15 million. Both programmes are part of the Intra-ACP Indicative Programme (2014–2020) of cooperation between the EU and the ACP Group of States (now the Organisation of African, Caribbean and Pacific States, OACPS), in the focal area of support for medium- and long-term policies to build productive capacity, inspire innovation, and enhance the sustainability and competitiveness of the private sector.

Both programmes have the same overall and specific objectives. The overall objective is to reduce poverty, improve food security and food safety, and ensure sustainable and inclusive growth by strengthening the agri-food export sector in ACP countries. The specific objective is to enable smallholders, farmer groups and organisations, and micro, small and medium-sized enterprises (MSMEs) to access international and domestic horticultural markets by complying with sanitary and phytosanitary (SPS) regulations and market requirements in a sustainable framework.

Fit For Market and Fit For Market SPS are directed at increasing production, profitability and competitiveness, while minimising negative impacts on climate, ecosystems and the productive environment. They also address the social and economic dimensions of sustainability, including livelihoods, economic viability, social justice and inclusiveness. There is particular emphasis on smallholder participation, young people and women, who are frequently the most disadvantaged by the changes taking place in local and global supply chains, and who often have most to gain from improved conditions of production, employment and trade.

Building on the approach used by the earlier programmes, the activities of Fit For Market and Fit For Market SPS are based around requests for support from ACP companies, producer groups, and public and private intermediary support structures that are actively working to support compliance in the relevant ACP supply chains (service providers, professional organisations, training centres, inspection services, etc.).

The implementation of these programmes aims to strengthen capacities in horticultural health security and plant health at the levels of private sector actors (small producers, agricultural groups and organisations, MSMEs, etc.) and competent authorities. To do this, COLEACP helps the beneficiaries of the programmes to comply with the (regulatory) requirements of the market, in particular those relating to food safety. In addition, COLEACP studies the target markets for ACP fruits and vegetables, in particular local and regional ACP markets, with a view to better understanding them in terms of quality and quantity.

This market study has been achieved under the Fit For Market and Fit For Market SPS programmes. It provides a quantitative and qualitative assessment of the existing and potential markets for ACP-Caribbean fruit and vegetables.

1.3 Methodology

This study comprises a general analysis on the 16 ACP-Caribbean countries, with deeper analysis for five focus countries. The selected countries are: the Dominican Republic, Guyana, Jamaica, Suriname, and Trinidad and Tobago.

With COVID-19 still being an issue, the study was performed mainly remotely, but with part of the team being based on the Caribbean islands, allowing the inclusion of first-hand information and to ensure that data trends are confirmed by the local realities. Interviews with stakeholders were conducted mainly remotely to respect COVID-19 safety measures. The information analysed in this study came from various sources: Eurostat, International Food Policy Research Institute (IFPRI), Centre d'Etudes Prospectives et d'Informations Internationales (CEPII) BACI, FAOSTAT, World Bank Open Data, and local government websites. The data was retrieved in July and August 2021 from the sources mentioned above. Other commercial websites have been consulted to obtain trends information, prices and other current data.

The growth calculations are based on the difference between the year 2009 and 2019, so it should not be considered as a general trend. For further analysis and graphs with the trends of the main products are included. Despite having made an analysis of the data and the cross-checking of information from different sources, in certain cases it is possible that reported values could contain some errors.

Concerning trends in value, constant 2010 US$ were used for trends over several years to remove the effects of inflation and provide a more precise idea of the export and import trends. However, when a value is given for a specific year, it is given in current US$ to provide a more realistic view of the current value of a product, an import or an export. The United Kingdom has been analysed separately from the European Union even though the data still pertains to the period when it was part of the European Union; it is important to separate the UK from the EU in the analyses and trends since current and future negotiations with the UK are done independently. Additionally, it must be taken into account that the UK has a historical relationship with the Caribbean as a major commercial partner.

General aspects have been considered as COVID-19 impact, climate change, international regulations, and logistics. We have also considered local policies and incentives from governments and a general overview of the Caribbean Community (CARICOM) approach for the scope of this consultancy.

1.4 Scope of the study

1.4.1 Geographical coverage

This study focuses on the geographic area referred to as the "ACP-Caribbean" region. Within the boundaries of this area are 16 ACP-Caribbean member countries: Antigua and Barbuda, Barbados, Belize, the Bahamas, the Commonwealth of Dominica, the Dominican Republic, Cuba, Grenada, Guyana, Haiti, Jamaica, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Suriname, and Trinidad and Tobago (Figure 1). The total population is 41 million inhabitants (Table 1). Fifteen of the countries (except the Dominican Republic) are full members of the Caribbean Community (CARICOM), and all these countries except for Cuba and Haiti signed the CARIFORUM Partnership Agreement with the EU in 2009, and after Brexit, CARIFORUM countries signed an Economic Partnership Agreement with the UK in 2019. An agreement between the USA and the Dominican Republic is included in the Dominican Republic-Central America Free Trade Agreement (CAFTA-DR).[1]

1 USTR (2021) CAFTA-DR (Dominican Republic-Central America FTA). Washington, DC: Office of the United States Trade Representative. https://ustr.gov/trade-agreements/free-trade-agreements/cafta-dr-dominican-republic-central-america-fta

Figure 1: *Geographical coverage of this market study*

Table 1: *Overview of countries included in the study by GDP per capita, populations, land area and urban population, 2019*

Country	GDP per capita (1,000 current US$)	Population	Land area (km2)	Urban population (% of total pop.)
Antigua and Barbuda	17.1	97,115	440	25%
Bahamas	34.9	389,486	10,010	83%
Barbados	18.2	287,021	430	31%
Belize	5.1	390,351	22,810	46%
Cuba	9.1	11,333,484	103,800	77%
Dominica	8.0	71,808	750	71%
Dominican Republic	8.3	10,738,957	48,310	82%
Grenada	10.8	112,002	340	36%
Guyana	6.6	782,775	196,850	27%
Haiti	1.3	11,263,079	27,560	56%
Jamaica	5.4	2,948,277	10,830	56%
St Kitts and Nevis	19.8	52,834	260	31%
St Lucia	11.6	182,795	610	19%
St Vincent and the Grenadines	7.5	110,593	390	53%
Suriname	7.3	581,363	156,000	66%
Trinidad and Tobago	16.6	1,394,969	5,130	53%
Total	**187.4**	**40,736,909**	**584,520**	**(average) 51%**

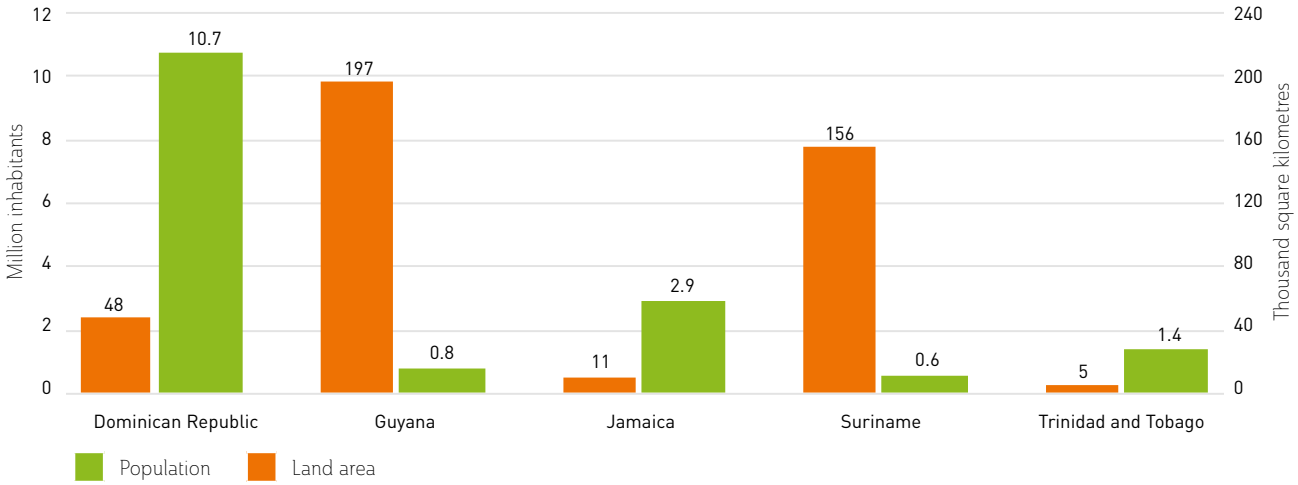
Source: COLEACP based on World Bank.

For the purpose of this market study, COLEACP has designated 5 of the 16 countries as "focus countries", to be addressed in more depth than the other 11, namely the Dominican Republic, Guyana, Jamaica, Suriname, and Trinidad and Tobago (Table 2). Of these countries, the Dominican Republic and Jamaica are most densely populated, while Guyana and Suriname have a much larger land area with a more modest population (Figure 2).

Table 2: *Overview of the focus countries of this study*

Country	Type	Income level
Dominican Republic	Large island state	Medium-ranking per capita income
Guyana	Continental state	Low-ranking per capita income
Jamaica	Large island state	Low-ranking per capita income
Suriname	Continental state	Medium-ranking per capita income
Trinidad and Tobago	Large island state	High per capita income

Figure 2: *Focus countries of this study by population and land area, 2019 (Source: COLEACP based on World Bank)*



1.4.2 Product coverage

This study is limited to exports from ACP-Caribbean countries to the world and imports from the world to ACP-Caribbean countries for a limited set of products.

The market study scope includes fruits, vegetables, spices, and their processed products in the ACP-Caribbean countries, corresponding with Harmonized System (HS) chapters 07 *Edible vegetables and certain roots and tubers*, 08 *Edible fruit and nuts; peel of citrus fruit or melons*, 09 *Coffee, tea, maté and spices (of which only spices have been analysed)* and 20 *Preparations of vegetables, fruit, nuts or other parts of plants*. We emphasise the most important products in the focus countries along with products with growth potential, even if those products are not yet economically very significant. This study analyses the recommendations of previous technical studies and official documents that identified specific fresh vegetables, fruits and spices of importance to the region in terms to enhancing food security, import replacement, linkages with food industry and the tourism sector, and increasing export earnings and foreign exchange.

2 PRODUCTION

2.1 Status of the Agricultural Sector in ACP-Caribbean countries

In continental and large land mass countries such as Belize, Cuba, Suriname, Guyana, the Dominican Republic, Jamaica, and Trinidad and Tobago, there continues to be significant plantation-type production of crops such as rice, sugarcane, banana, coffee and cocoa. The agricultural sector has moved from one dominated by the export-oriented monocrop plantation production, to a dual mode of production characterised by the presence of numerous small and medium-scale rainfed farming enterprises, averaging 1-2.5 hectares and producing a wide range but limited amounts of vegetables, fruits, root crops, spices and livestock.

2.1.1 Production challenges

Plantations and small to medium-sized enterprises in the Caribbean region could improve their productivity (in terms of yield per unit area of land or input) and market competitiveness by overcoming challenges and prioritising and defining strategies to:

- improve water distribution and land management systems
- mitigate high cost and less availability of farm labour especially in countries with significant tourism and oil sectors
- improve value chain actors' access to financial resources and new investments
- improve access to better varieties of seeds
- invest in research and development
- improve monitoring and response to pests and diseases
- decrease levels of praedial larceny (theft of agricultural produce)
- decrease post-harvest losses
- improve farmers', processors' and exporters' abilities to meet international food safety standards that are currently causing blockages
- improve and promote entrepreneurship amongst producers
- update agricultural health and food safety (AHFS) systems and (pre- and post-harvest) technologies
- invest in road and sea transportation systems, particularly for perishables
- provide integrated market information and intelligence systems
- take measures to reduce the impact of deleterious weather conditions, namely hurricanes, storms and drought on natural resources
- improve and better coordinate disaster and other farm risk management measures.

Given the region's agro-climatic conditions and price competitiveness, the potential for local production to replace imports is limited but possible. It will be useful to develop programmes to train and organise farmers to deliver the requirements of hotels in a timely, consistent and competitive manner. A coordinated action among stakeholders such as government, universities, non-governmental organisations (NGOs) and the private sector is necessary to develop programmes aimed at increasing productivity, implementation of quality standards, and promotion of investments in infrastructure such as irrigation systems, energy efficiency, cold chains, food safety systems and logistics operations.

2.1.2 Local production and trade

At domestic level, with increasing per capita income, urbanisation and the associated increase in the influence of the electronic media and travel on consumers, there have been considerable changes in the diet of much of the region's population, manifested in a shift towards consumption of more processed and energy-dense foods of extra-regional origin. While this is happening, domestic food producers and processors have been strengthening their links with large domestic buyers (industry, tourism sector), supermarket chain stores and consumers, but have yet to meet their changing demands for better-quality and convenience foods. The result is that, compared with extra-regional food suppliers, ACP-Caribbean-based smallholder producers have less of a presence in high growth food market segments such as hotels, restaurants and supermarkets. The increasing food import bills are a manifestation of this lack of presence. Investments in infrastructure, irrigation, cold

chains, food safety systems and port operations are also key to enabling farmers to comply with the standards required by international companies. This is fundamental to complement the high-value food demand by tourism, processing, retail and international trade.

Despite this situation, the local market continues to be the most important market for producers in the Caribbean. Proof of this is that many products that have grown in volume in recent years have not yet reached high volumes on the international market but are still potentially strong on the domestic market. For example, in the case of fruits, plantains and papaya are among the products with the highest volume of production even though they still do not have a significant volume in exports. There is a similar situation with vegetables: most of the production of tomato, cabbage, carrot, cassava and beans are for local consumption. In fact, the production of some of these products has reduced in the last decade, becoming insufficient and compensated by imported products.

In ACP-Caribbean countries, most farmers sell their products at the farmgate to intermediaries or directly to customers along the side of the road. Intermediaries then supply the produce to open markets or distribute the products directly to supermarkets, hotels, restaurants and other retail establishments. Most supermarkets and grocery stores in the Caribbean provide limited differentiation between organic and conventional products. Some would argue, however, that supermarkets respond to demand and the demand for organic products in the region may be too small to justify organic-conventional differentiation.

In Trinidad and Tobago, there are organised farmers' markets in 10 locations across the country. They take place once a week or every other week depending on supply and are aimed at eliminating intermediaries and providing better prices to consumers. Trinidad has also developed several wholesale markets to bring better organisation to the distribution and sale of farm produce. Controls are in place to make sure it is the actual farmers who are selling their produce. Around 150 producers sell their produce in these markets with about 2,000 visitors per market.[2]

In the Dominican Republic, there are various possibilities for farmers other than the usual channels. There are productive chains organised in coordination with the Junta Agro-Empresarial Dominicana (JAD), between farmers, hotels and industries. A good initiative in the Dominican Republic is a programme called *Agricultura para la Vida* (agriculture for life), which is a private initiative that teaches farmers to produce everything they need to subsist, helping them source their own food (organic), increasing their quality of life and indirectly reducing their expense bill. So far, at least 300 families have benefited from this initiative.[3]

In Guyana, there are many small farmers' markets organised in neighbourhoods and along street roads. In Suriname, while there are also many markets organised by farmers, the major market is organised by the local government and takes place at the Central Market (Centrale Markt) of Paramaribo every day except Sunday.

Tourism and modern retail linkages also create opportunities for local farmers to supply to high-value markets due to the growth in high-value food demanded by the growing tourism sector and to the downstream investments in modern retail, processing and wholesale markets. A particular and potentially important element of food value chains in the region is their link with tourism.

The growth of tourism in the Caribbean has become an important structural change in recent decades. On average, tourism contributes 8% to gross domestic product (GDP) as a direct contribution and about 25% including indirect contributions. The Small Island States are the most dependent on tourism, where the total impact can be as high as 40%. In larger countries such as Jamaica, the total share is as high as 30%. This creates major challenges and opportunities for local agri-food chains, since in most countries there is still a high percentage of imported food for the tourism industry.

The Dominican Republic is probably the most successful in matching tourism sector demand with local supply. Here, at least 90% of food supplied is purchased locally. According to the JAD executive president, every year JAD performs a market study of the hotel industry to identify sector needs and ease value chain integration. Some crops such as pineapple, mango, papaya, coconut, lettuce, eggplant and peppers have benefited from the hotel chains buying domestic products, creating a bigger internal industry. Most of the concentrated juices and jellies are also locally produced. In the early 2000s, domestic demand for food, beverages and tobacco had a value of around US$170 million, of which 30% used to be imported products. Currently, with 7.5 million tourists per year (before COVID-19),

2 NAMDEVCO (2021) Farmers' markets. Debe, Trinidad and Tobago: The National Agricultural marketing and Development Corporation. www.namdevco.com/services/farmers-markets/
3 COLEACP, interview with an NGO, Dominican Republic (2020).

that amount had gone up to US$875 million, of which only about 10% were imported products. At least 65% of the total figure was for food (fruit, vegetables and processed food).[4]

E-commerce is a worldwide trend that has sharply increased with the impact of COVID-19. Online sales of fruits and vegetables is no exception. At local and regional levels, some initiatives have developed towards direct "farm to fork" commerce. One of these is Farmgate emarket (www.farmgate-emarket.com) in Jamaica, a company that supports the domestic economy and local farmers. Another initiative is Green Fresh Food Market (www.green.com.do) in the Dominican Republic, which is a digital platform that sells fruits, vegetables and other products, focusing on providing better distribution to hotels, restaurants and households. Terra Verde (www.terraverde.guavana.com) is a platform that focuses on organic products with deliveries up to a distance of 10 km Both initiatives also have physical stores.

In Trinidad and Tobago, the National Agricultural Market Information System Trinidad and Tobago (NAMISTT) website (www.namdevco.com/services/farmers-markets/) provides farmers with information on buyers, both local and international. Also in Trinidad and Tobago, D'Market Movers (www.dmarketmovers.com/) offers seasonal boxes of produce, both conventional and organic. They currently work with about 250 farmers who supply various types of fresh produce including subscription boxes with seasonal produce. Among their success stories they claim that they helped in the development of value-added products and services such as Farm & Function (www.facebook.com/farmandfunctiontt/), a line of exotic frozen fruit products that is currently distributed nationally and exported to Barbados. They also supported Our Moving Table (www.facebook.com/ourmovingtablett), a monthly farm-to-table dining event that promotes local agriculture and produce through a culinary experience.

Internationally, different platforms have been launched where both business-to-client (B2C) and business-to-business (B2B) clients can buy agricultural and processed food products directly from farmers in the region. In many cases, these initiatives also include boxes with different products or even a complete set of products with instructions for preparing meals. These services cater to the demand for convenient food products while allowing people to feel they have prepared their own meals. Some of these platforms offer marketplaces for ad hoc sales, while others offer subscription services through which a weekly box will be delivered to the subscriber's doorstep. Some examples are:

- www.tropicalfruitdirect.com.au
- www.crowdfarming.com
- www.hellofresh.com
- www.tropicalfruitbox.com
- www.thissideup.coffee
- www.tropicalfarmbox.com

An interesting approach for processed food brands is the emerging service providers that offer both logistical and commercial support towards small and medium-sized retailers in Europe and the USA. A local warehouse in the target region assures short lead times and knowledge of and contacts in the local markets provide opportunities to find clients more effectively. An example of this kind of service is Pod Foods (www.podfoods.co).

4 Interview with Osmar C. Benitez, Executive President of JAD, August 2021.

2.1.3 Development of organic agriculture

Within the ACP-Caribbean countries generally, organic agriculture has developed mainly with and because of funding and technical support provided to local organic movements by European and North American aid and Fair Trade agencies. This funding is mainly for the purpose of extension and association building.[5] Fair Trade agencies have supported international exports of products such as bananas, coffee, pineapple, orange juice and cocoa.

However, according to the Inter-American Development Bank (IDB) "The total acreage under organic production in CARICOM countries is low to non-existent compared to the rest of the world, and this is a missed opportunity for the region. CARICOM appears to be the only organised group of countries in the world to have officially rejected organic agriculture, even as a possible policy option, yet the biggest market for organic produce by far is the United States - the back-door for the Caribbean region."[6]

Within the ACP-Caribbean, the Dominican Republic (not part of CARICOM) is the only country with noteworthy production and exports of organic fruits, mainly bananas and cacao. Prior to conversion to organic agriculture, many small-scale farmers in the country were already using few inputs, mainly for economic reasons. Therefore, their switch to organic production was relatively straightforward. Organic production in the Dominican Republic has always been market-driven and was facilitated by Fair Trade organisations. The first commercial exports of organic banana started in 1989; by 2000, exports of organic produce from the Dominican Republic were valued at US$20.9 million.

Today, the Dominican Republic, with over 134,375 ha (2019) of organic production, and over 16,000 organic producers[7] is one of the leading global exporters of tropical organic products, destined mainly for markets in Europe (UK) and the USA. The country has the highest percentage of organic agricultural land in Latin America and the Caribbean. Bananas are sold to exporting companies and professional organisations in charge of the exports. The product is in turn sold to ripeners or supermarkets in the UK, Belgium, the USA, Germany, the Netherlands and Italy in that order by volume. Organic cocoa, coffee, coconut, mango and pineapple are other organic products currently exported. Professional organisations, in addition to providing technical and financial assistance to farmers, also provide organic supplies and loans to cover up to 70% of production costs.

The Dominican Republic is currently working to promote and certify organic production with a new department in the Ministry of Agriculture, which is in the process of seeking accreditation. This action aims to reduce the cost of certification and limit the impact of the new organic procedures established by the EU.[8]

From a professional organisation's point of view, very little has been done to promote organic agriculture inside the country and most work has been done privately with the help of NGOs. Currently, many professional organisations in the Dominican Republic have developed technical assistance to help their associates maintain good agricultural practices, and some of them source organic supplies for their farms. The cost of certifications is also onerous for smallholder farmers and cooperatives that want to enter the market. Usually, the organisation has an umbrella certification, but individual farmers have also obtained certifications, in which case the main certificate is revoked.[9]

With the exception of the Dominican Republic, at policy and programme levels, there is little or no substantive legislative and institutional framework in most of the ACP-Caribbean countries to support producers in addressing the various challenges that

5 CC and MIF (2014) Sustainable agricultural initiatives in the Caribbean: Realities from the field. Christ Church: Multilateral Investment Fund and Compete Caribbean.
6 IDB (2015) The time for organic farming is now: a natural for small island economies, 27 March. Washington, DC: Inter-American Development Bank. https://blogs.iadb.org/caribbean-dev-trends/en/time-organic-farming-now-natural-small-island-economies/
7 Meier, C., Schlatter, B., Keller, K. and Travnicek, J. (2021) Latin America and the Caribbean: Current statistics. The world of organic agriculture. https://www.fibl.org/fileadmin/documents/shop/1150-organic-world-2021.pdf
8 COLEACP, interview with a government representative (2021)
9 COLEACP, interview with a professional organisation of producers (2020)

they face. However, even with measures in place, producers of organic bananas in the Dominican Republic, the major exporter of organic product in the Caribbean-ACP region, and other countries, face challenges of:

- reduced yields
- high cost of certification, which causes most farmers in ACP-Caribbean countries to not have third-party certification that verifies the product's compliance with applicable standards and therefore cannot claim or label their products as organic
- increasing downward pressure on prices offered by the export buyers of organic products, which do not always cover the entire cost of production
- producers' lack of know-how on organic production and record-keeping
- non-chemical solutions to pest and disease infestations are yet to be found
- poor incentives from government to increase organic production
- operational instability of organic farming due to climate change, especially in climate-vulnerable Caribbean countries such as Cuba, Haiti, the Dominican Republic and Jamaica
- the growing number of organic plantations in South American countries with larger economies of scale, that has driven down the international market price, especially for bananas
- new rules for organic certification from the EU (beginning in 2022), limiting the number of members of professional organisations and cooperatives to maximum 2,000 members, but additionally new size restrictions of the group members: only farms whose individual certification costs account for more than 2% of the organic turnover and not more than €25,000 per year; or farms with a maximum land holding of 5 ha will be able to benefit from the organic group certificate; all others will have to look for individual certifications.[10]

There is still optimism in the Dominican Republic where growers have identified opportunities for export of organic mango, avocado, eggplant, hot pepper, melons, lemon and cucumber to the USA and Canada.[11] In Grenada, the production of nutmeg is undertaken without use of inorganic fertilisers and is being positioned by the Grenada Nutmeg Cooperative Association towards organic, low-carbon footprint status to enhance saleability in the European market.

There are no readily available studies that assess the potential of the domestic organic produce markets in ACP-Caribbean countries. There is zero to limited point-of-sale differentiation and visibility given to organic produce in Caribbean supermarket chains and public markets. This is in sharp contrast to what occurs in Latin American countries such as Costa Rica, where 50% of organic produce is sold via supermarket chains. In countries such as Jamaica, Cuba and the Dominican Republic, where there are small, yet intensely committed movements of organic farmers, there are a few farmers' markets for organic produce. These markets and the general organic movement are supported by foreign and international aid agencies in partnership with local organic movements. Some have argued that there is enormous room for growth with the local urban population, which is becoming increasingly health conscious, particularly if the problem of quality and reliability of supply can be resolved. Regulations and mechanisms for certifying and labelling produce in supermarkets can increase local consumption.

There is a segment of international tourists that appreciates the sustainability, source and quality of

10 COLEACP (2021) Webinar on the new EU organic rules.
11 COLEACP, interview with an organic producer in Dominican Republic (2020).

food. People eating organic at labelling produce in supermarkets can increase local consumption.

There is a segment of international tourists that appreciates the sustainability, source and quality of food. People eating organic at home are looking to keep the same balance while on holiday. Some hotels offer organic, locally sourced food such as Jakes Hotel in Jamaica (https://jakeshotel.com/grown-locally). Other hotels have also developed this concept with farms on the premises of the hotels, but this is still an opportunity to develop in the future with large hotel chains in the Caribbean to give organic farmers the opportunity to sell their products locally at a better price.

Sustainability of organic vegetable, fruit and spice production in ACP-Caribbean countries is arguably an issue to address. There is a need to develop, demonstrate and document profitable organic commodity production systems, and develop an organic certification system that effectively serves smallholders.

Other countries with large areas of land such as Suriname and Guyana offer good potential to develop organic agriculture since there is a lot of land available that has never been used; however, farmers' access to that land might require the involvement of government policies accompanied by adequate training to farmers on organic agricultural practices. Currently, only Guyana has taken a small advantage of its wild nature and has certified over 55,000 ha for wild harvesting, mainly of palm hearts, acai and tropical fruits. There is a cooperative with 500 harvesters in the country.[12]

2.2 Production: an overview

For the purpose of this analysis, the production of the ACP-Caribbean countries has been divided into five categories: Edible fruits and nuts, Vegetables, Edible roots and tubers, Pulses and beans, and Stimulant, spice and aromatic crops.

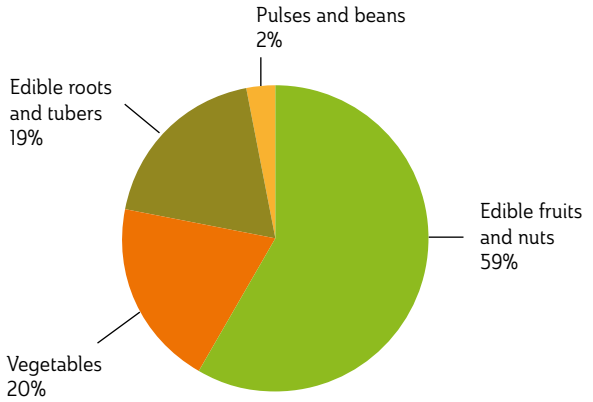
In 2019, *Edible fruits and nuts* (10.9 million tonnes) was by far the largest category in terms of production, followed by Vegetables (3.7 million tonnes) and *Edible roots and tubers* (3.5 million tonnes). The total production has grown over this period by 28% (Table 3, Figure 3).

Table 3: *Production, 2019 and growth by category, 2009–2019.*

Product	Production 2019 (1,000 tonnes)	Growth (2009–2019)
Edible fruits and nuts	10,881	49%
Vegetables	3,677	6%
Edible roots and tubers	3,484	6%
Pulses and beans	468	23%
Stimulant, spice and aromatic crops	31	64%
Total	**18,541**	**28%**

Source: COLEACP based on FAOSTAT.

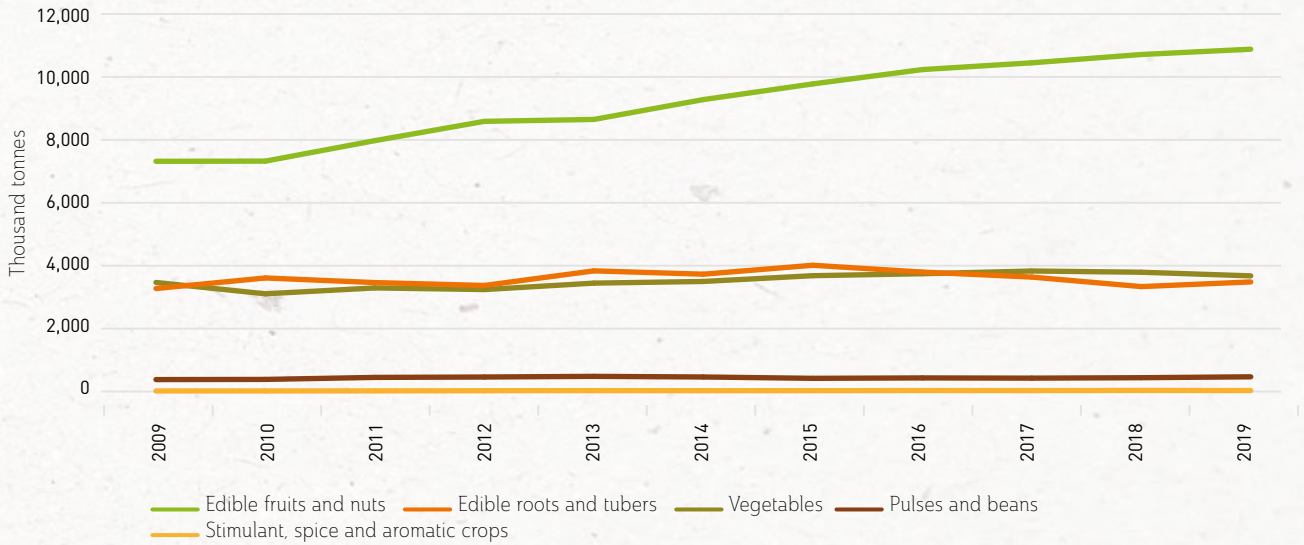
Figure 3: *Share of categories in total production (tonnes) of products in scope of this study, 2019 (Source: COLEACP based on FAOSTAT)*



In general, in ACP-countries in the period 2009-2019, there was significant growth of 49% in the production of *Edible fruits and nuts*, larger growth of 64% was registered for *Stimulant, spice and aromatic crops* and 23% growth in Pulses and beans. However, the quantities of the latter two categories are very small compared with the others. The production of Vegetables and Edible roots and tubers have remained relatively stable with 6% growth over the same period (Figure 4).

12 Agai Palmito (2021) Agai Palmito LLC. https://acaipalmito.com/our-products

Figure 4: *Trends in ACP-Caribbean production per category (1,000 tonnes), 2009–2019 (Source: COLEACP based on FAOSTAT)*



The production of horticultural products in ACP-Caribbean countries is largely shaped by the bigger countries, especially the Dominican Republic (7.2 million tonnes), Cuba (6.0 million tonnes), Haiti (2.7 million tonnes) and Jamaica (1.0 million tonnes). This means that the trends and patterns of production will be dominated by these countries. Guyana and Belize follow with totals of 571,000 tonnes and 237,000 tonnes, respectively, for 2019. Grenada registered the sharpest growth in production with 184% in linear trend for the 2009-2019 period, followed by Guyana (169%) and the Dominican Republic (129%). Belize had the sharpest declining trend with a linear decrease of 40% (Table 4).

Table 4: *Production per ACP-Caribbean country in volume, 2019 and growth (based on linear trend), 2009–2019*

Country	Production 2019 (1,000 tonnes)	Growth (2009–2019)
Dominican Republic	7,209	129%
Cuba	6,023	–3%
Haiti	2,702	–2%
Jamaica	1,039	–2%
Guyana	571	169%
Belize	237	–40%
Suriname	147	1%
Trinidad and Tobago	116	–3%
Grenada	110	184%
Dominica	103	–4%
St Vincent and the Grenadines	100	4%
Bahamas	91	49%
St Lucia	48	–33%
Barbados	25	25%
Antigua and Barbuda	13	5%
St Kitts and Nevis	7	41%
Total	18,541	28%

Source: COLEACP based on FAOSTAT.

2.3 Fruits and nuts

Within the scope of this study, *fruits and nuts* are the most important crop in the ACP-Caribbean countries. The Edible fruits and nuts category accounts for 58% of the horticultural sector and a total production of 10.9 million tonnes (Table 5). The Dominican Republic is the country with the highest production (Table 6) and accounts for more than half of the fruits and nuts produced in the region. Fruits and nuts have registered a growth of 49% since 2009, with an average yearly growth of 4.3%.

Table 5: *Most produced horticultural products by ACP-Caribbean countries in tonnes 2009 and growth, 2009–2019*

Product	Production (1,000 tonnes)	Growth trend (annual %)
Bananas and plantains	4,169	46%
Papaya (pawpaw)	1,398	110%
Mango, guavas and mangosteen	1,010	11%
Other fruits (passion fruit, lychee, tamarinds, etc.)	969	146%
Avocado	915	264%
Coconut	788	34%
Pineapple	585	152%
Oranges	447	–45%
Grapefruit	178	–34%
Watermelon	139	68%
Melons	105	26%
Lemon and limes	88	6%
Mandarin and similar citrus	47	–7%
Grapes	22	16%
Other citrus	15	24%
Cherries	4	520%
Apple	2	–7%
Plums	1	2%
Cashew nut	1	–46%
Pears and quince	0	94%
Total	**10,881**	**49%**

Source: COLEACP based on FAOSTAT.

Table 6: *Top producing countries of fruits and nuts in the ACP-Caribbean region, 2019*

Country	Production (1,000 tonnes)
Dominican Republic	5,866
Cuba	2,060
Haiti	1,466
Jamaica	467
Guyana	284

Source: COLEACP based on FAOSTAT

The main products in this category for 2019 were plantains and bananas with 2 million tonnes each and papaya with 1.4 million tonnes. The three products with the highest growth trend are avocado, pineapple and papaya (Table 5).

- Avocado stands out for exceptional growth of 264% in the period analysed, which equals a yearly average growth of 14% reaching a total of 915,000 tonnes in 2019.
- Pineapple production reached 585,000 tonnes in 2019 growing 152% between 2009 and 2019, with an annual average growth rate of 10%.
- Papaya production grew 110% over the decade, with an annual growth rate of 8%, reaching a production of almost 1.4 million tonnes in 2019.
- At the other end of the spectrum, during the same period oranges and grapefruit experienced a drop in production of 45% and 34%, respectively, mainly due to pests and diseases.
- The *Other fruits* category also saw a significant increase (146%) mainly influenced by passion fruit.

2.3.1 Plantains

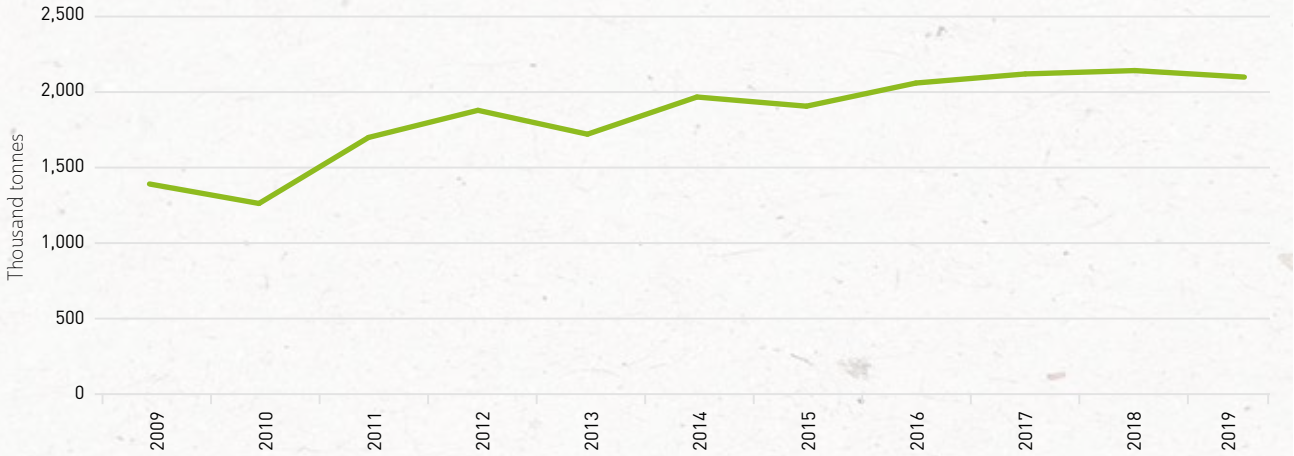
Plantain is locally more considered as a vegetable than a fruit. It is usually consumed cooked because of its high starch and low sugar content. It is a popular food staple with a total production of over 2 million tonnes in 2019. This product had a cyclical growth with ups and downs, but with a significant overall growth of 56% over the decade (Figure 5). The largest producer is the Dominican Republic with over 1 million tonnes in 2019, followed by Cuba and Haiti with 704,702 tonnes and 254,402 tonnes, respectively, in 2019 (Table 7).

Table 7: *ACP-Caribbean countries with production of plantain of over 10,000 tonnes, 2019*

Country	Production (1,000 tonnes)
Dominican Republic	1,027
Cuba	705
Haiti	254
Jamaica	46
Guyana	20
Suriname	15

Source: COLEACP based on FAOSTAT.

Figure 5: *ACP-Caribbean production of plantains, 2009–2019 (Source: COLEACP based on FAOSTAT)*



2.3.2 Banana

Banana represents an important source of revenue for the ACP-Caribbean region, for the bigger producers such as the Dominican Republic, but also for some smaller islands such as Dominica, St Lucia and St Vincent and the Grenadines where it is also the main horticultural export product.

During the period 2009–2019, aggregate banana production in the ACP-Caribbean region increased 41%, reaching over 2 million tonnes in 2019 (Figure 6). The largest producer is the Dominican Republic (1.2 million tonnes in 2019), followed by Cuba (259,975 tonnes in 2019) and Haiti (252,442 tonnes in 2019) (Table 8). The most widely produced variety is Cavendish, which is also the most exported variety. There are many other varieties that are mostly consumed locally.

Figure 6: *ACP-Caribbean production of banana, 2009–2019 (Source: COLEACP based on FAOSTAT)*

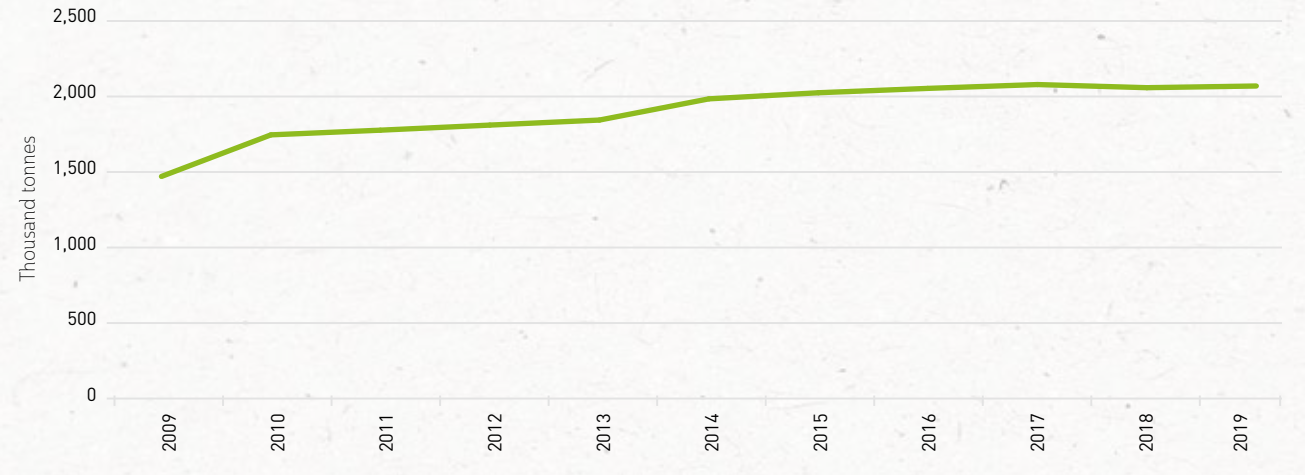


Table 8: *ACP-Caribbean countries producing banana, by volume, 2019*

Country	Production (1,000 tonnes)
Dominican Republic	1,209
Cuba	260
Haiti	252
Belize	84
Jamaica	64
St Vincent and the Grenadines	61
Suriname	48
Grenada	25
Dominica	20

Source: COLEACP based on FAOSTAT.

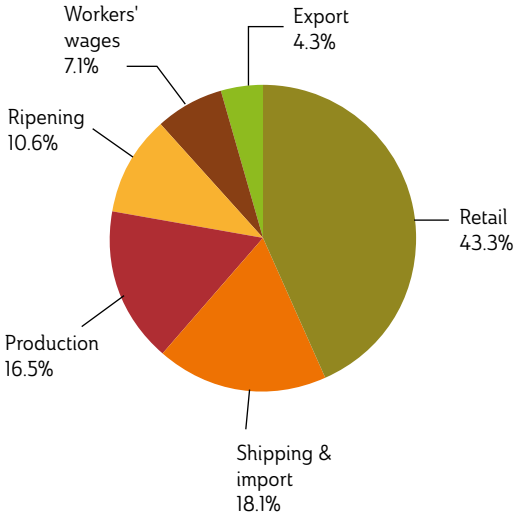
The Dominican Republic, the world's largest producer of organic bananas and the second largest producer of Fairtrade bananas, has approximately 22 plantations, averaging 125 hectares in size. There are also 1,950 small-scale producers that supply plantations and associations with 70% of Fairtrade organic bananas from the Dominican Republic.[13] The direct and indirect costs associated with certification are a challenge to most producers, especially with the new organic regulations set by the European Commission.

Banana production in ACP-Caribbean countries has been negatively affected by a reduction of the trade advantages to Europe in relation to their main competitors especially in South America, the impact of adverse climatic events, and widespread incidences of pest and disease infestation.

According to the manager of one organic association of producers in the Dominican Republic, there is neither a country strategy nor a unified position of the 36 banana associations of the Dominican Republic to secure the future of the sector. He expects better planning among organisations so they can better negotiate external conditions. He points out that the tariff of US$176 per tonne that used to be beneficial for producers from ACP-Countries (a difference of US$3,168 per container) is being removed by the European Union (trade agreements with Peru, Ecuador and Colombia), affecting Dominican producers. Because of the new tariff rules, uncompetitive cost structures and reduction of prices, the banana export industry in the Caribbean region has become extremely vulnerable, especially with the increase of large organic plantations in Central and South America.

Analysing the price breakdown in the banana production chain (Figure 7), most of the value in the chain is still going to the retail chain in the importing country, while only 7.1% of the price goes to workers' wages.

Figure 7: *Banana's price breakdown in the Dominican Republic with EU countries (Source: COLEACP based on IISD)*[14]



13 International Labour Organization (2017). Creating shared value in the Dominican Republic Banana Industry.
14 IISD (2020) Global Market Report : Bananas https://www.iisd.org/system/files/publications/ssi-global-market-report-banana.pdf

2.3.3 Papaya (pawpaw)

Between 2009 and 2019, the aggregate production of papaya in the Caribbean region steadily increased, from 664,500 tonnes in 2009 to approximately 1.4 million tonnes in 2019 – that is, 114% growth in the 10-year period (Figure 8).

Papaya production has been steadily increasing in the Dominican Republic, moving from approximately 532,000 tonnes in 2013 to 1.2 million tonnes in 2019 – an increase of more than 125% (Table 9). Cuba follows with a production of 184,342 tonnes in 2019. The highest level of production was recorded for 2016. Since then, papaya production in Cuba has declined. Jamaica is the third largest producer in the region. However, its production has been irregular, but in general has shown an upward trend, moving from a low of 5,300 tonnes in 2010 to 11,000 tonnes in 2019.

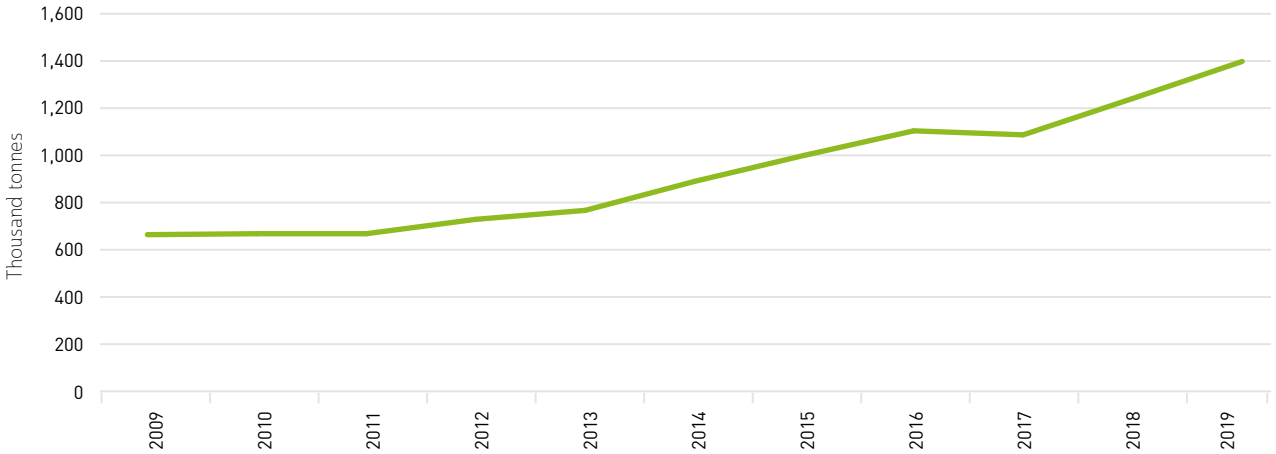
Table 9: *Top 5 ACP-Caribbean producers of papaya, 2019*

Country	Production (1,000 tonnes)
Dominican Republic	1,171
Cuba	184
Guyana	16
Belize	12
Jamaica	11

Source: COLEACP based on FAOSTAT.

Much of the production of papaya today is consumed within the domestic market. However, Jamaica in recent years has been a significant exporter of papaya to the UK and the USA through two large GLOBALG.A.P. certified companies, Martha's Best and Valley Fruits. The food industry is increasing papaya use in products such as jams and pulps.

Figure 8: *Production of papaya in ACP-Caribbean countries, 2019 (Source: COLEACP based on FAOSTAT)*



2.3.4 Avocado

Avocado is an interesting produce that has experienced near-exponential growth in production during the last decade, from 251,514 tonnes in 2009 to 915,169 tonnes in 2019 - an exceptional constant growth of 264% over the last decade (Figure 9).

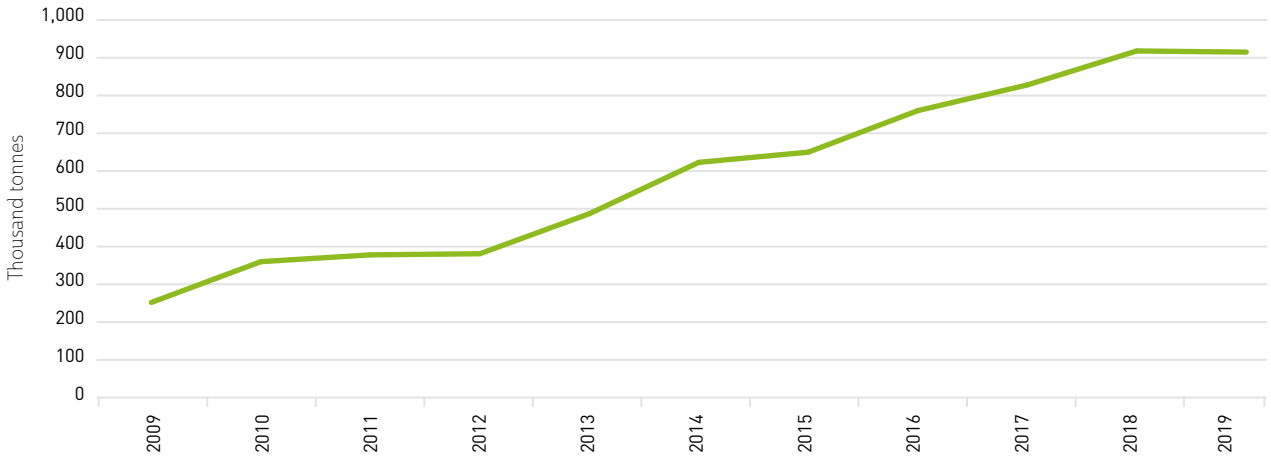
There is unsatisfied demand for avocado on the international market, which requires larger quantities of fresh avocado, sauces such as guacamole, and avocado oil. The main competitors are Mexico and Peru. Currently, the largest producer among the ACP-Caribbean countries is the Dominican Republic (661,626 tonnes) followed by Haiti (231,719 tonnes) (Table 10). The Dominican Republic produces native varieties of avocado all year, but it is encouraging the cultivation of avocado of the HASS variety, which is the most consumed globally. The production season is September–February, coinciding with the months of production in Mexico.[15]

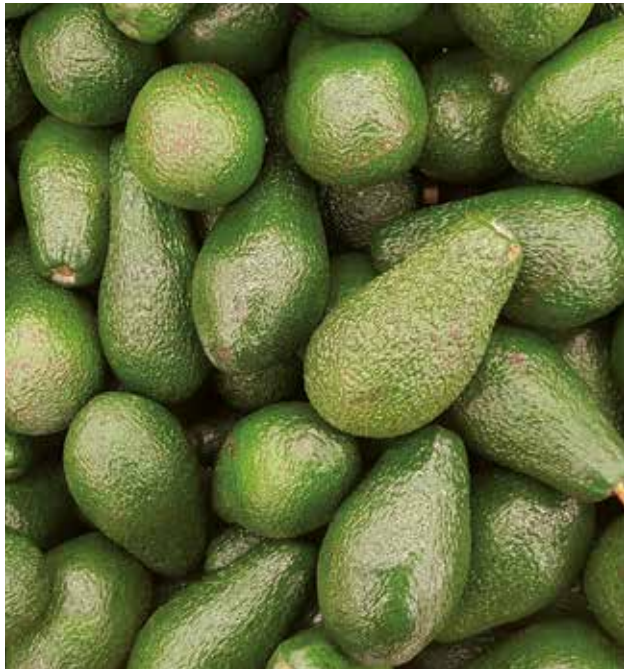
Table 10: Top 5 ACP-Caribbean producing countries of Avocado, 2019.

Country	Production (1,000 tonnes)
Dominican Republic	662
Haiti	232
Guyana	12
Cuba	3
Jamaica	2

Source: COLEACP based on FAOSTAT.

Figure 9: *Total ACP-Caribbean production of avocado, 2009–2019 (Source: COLEACP based on FAOSTAT)*





15 IICA (2017) El Cultivo de Aguacate: Gran Potencial para la Republica Dominicana, November. San Jose, Costa Rica: Institute Interamericano de Cooperacion para el Agriculture. www.iica.int/es/prensa/noticias/el-cultivo-de-aguacate-gran-potencial-para-la-republica-dominicana

2.3.5 Oranges

The total production of oranges in the Caribbean region has been on a steady decline with a total decrease of 45% and an estimated output of 446,990 tonnes in 2019 (Figure 10). The total area harvested has declined from 66,400 hectares in 2009 to 41,300 in 2019. The major producer in the region was Belize in 2009 with 225,000 tonnes, but the country has seen a constant reduction since, producing only 86,000 tonnes in 2019, a reduction of 61%. The Dominican Republic was the largest producer in 2019 with 134,460 tonnes, followed by Belize, Haiti and Jamaica (Table 11). In the case of Belize and Jamaica, citrus greening disease coupled with labour shortage and low inputs due to a lack of financing have been cited as factors contributing to the decline of production.[16] The Dominican Republic has been able to maintain a position in the production of oranges with a privately owned plantation of more than 1.2 million trees on 3,500 ha; however, it has not been spared from diseases and a part of the production of oranges has been replaced by coconuts.[17]

Figure 10: *Total production of oranges by ACP-Caribbean countries, 2019 (Source: COLEACP based on FAOSTAT*

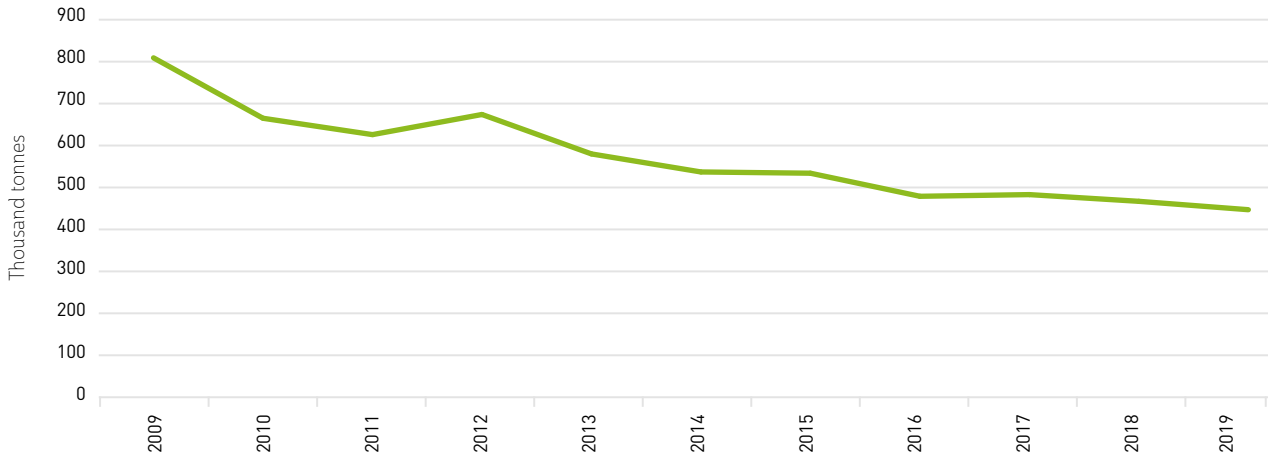


Table 11: *Top producers of oranges in ACP-Caribbean countries, 2019*

Country	Production (1,000 tonnes)
Dominican Republic	134
Belize	87
Haiti	80
Jamaica	73
Guyana	20
Suriname	19

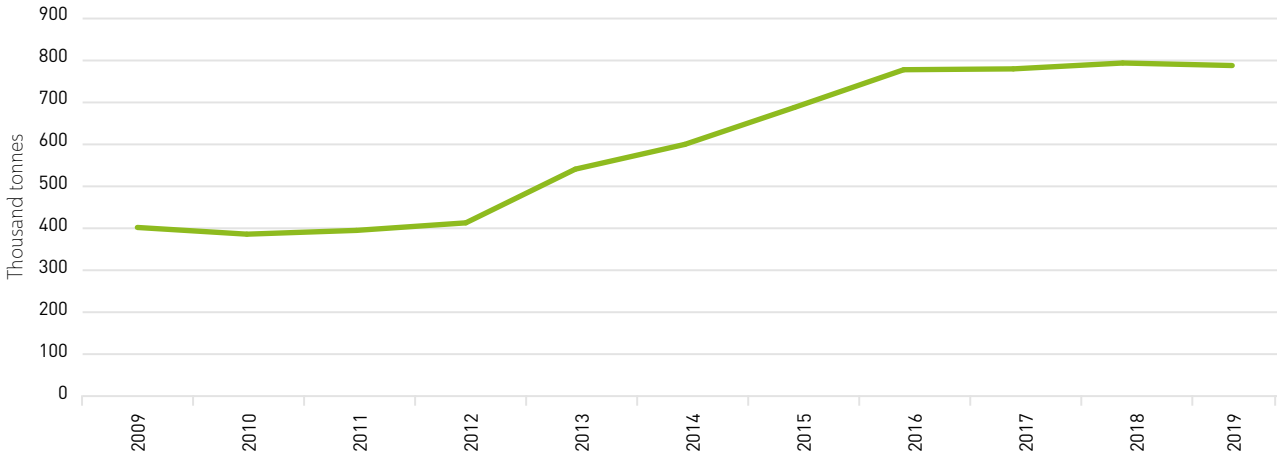
Source: COLEACP based on FAOSTAT.

16 Cayetano, I. (2019) Citrus industry remains in bad shape amid constant decline in production, 25 July. Belize: News 5. https://edition.channel5belize.com/archives/188738
17 COLEACP, interview with a producer, Dominican Republic (2021).

2.3.6 Coconut

Coconut production in the Dominican Republic registered a record production of 422,000 tonnes in 2019 with constant growth since 2009 (Table 12, Figure 11). It is currently producing 5 times more than in 2009. The coconut industry is growing at a fast pace, and it is replacing a part of the orange plantations. Currently, more than 1,150 people are directly involved in the production of coconut; hybrid plants (PB121) resistant to coconut diseases produce coconut water and copra, and a Brazilian variety (Enano Verde Brasileno) is also producing coconut water. In total, approximately 5,000 ha of coconut trees are planted in the Dominican Republic and the numbers are rapidly increasing with new investments.

Figure 11: *ACP-Caribbean production of Coconut, 2009-2019. Source: COLEACP based on FAOSTAT*



The coconut industry is also very important in Guyana, where it is the top non-traditional agricultural produce. The industry currently has 1,800 farmers cultivating around 9,712 ha and total production of about 117 ,000 tonnes in 2019. Most of the production is exported to Barbados, Trinidad and Tobago, and the Dominican Republic in the form of copra and water.

New private investments of US$8 million were expected to take place in 2021 in Guyana to increase plantations and install a processing plant. The plantations of coconut involve intercropping with other tropical fruits such as passion fruit, bananas, turmeric and ginger. The investment will include an agreement with Trinidad and Tobago for a joint venture and to export coconut water to the USA. The government also announced the establishment of six new coconut nurseries to

provide quality plants to farmers.[18] On the down side, Guyana is still treating the coconut plantations with monocrotophos, an extremely toxic pesticide banned in many countries including the EU and the USA since the 1990s, but still produced in China, Mexico and India. This pesticide is lethal if inhaled or swallowed even in minimal quantities and it is used as a potential suicide substance by some farmers.[19]

Table 12: *ACP-Caribbean countries with coconut production of over 10,000 tonnes, 2019*

Country	Production (1,000 tonnes)
Dominican Republic	422
Guyana	117
Jamaica	99
Cuba	58
Haiti	28
Trinidad and Tobago	15
Suriname	14
St Lucia	10

Source: COLEACP based on FAOSTAT.

There are private-public initiatives across the Caribbean to support the production of coconut, in the form of the Alliance Coconut Industry Development for the Caribbean which is funded by the EU under the 11th European Development Fund (EDF) intra-ACP programme under the Caribbean Regional Indicative Programme (CRIP). It is implemented by the Caribbean Agricultural Research and Development Institute (CARDI), the International Trade Centre (ITC) and other important regional and national partners in 12 countries of CARIFORUM. The project targets the improvement of income and employment opportunities, food security, and overall competitiveness of the Caribbean coconut industry.[20]

18 Guyana Chronicle (2021) US$8M coconut processing facility on the cards, 21 May. https://guyanachronicle.com/2021/05/21/us8m-coconut-processing-facility-on-the-cards/
19 National Center for Biotechnology Information (2021). Monocrotophos. https://pubchem.ncbi.nlm.nih.gov/compound/Monocrotophos Retrieved October 5, 2021
20 CCIDP (2021) Coconut industry development for the Caribbean. St Augustine, Trinidad and Tobago: Coconut Industry Development Project for the Caribbean. www.coconuts.cardi.org/

2.4 Vegetables

Vegetables are the second most important crop category within horticultural products, representing 21% of horticultural produce and a total volume of 3.9 million tonnes for 2019. Vegetables registered a growth of 46% in a 10-year period (2009-2019). The largest producer in the region is Cuba, which produces more than 50% of the region's vegetables, mostly for domestic consumption (Table 13). The most produced crop in this category is "other fresh vegetables", with a total volume of production in 2019 of 1.2 million tonnes, followed by tomato with 827,000 tonnes and pumpkins, squashes and gourds with 596,000 tonnes. The vegetable sector has a less clear growing trend with ups and downs in production and new products with bigger growth trends. For example, green chilies and peppers had a growth rate of 69% in 10 years with a total production of 186,000 tonnes in 2019. Watermelon experienced growth of 68% in 10 years with a total production of 139,000 tonnes, but despite this growth trend, this category registered a decrease in production between 2018 and 2019. Eggplants registered the bigger growth trend of 117% in the last 10 years, with an average annual growth rate of 8%, reaching a total volume of 79,000 tonnes.

Table 13: *Top 5 producers of vegetables among ACP-Caribbean countries by volume, 2019*

Country	Production (1,000 tonnes)
Cuba*	2,021
Dominican Republic	881
Jamaica	266
Guyana	226
Haiti	150

Source: COLEACP based on FAOSTAT.

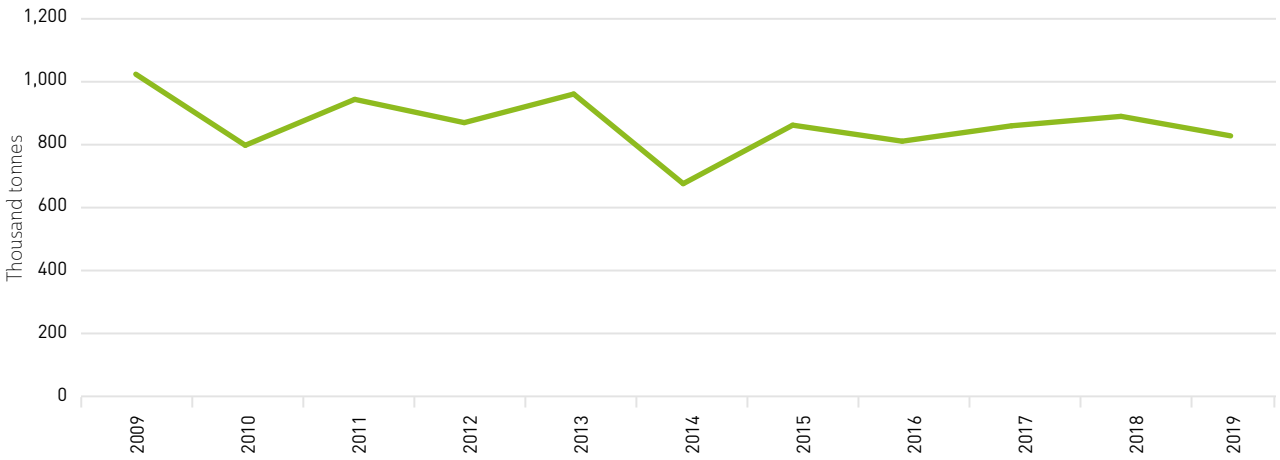
* It should be noted that while Cuba is a member of the OACPS, it is not a signatory to the Lomé Convention and the Cotonou Agreements between ACP countries and the European Union.

2.4.1 Tomato

In the Caribbean region, tomato is planted from September to November and harvested from December to April, which allows tomato producers to export to the USA and in a smaller quantity to Europe. Tomato grows in weather conditions between 15° and 25°C.

Tomato is one of the most produced vegetables in the ACP-Caribbean countries. Over the 10-year period studied, on average 9.5 million tonnes of tomato were produced annually by the ACP-Caribbean countries (Figure 12). Although the region is cited as relatively self-sufficient in tomato, production has been on the decline, from 1 million tonnes in 2009, to 828,000 tonnes in 2019. Changes in the rainfall pattern especially within the rainy season (July-December) have negatively impacted production, and this in turn creates a shortfall when demand is at the highest for countries with well-developed tourist industries (e.g. Jamaica and the Dominican Republic). Imports usually make up the shortfall in domestic supplies.

Figure 12: *Total tomato production by ACP-Caribbean countries, 2019 (Source: COLEACP based on FAOSTAT)*



Cuba remains the top Caribbean producer (Table 14) of tomato (480,300 tonnes in 2019), but production in that country has been declining in a cyclical manner.

Table 14: *Top producers of tomato in ACP-Caribbean countries, 2019*

Country	Production (1,000 tonnes)
Cuba	480
Dominican Republic	262
Guyana	36
Jamaica	28
Bahamas	7
Grenada	6

Source: COLEACP based on FAOSTAT.

Pest, diseases and post-harvest losses are the major factors suppressing tomato production in most if not all ACP-Caribbean countries. Post¬-harvest losses of tomato measured at the end of the post-harvest handling system in Trinidad and Tobago were 27%. It is also argued that high temperatures, drought and hurricanes are limiting climatic factors. One study has postulated that more than 80% of the currently suitable areas for tomato growing in Trinidad and Tobago will experience negative changes in suitability as a result of climate change, with losses that exceed 30%. Increasing temperature is likely to be an even greater stress within greenhouse systems.

2.4.2 Pumpkins, squashes and gourds

The production of fresh pumpkins in the Caribbean region has been relatively stable over the past decade (Figure 13). Aggregate production was estimated at 596,452 tonnes in 2019. Cuba is the major producer (423,254 tonnes), followed by Guyana (65,382 tonnes), Jamaica (56,937 tonnes) and the Dominican Republic (41,244 tonnes) (Table 15). In recent years, production in Cuba has been on the decline with over 47,000 hectares planted in 2019.

Guyana has been experiencing an explosive growth of pumpkin production since 2014. The production increased fivefold in 5 years. Currently, pumpkin is Guyana's fourth largest export commodity with products reaching markets in Canada, Barbados and Antigua.

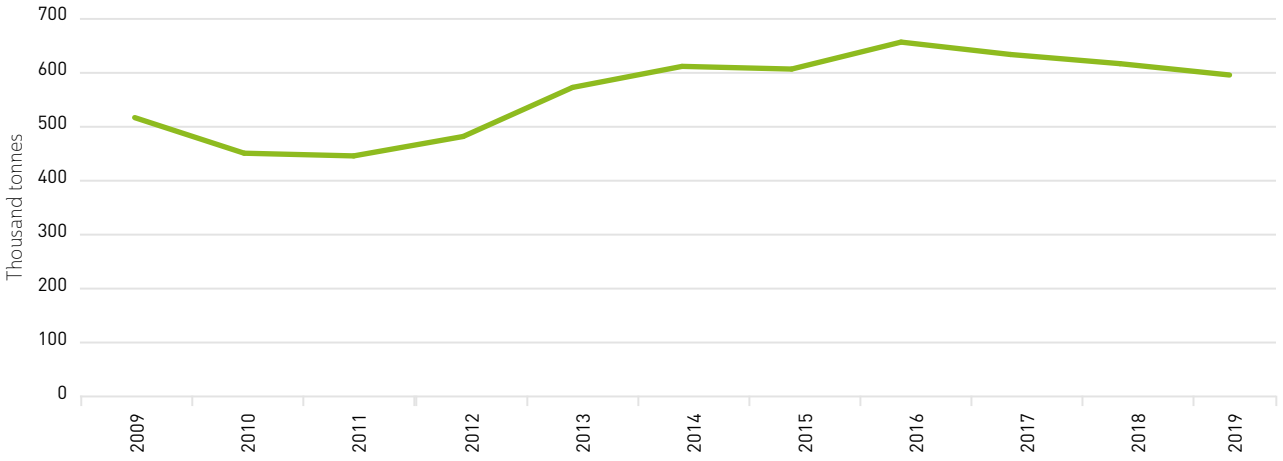
In the Dominican Republic, production has been trending downward. Pumpkin production in all three countries and throughout the region is affected by several bacterial, fungal and viral diseases which cause loss of yield and reduction in fruit quality. Current disease management practices depend heavily on the use of chemicals.

Table 15: *Top 5 ACP-Caribbean producers of pumpkins, 2019*

Country	Production (1,000 tonnes)
Cuba	423
Guyana	65
Jamaica	57
Dominican Republic	41
Trinidad and Tobago	3

Source: COLEACP based on FAOSTAT.

Figure 13: *Trend of ACP-Caribbean production of pumpkins, 2009–2019 (Source: COLEACP based on FAOSTAT)*



2.4.3 Cabbage

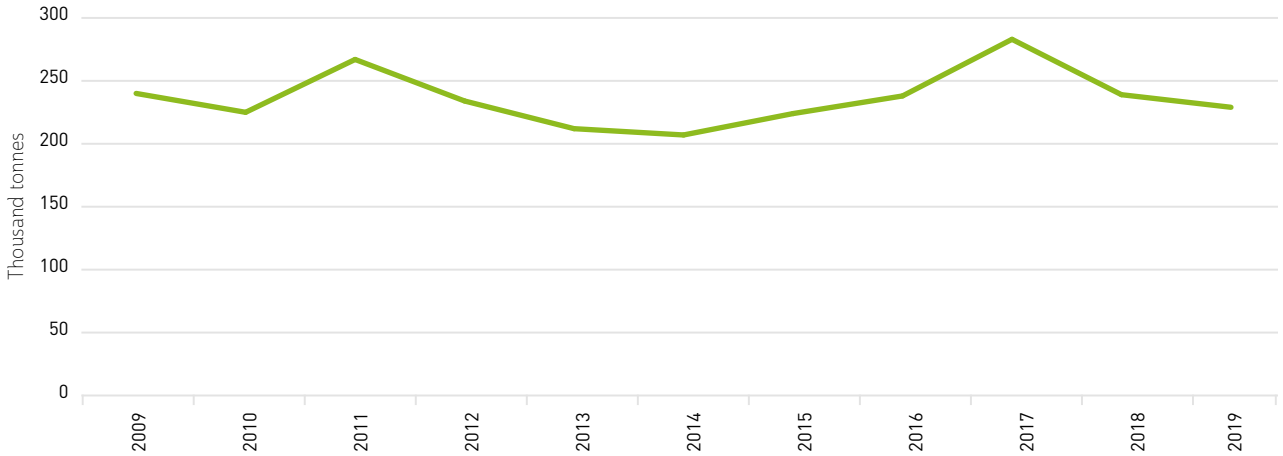
Cabbage is another popular vegetable produced in the Caribbean region. Production has been cyclical, decreasing and increasing every three to four years and averaging 227,000 tonnes per year, with a small decrease in production in the past decade (4%) (Figure 14). Aggregate production peaked in 2017 at 272,000 tonnes. Cuba is the major producer among the ACP-Caribbean countries with a production in 2019 of 105,463 tonnes (Table 16). The Dominican Republic is the next major producer of cabbage in the region, averaging 42,000 tonnes per year between 2009 and 2019. Jamaica and Haiti are the third and fourth largest producers and both have been experiencing a steady increase in production. Production of cabbage in other countries of the region is curtailed by pest and disease problems.

Table 16: *Top 5 ACP-Caribbean producers of cabbage, 2019*

Country	Production (1,000 tonnes)
Cuba	105
Dominican Republic	44
Jamaica	38
Haiti	18
Guyana	13

Source: COLEACP based on FAOSTAT.

Figure 14: *ACP-Caribbean production of cabbage, 2009–2019 (Source: COLEACP based on FAOSTAT)*



2.4.4 Carrot

The production of carrot in the ACP-Caribbean region declined between 2012 and 2014, and since then has been on a steady yet cyclical increase with a total production of 77,709 tonnes in 2019 (Figure 15). The Dominican Republic is a major producing country, with an output of 48,966 tonnes in 2019 (Table 17).

Jamaica is another major producer of carrots in the ACP-Caribbean region, averaging 27,500 tonnes per year during the period 2009-2019. Production has, however, been on a downward trajectory. During the 10-year period, the production of carrots in the Eastern Caribbean islands ranged between a high of 800 tonnes in the case of Dominica to a low of 77 tonnes in Grenada.

Table 17: *Top 5 ACP-Caribbean producers of carrot, 2019*

Country	Production (1,000 tonnes)
Dominican Republic	49
Jamaica	26
Dominica	1
Belize	1
St Vincent and the Grenadines	1

Source: COLEACP based on FAOSTAT.

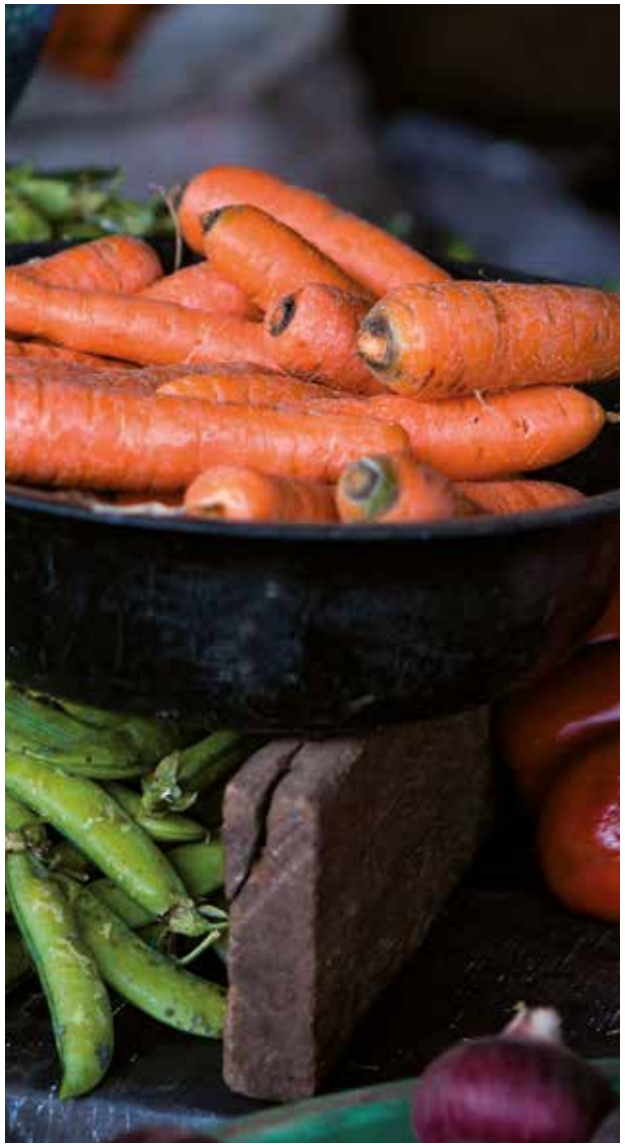
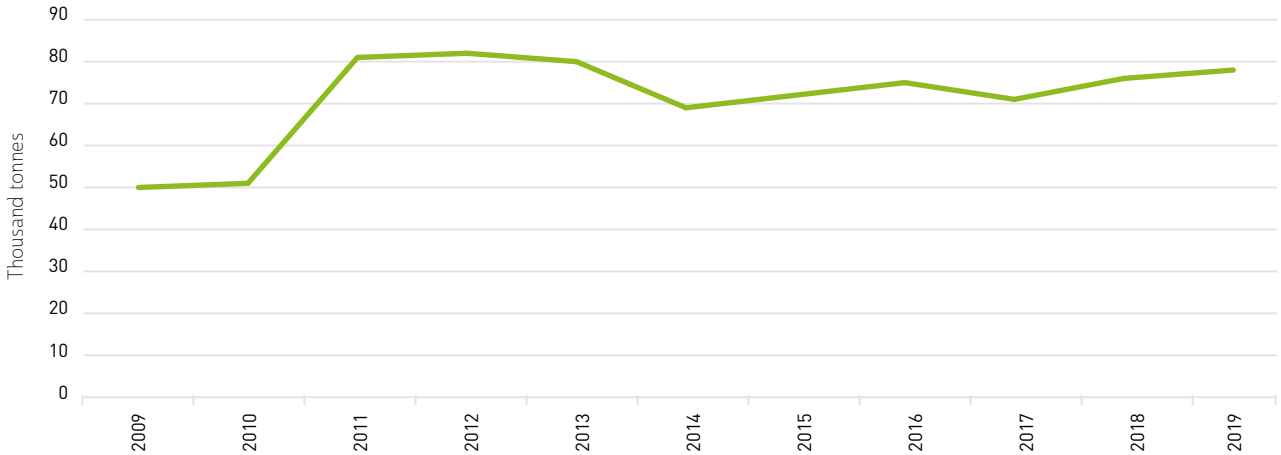


Figure 15: *Total ACP-Caribbean production of carrot, 2009–2019 (Source: COLEACP based on FAOSTAT)*



2.4.5 Chillies and peppers

Cuba, the Dominican Republic, Guyana and Jamaica are the largest producers of dried chilli peppers in the Caribbean region (Table 18). Cuba's chilli production has generally reflected an upward trajectory. However, in recent years production has fallen sharply. In 2019, Cuba's output was reported at 77,000 tonnes, followed by the Dominican Republic at 46,800 tonnes, Guyana 40,800 tonnes and Jamaica 18,100 tonnes. Most of the farmers plant between 0.1 and 0.4 ha of pepper; however, plots of 0.4–1.2 ha are becoming regular, particularly in Trinidad and Tobago where it is reported that a few farmers have extensions of 4–8 ha. It is a major ingredient for Caribbean sauces and the condiments industry.

Table 18: *Top ACP-Caribbean producers of peppers by volume, 2019*

Country	Production (1,000 tonnes)
Cuba	77
Dominican Republic	47
Guyana	41
Jamaica	18
Trinidad and Tobago	2

Source: COLEACP based on FAOSTAT.

For virtually all Caribbean countries, a limited range of chilli varieties is planted, and low levels of mechanisation and irrigation of pepper fields is reported. There are also significant pest and disease problems in most countries. Given the frequency of natural disasters in the form of hurricanes, storms and drought, the production of hot pepper/chillies at particular times of the year is considered risky as these conditions reduce yields and supplies and further erode the capacity of Caribbean producers to be reliable suppliers.

2.5 Edible roots and tubers

Edible roots and tubers such as cassava, sweet potato and yams have been traditional foods for the Caribbean. Many traditional dishes are prepared with these tubers. They provide a good source of energy, vitamins A and C, protein, fibre and antioxidants. This category accounts for 18% of the production and a total volume of 3.4 million tonnes. Roots and tubers have registered growth of 23% since 2009. Cuba and Haiti (Table 19) are the main consumers and producers. Cassava and sweet potato are the most produced roots and tubers from the region totalling a production for 2019 of 1.5 million tonnes and 729,000 tonnes, respectively, followed by yams with 545,000 tonnes (2019). These crops are the basis of the diet in Caribbean countries and contribute strongly to food sovereignty. Cassava has the more consistent growing trend, despite some important drops in production in 2012 and 2016: it recorded 60% growth from 2009 to 2019. Conversely, there has been a dramatic drop in the production of yams (by 31%) compared with 2009 and significant drops in sweet potato (11%) and potato (17%).

Table 19: *Top 5 ACP-Caribbean producers of edible roots and tubers, 2019*

Country	Production (1,000 tonnes)
Cuba	1,772
Haiti	904
Dominican Republic	386
Jamaica	277
Guyana	47

Source: COLEACP based on FAOSTAT.

2.5.1 Cassava

The production of cassava increased from 962,087 tonnes in 2009 to 1.5 million tonnes in 2019 - an increase of 60% (Figure 16). Cassava is a popular root in Caribbean countries, being a main staple food for most ACP-Caribbean countries. Its main producer is Cuba with a production of 795,748 tonnes, followed by Haiti with 507,856 tonnes and the Dominican Republic with 174,690 tonnes in 2019 (Table 20). Most producers in the Caribbean have small areas of land, between 1 and 3 hectares, and mainly work manually, which may reduce yields. On the other hand, a wide range of organisations, including the Food and Agriculture Organization of the United Nations (FAO), the Inter-American Institute for Cooperation on Agriculture (IICA), the Caribbean Agricultural Research and Development Institute (CARDI), the University of the West Indies, the University of Trinidad and Tobago, the Caribbean Industrial Research Institute (CARIRI) and the International Center for Tropical Agriculture (CIAT), are present in the region with expertise and are willing tohelp improve the region's cassava production. Small industries of cassava products such as flour, starch, chips and bammies (traditional bread made from cassava) are developing in the region.

Figure 16: *Total ACP-Caribbean production of cassava, 2009–2019 (Source: COLEACP based on FAOSTAT)*

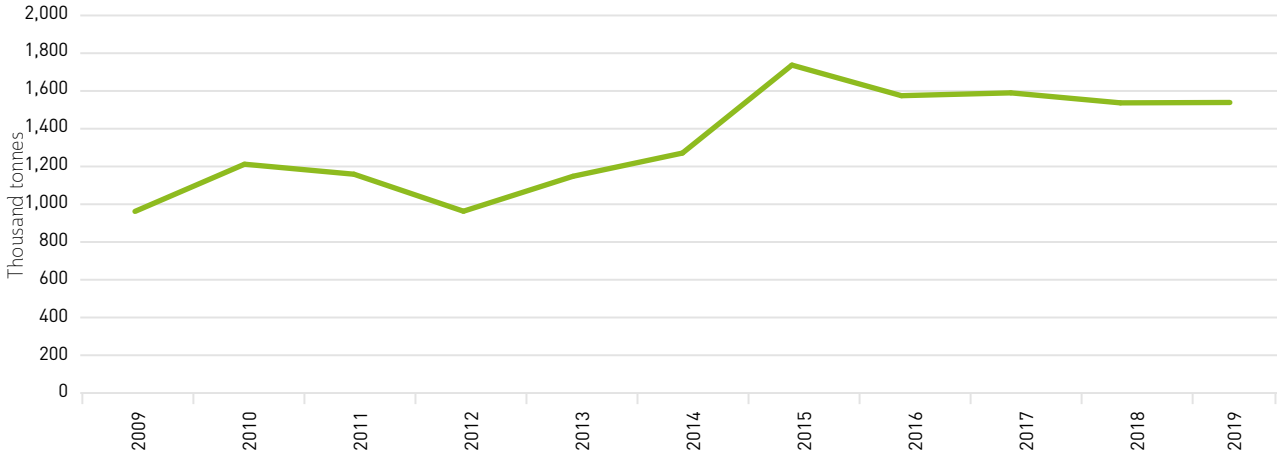


Table 20: *Top 5 ACP-Caribbean producers of cassava, 2019*

Country	Production (1,000 tonnes)
Cuba	796
Haiti	508
Dominican Republic	175
Jamaica	27
Guyana	19

Source: COLEACP based on FAOSTAT.

2.6 Pulses and Beans

ACP-Caribbean countries are major consumers of pulses and beans. Haiti is the main producer, with 182,000 tonnes, representing 40.79% of Caribbean production (Table 21). Cuba follows with 170,000 tonnes of produce, and the Dominican Republic completes the top three producers with 75,000 tonnes produced in 2019. Total production levels have grown 23% since 2009 to a total of 468,000 tonnes in 2019 (Figure 17).

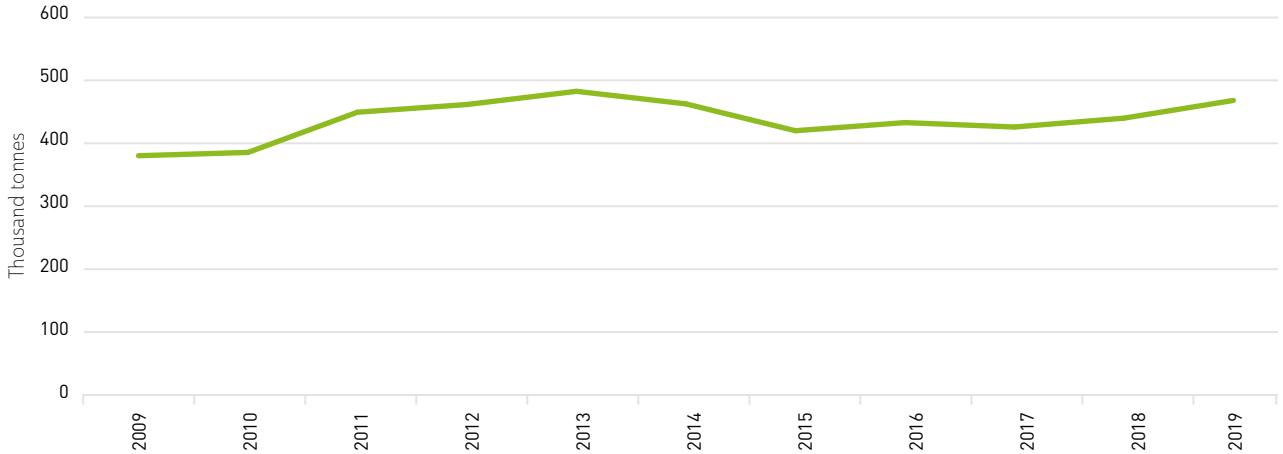
There is market potential for pulses and beans in the Caribbean, since the whole region imports considerable amounts of this category. Haiti is the main producer of pulses and beans, mainly dry beans (not specified), pigeon pea and cowpea in that order. Unfortunately for this category, FAOSTAT information is not very detailed.

Table 21: *Top ACP-Caribbean producers of pulses and beans, 2019*

Country	Production (1,000 tonnes)
Haiti	182
Cuba	170
Dominican Republic	75
Belize	13
Guyana	9.3
Jamaica	8.4

Source: COLEACP based on FAOSTAT.

Figure 17: *ACP-Caribbean production of pulses and beans, 2009–2019 (Source: COLEACP based on FAOSTAT)*



2.7 Stimulant, spice and aromatic crops

As we are excluding from our study the production of coffee, cocoa and tea, the production of other stimulant, spice and aromatic crops is secondary in quantity. However, the total production of ACP-Caribbean countries reached 37,000 tonnes in 2019, having grown 94% from 2009. Given the fact that those products have a higher price per tonne, they are becoming important for countries such as Jamaica and Grenada (Table 22). The country that produces most spices is Jamaica which, thanks to its developing condiments industry, produced 19,900 tonnes in 2019, followed by Guyana with 5,000 tonnes in 2019. Within this group, the most common products are dried chilli and peppers in Jamaica, ginger and nutmeg in Grenada.

Since 2010, there has been a marginal decline in St Lucia's production of spices, but St Vincent and the Grenadines experienced a very sharp decline between 2009 and 2011, with production continuing a downward trajectory. Grenada, renowned for its production of nutmeg, has maintained its level of production at 2,672 tonnes per year.

Table 22: *Top 5 ACP-Caribbean producers of spices, 2019*

Country	Production (1,000 tonnes)
Jamaica	19.9
Guyana	5.0
Grenada	3.8
Dominican Republic	0.6
Trinidad and Tobago	0.6

Source: COLEACP based on FAOSTAT.

2.7.1 Ginger

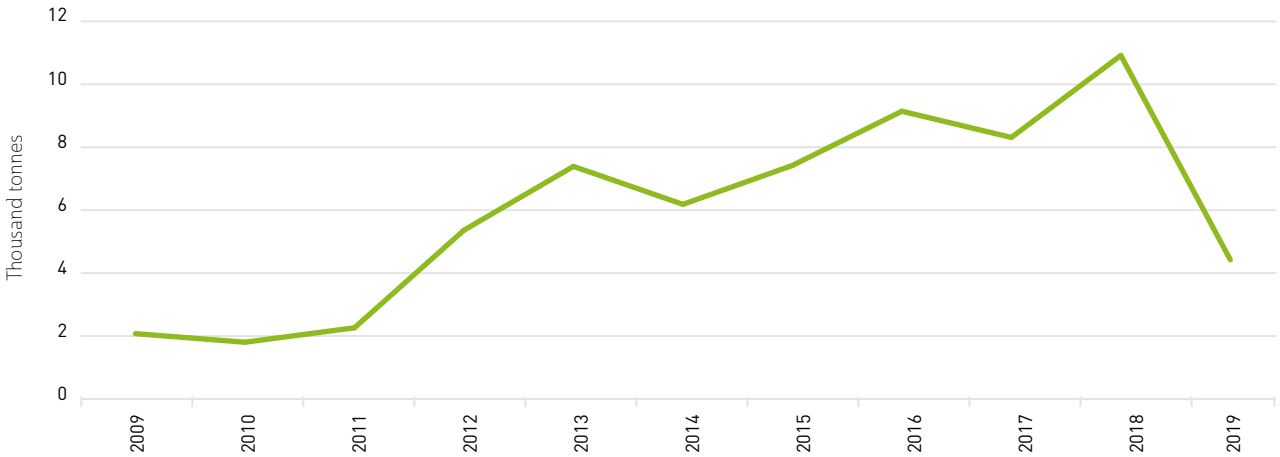
Between 2009 and 2019, the production of ginger in the ACP-Caribbean region increased by approximately 500%, reaching 10,917 tonnes in 2018 (Figure 18). The main contributor to regional production is Guyana with 62%, followed by Grenada with 18% (Table 23). The highest level reported by FAO was 10,917 tonnes in 2018. Jamaica, another leading producer of ginger in the Caribbean region with a longstanding global reputation for its pungency, has experienced a decline in output due to the ginger rhizome rot (GRR) disease; however, with the introduction of a commercial certification programme supported by FAO, production is slowly recovering, reaching 712 tonnes in 2019. The decline in regional production in 2019 is due to a decline in production in Grenada. It is important to know that FAOSTAT data for this year could not be verified with other data sources because of unavailability of data.

Table 23: *Top 5 ACP-Caribbean producers of ginger, 2019*

Country	Production (1,000 tonnes)
Guyana	2.3
Grenada	0.9
Jamaica	0.7
Dominica	0.2
Trinidad and Tobago	0.2

Source: COLEACP based on FAOSTAT.

Figure 18: *Production of ginger in ACP-Caribbean countries, 2009–2019 (Source: COLEACP based on FAOSTAT)*



2.7.2 Nutmeg

During the period 2009–2019, Grenada accounted for approximately 80% of nutmeg produced in the ACP-Caribbean region, with 2,672 tonnes of product (Table 24). As a result of the impact of hurricanes and storms, production in this country has declined since 2015 (Figure 19).

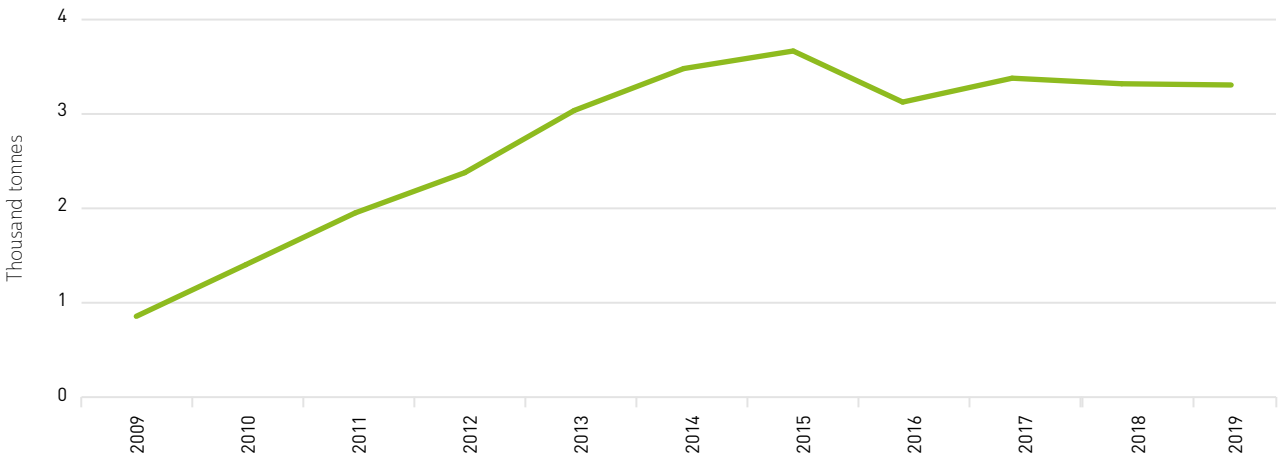
Trinidad and Tobago, which is near Grenada, but less prone to hurricanes and storms, is the next largest producer with 11% of the total. Since 2012, nutmeg production has been steadily increasing in Trinidad and Tobago. St Lucia and Dominica are also small producers of nutmeg.

Table 24: *Top 3 ACP-Caribbean producers of nutmeg, 2019*

Country	Production (1,000 tonnes)
Grenada	2.7
Trinidad and Tobago	0.4
St Vincent and the Grenadines	0.2

Source: COLEACP based on FAOSTAT.

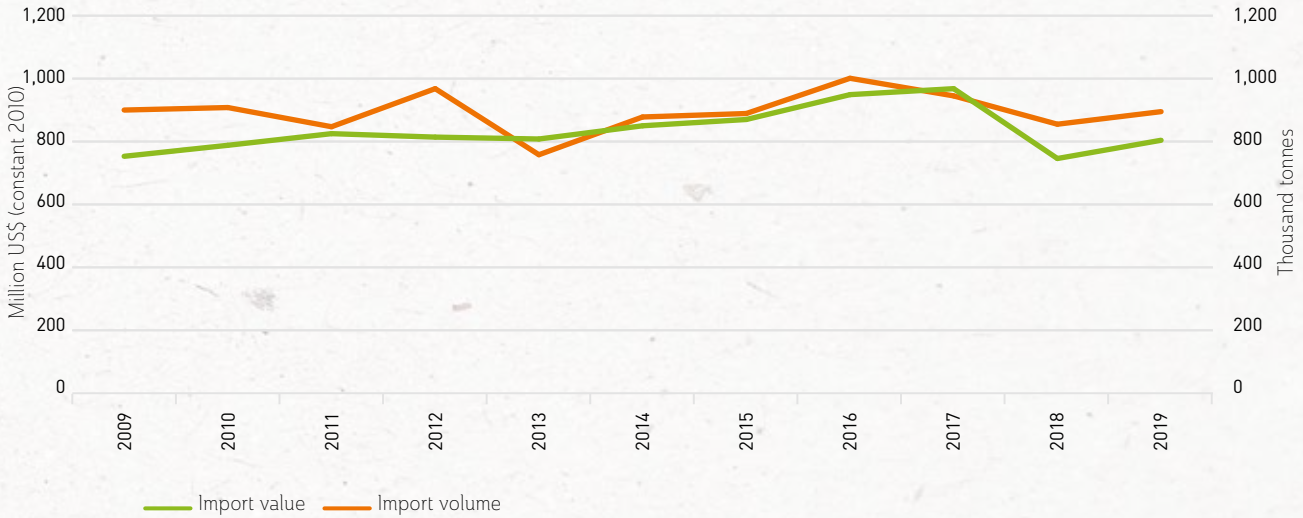
Figure 19: *ACP-Caribbean production of nutmeg, 2009–2019 (Source: COLEACP based on FAOSTAT)*



3 IMPORTS OF HORTICULTURAL PRODUCTS IN ACP-CARIBBEAN COUNTRIES: TENDENCY TOWARD STABILISATION

According to FAO, most of the ACP-Caribbean region continues to be a net importer of food products, with the exception of Belize and Guyana. This means that Caribbean countries import more food products than they export[21]. Looking at the products in the scope of this study, in 2019, the region imported 895,000 tonnes of horticultural products with a total value of almost US$939 million. During the period 2009–2019, imports have remained relatively stable with an increase in total value of 7% (measured in constant 2010 US$); however, in volume terms it has remained almost the same for the 10 years, despite the increase in population (Figure 20).

Figure 20: *Trends in ACP-Caribbean imports of horticultural products included in this study (2009–2019). Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



21 FAO (2020) Food systems and COVID-19 in Latin America and the Caribbean: Risks threatening international trade. Rome: Food and Agriculture Organization of the United Nations. www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1276820/

3.1 Import value and volume of horticultural products

For the gross amount of horticultural imports in relation to the country's GDP, only Barbados, St Lucia, and St Vincent and the Grenadines import more than 1% of their GDP (Figure 21).

The Dominican Republic has the largest individual import growth trend, registering an increase of 63% over the measured period, with a peak of imports in 2016-2017. Jamaica registers a growth of 24% in imports over the measured period, while the other countries have remained relatively stable with minimal or no growth in imports (Suriname 3%, Trinidad and Tobago -1%) (Figure 22).

Figure 21: *Horticultural imports by ACP-Caribbean country in value and as percentage of GDP, 2019 (Source: COLEACP based on Eurostat and CEPII BACI)*

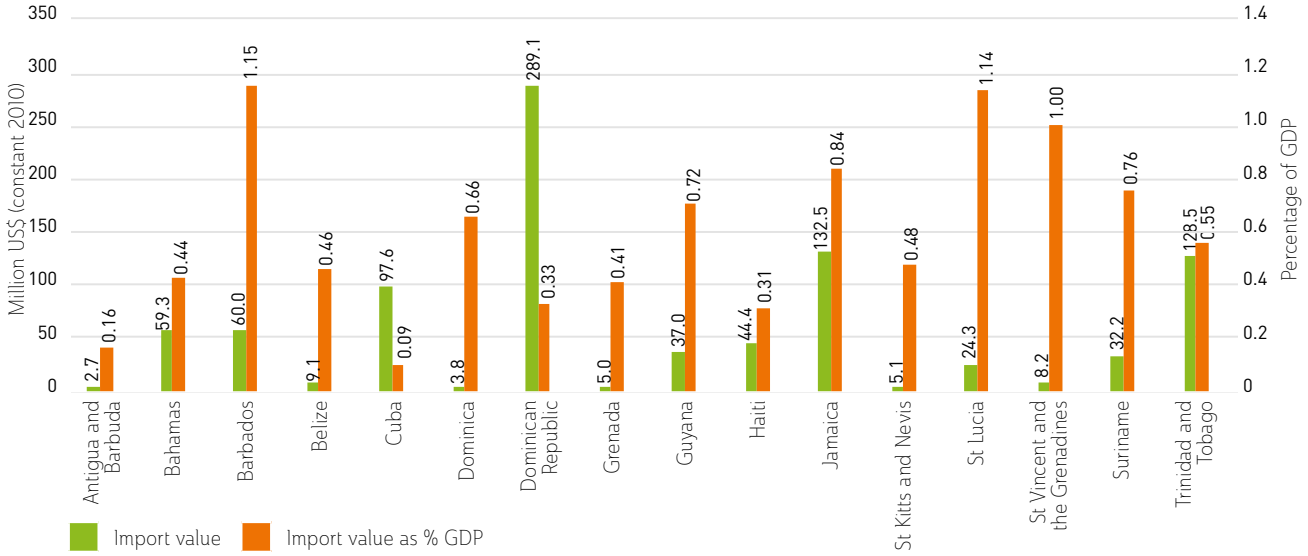


Figure 22: *Trends in value and volume of imports of food products of focus countries. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*

3.2 Origins of ACP-Caribbean countries' imports (food products)

ACP-Caribbean countries mainly import from trade partners in North America (46% by value), Latin America and the Caribbean (21%) and the EU (20%). Of the main trade partners, flows with the biggest deviations over the 2009–2019 period were the EU (+59%) and Asia (–24%). North Africa is emerging as a trade partner with substantial growth (177%), but is still insignificant in terms of total volume of trade (Figures 23, 24 and 25).

Figure 24: *Share of origin regions in total ACP-Caribbean imports 2019 by value (Source: COLEACP based on Eurostat and CEPII BACI)*

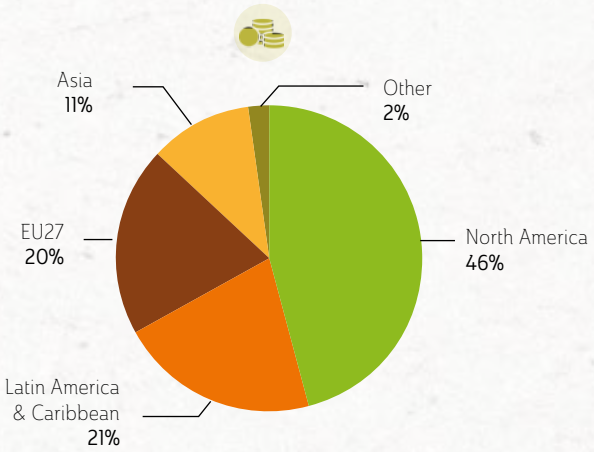


Figure 25: *Share of origin regions in total ACP-Caribbean imports 2019 by volume (Source: COLEACP based on Eurostat and CEPII BACI)*

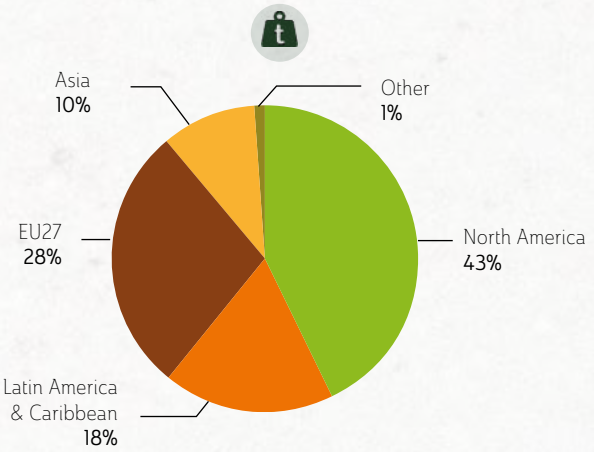
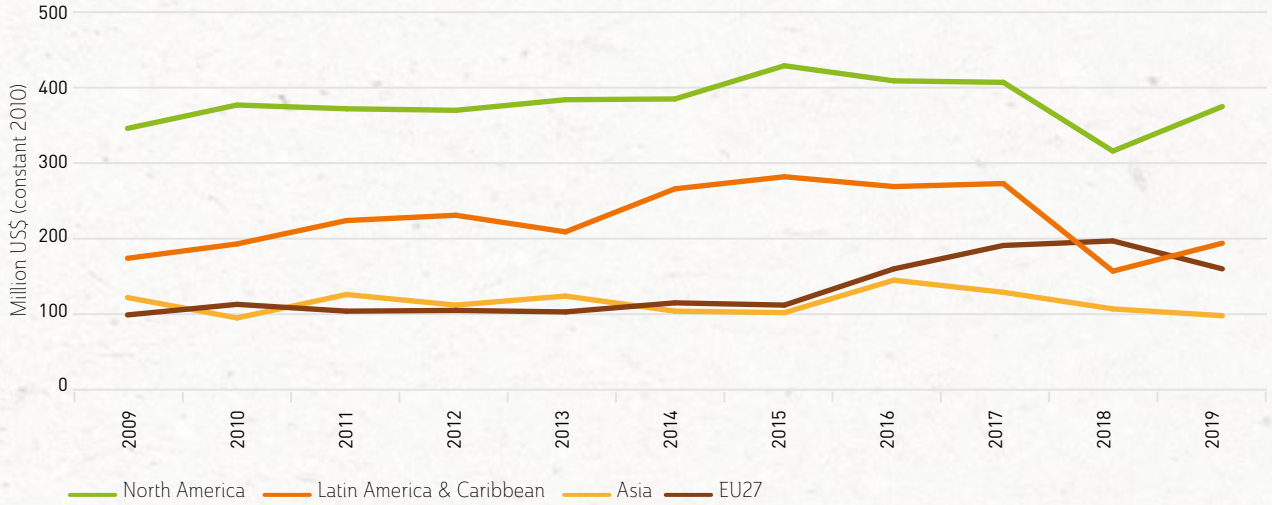


Figure 23: *Trends in imports value (corrected for inflation) from main trade regions (Source: COLEACP based on Eurostat and CEPII BACI)*



In 2019, some 385,000 tonnes of produce were imported from North America, with a total value of US$434 million (Table 25). The main products coming from North America are fresh and frozen potato, dried pulses and beans, plus fresh apples, apple juice and grapes. Latin America and the Caribbean region come next with 161,000 tonnes, valued at US$198 million. It is mainly juices that are being produced in the region, and some countries are supplying the local juice industry that was ravaged by diseases – for example, oranges in the Dominican Republic. A good quantity of coconuts for the industry is exported from Guyana to the Dominican Republic.

Another important exporter to ACP-Caribbean countries is the EU, with a total of 250,000 tonnes of produce in 2019, valued at US$183 million. The EU exports fresh and frozen potato and potato seed, but also onions in significant quantities to the Caribbean.

Pulses and beans, fresh and transformed potato, and apples and apple juice dominate imports in the region. Over 895,000 tonnes of horticultural products, including transformed goods, were imported in 2019, accounting for almost US$939 million.

Table 25: *Imports, 2019 and (linear) trends, 2009–2019 of horticultural products in value and volume by exporting region. Note that the growth in value is based on value corrected for inflation.*

Exporting region	Value (million US$)	Value growth trend (annual) 2009–2019	Volume (tonnes)	Volume growth 2009–2019
North America	434	0.3%	384,689	26%
Latin America & Caribbean	198	–0.4%	160,893	–23%
EU27	183	7.5%	250,456	31%
Asia	107	–0.7%	89,011	–50%
Europe non-EU27	9	0.7%	5,441	33%
Sub-Saharan Africa	2	–20.8%	2,222	–50%
North Africa	1,5	5.2%	1,665	573%
Oceania and Polar	1,3	2.0%	683	–1%
Middle East	0.3	–17.2%	214	–53%
Total	**938.8**	**0.9%**	**895,275**	

Source: COLEACP based on Eurostat and CEPII BACI.

The three most important import trading partners for the products studied are the USA (US$373 million), the Netherlands (US$90 million) and China (US$79 million). Flows with the highest value growth rates (corrected for inflation) over the period are Spain (160%), Costa Rica (109%) and Belgium (169%), while imports from China showed the steepest decline (–31%) (Table 26).

Looking at the focus countries of this study (Table 27), there are some different patterns of imports. In the Dominican Republic and Trinidad and Tobago, the largest share of imported food comes from North America; in Jamaica, there are more goods from Latin America and the Caribbean, while in Suriname imported goods come mainly from Europe.

Table 26: *Top 10 import trade partners, 2019. Note that the growth in value is based on value corrected for inflation.*

Partner	Value (million US$)	% of total imports (value)	Volume (1,000 tonnes)	% of total imports (volume)	Growth 2009–2019 (constant 2010 US$)	Growth (volume)
USA	373	40%	37	4%	14%	30%
Netherlands	90	10%	17	2%	24%	4%
China	79	8%	133	15%	–31%	–55%
Canada	61	7%	22	2%	–18%	20%
Spain	43	5%	75	8%	160%	229%
Costa Rica	31	3%	23	3%	109%	135%
Belgium	30	3%	165	18%	169%	201%
Trinidad and Tobago	26	3%	28	3%	–15%	–40%
Chile	24	3%	9	1%	89%	209%
Belize	21	2%	251	28%	30%	–47%
Total	**778**	**83%**	**760**	**85%**	**13%**	**6%**

Source: COLEACP based on Eurostat and CEPII BACI.

Table 27: *Value of imports of horticultural products in focus countries by region of origin, 2019*

Dominican Republic (million US$)	
North America	158
Latin America and Caribbean	57
EU27	45
Asia	28
North Africa	0.4
Sub-Saharan Africa	0.4
Europe non-EU27	0.4
Middle East	0.003
Total	**289**

Guyana (million US$)	
Latin America and Caribbean	12
North America	12
EU27	9
Asia	3
Sub Saharan Africa	0.3
Europe non-EU27	0.3
North Africa	0.1
Middle East	0.02
Total	**37**

Jamaica (million US$)	
Latin America and Caribbean	52
North America	46
EU27	23
Asia	8
Europe non-EU27	3
Sub-Saharan Africa	0.4
North Africa	0.3
Middle East	0.2
Total	**133**

Suriname (million US$)	
EU27	18
North America	6
Asia	5
Latin America and Caribbean	3
North Africa	0.2
Europe non-EU27	0.1
Middle East	0.04
Sub-Saharan Africa	0.001
Total	**32**

Trinidad and Tobago (million US$)	
North America	57
EU27	29
Latin America and Caribbean	26
Asia	14
Europe non-EU27	2
North Africa	0.4
Sub-Saharan Africa	0.3
Oceania and Polar	0.2
Total	**128**

Source: COLEACP based on Eurostat and CEPII BACI.

3.3 Products imported by ACP-Caribbean countries

The main imported category for the horticultural sector in ACP-Caribbean countries is Processed fruit and vegetables, which accounts for 46% of horticultural imports in the scope of this study and for 37% of the volume (Figures 26 and 27). Together with Edible fruit and nuts (17%) and Vegetables (14%), they make up 77% of imports by value. Highest growth over the 2009–2019 period, both in value (28%) and volume (38%), was recorded in the Processed fruit and vegetables category. Imports of Pulses and beans have decreased more strongly in value since 2009 (37%) than in volume (9%), indicating a lower price/volume ratio during this period. If we analyse imports by country in different categories (Table 28), we see that the patterns are very similar, except for Jamaica where the imports of processed fruit and vegetables are considerably higher in value than in the other countries.

Figure 26: *Imports of horticultural products in ACP-Caribbean countries by category (by value, 2019) (Source: COLEACP based on Eurostat and CEPII BACI)*

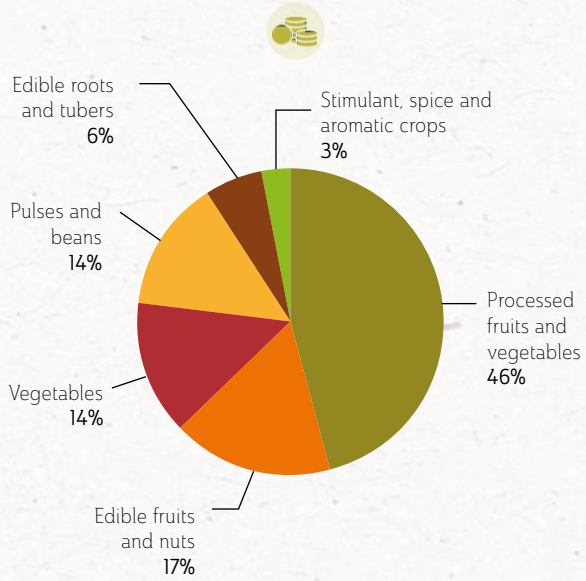


Figure 27: *Imports of horticultural products to ACP-Caribbean countries by category (by volume, 2019) (Source: COLEACP based on Eurostat and CEPII BACI)*

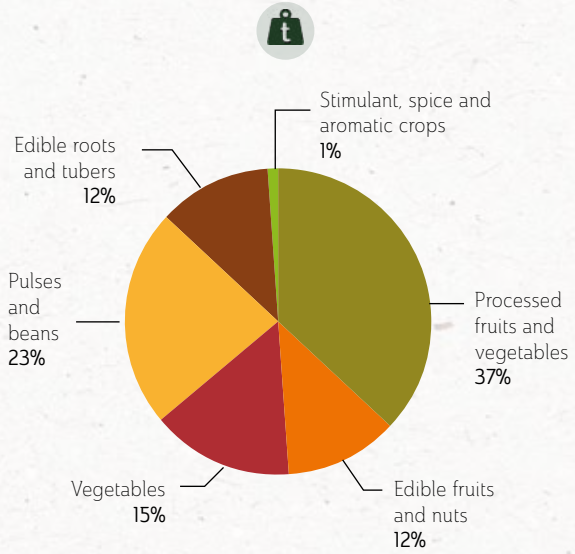


Table 28: *Top 10 most imported horticultural products in the five focus countries of this study, 2019*

Dominican Republic	
Product	**Value (million US$)**
Other beans (dried)	28
Apple	25
Potato (frozen) (processed)	25
Orange juice (frozen) (processed)	19
Apple juice (processed)	14
Grapes	13
Jams and purées (fruit/nuts) (processed)	10
Garlic	7
Groundnut (processed)	7
Jams and purées (other fruits/nuts) (processed)	7

Guyana	
Product	**Value (million US$)**
Potato	4
Mixed juices (fruit/vegetable) (processed)	3
Nuts and other seeds (not groundnuts) (processed)	2
Potato (frozen) (processed)	2
Onion and shallot	2
Chickpea (dried)	2
Garlic	2
Carrot and turnip	2
Potato (processed)	2
Sweetcorn (processed)	1

Jamaica	
Product	**Value (million US$)**
Potato (frozen) (processed)	18
Other fruit and nuts (processed)	15
Groundnut (processed)	9
Potato (processed)	8
Orange juice (frozen) (processed)	8
Single juices (other fruit/vegetable) (processed)	7
Onion and shallot	4
Adzuki bean (dried)	4
Mixed juices (fruit/vegetable) (processed)	3
Nuts and other seeds (not groundnuts) (processed)	3

Suriname	
Product	**Value (million US$)**
Potato	5
Onion and shallot	4
Potato (frozen) (processed)	3
Garlic	2
Prepared beans (processed)	2
Groundnut (processed)	1
Mixed juices (fruit/vegetable) (processed)	1
Nuts and other seeds (not groundnuts) (processed)	1
Fruits and nuts (preserved)	1
Single juices (other fruit/vegetable) (processed)	1

Trinidad & Tobago	
Product	**Value (million US$)**
Potato (frozen) (processed)	17
Potato	12
Carrot and turnip	5
Orange juice (frozen) (processed)	5
Garlic	5
Ethnic vegetables	4
Onion and shallot	4
Apple	4
Nuts and other seeds (not groundnut) (processed)	4
Vegetables (acid preserved) (processed)	3

Source: COLEACP based on Eurostat and CEPII BACI.

3.4 Top imported products

Among the top 10 imported products (Table 29), the main imports are potato (processed and fresh). This product increased substantially in value over the decade.

Dried pulses and beans (kidney bean, pea and other beans) are also an important group. Of all products in the top 10, the import of dried vegetables has increased most over the period 2009-2019. The Caribbean countries are producers of some dry beans, but the production is not enough to satisfy the domestic market.

Apple and grapes are the most imported fresh fruits, while frozen orange juice is the most imported fruit juice. Finally, garlic and onion are the most imported vegetables (Table 29, Figure 28).

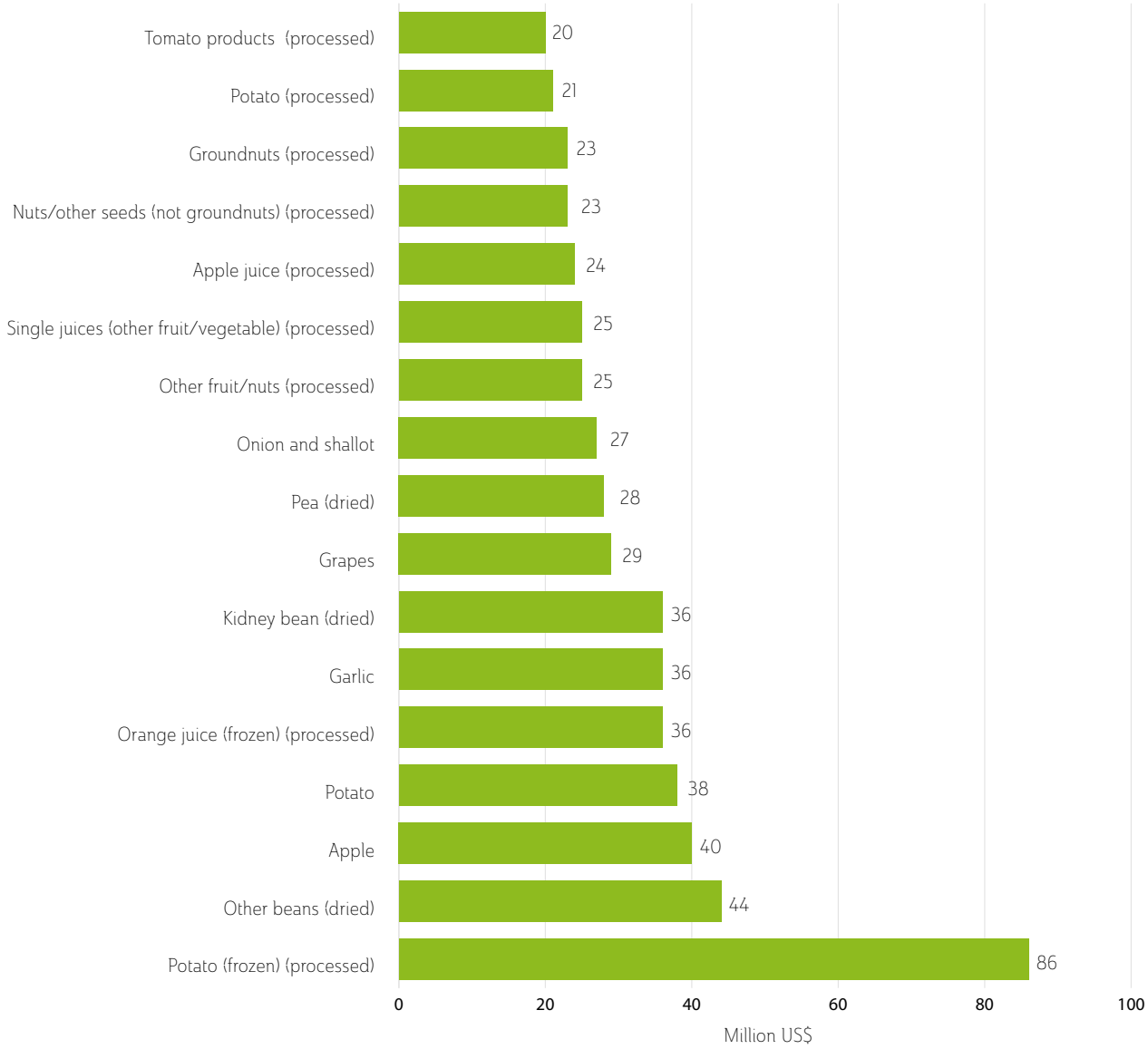
In the five focus countries, the overall picture of import products remains the same (Table 28). Potato products, fresh but especially processed, are at the top of the list. Also, apple and apple juice are important import products for most of the five countries.

Table 29: *Top 10 most imported products by ACP-Caribbean countries in value and volume, 2019. Note that the growth in value is based on value corrected for inflation.*

Product	Value (million US$)	Volume (1,000 tonnes)	Growth (constant 2010 US$)	Growth (volume)
Potato (frozen) (processed)	86	91	83%	76%
Other beans (dried)	44	52	24%	26%
Apple	40	38	78%	82%
Potato	38	80	70%	–21%
Kidney bean (dried)	36	37	–60%	–63%
Garlic	36	33	55%	–60%
Orange juice (frozen) (processed)	36	19	170%	–37%
Grapes	29	13	43%	17%
Pea (dried)	28	89	59%	114%
Onion and shallot	27	58	54%	–1%
Total	**400**	**511**	**29%**	**–5%**

Source: COLEACP based on Eurostat and CEPII BACI.

Figure 28: *Products imported by ACP-Caribbean countries with an import value over US$20 million (2019) (Source: COLEACP based on Eurostat and CEPII BACI)*



3.5 Flows

Looking at major import flows to the five focus countries (Table 30), the Netherlands is an important exporter of potato and onion to most of the countries. The USA is strong in exports of apple and beans to the Dominican Republic and Guyana. Among the five focus countries themselves, Trinidad and Tobago is succeeding best in exporting to other ACP-Caribbean countries.

The other ACP-Caribbean countries' most important import flows include mainly potato, both processed and fresh (the Netherlands, Canada, the USA), beans (China, Canada), tomato products (Chile, China) and garlic (China and Spain) (Table 31).

Table 30: *Top 10 import flows of horticultural products, by partner and product, of focus countries in this study – value and growth of flow, 2009–2019. Note that the growth in value is based on value corrected for inflation.*

Dominican Republic			
Flow	**Product**	**Value (million US$) 2019**	**Growth 2009–2019 (constant 2010 US$)**
USA – Dominican Republic	Other beans (dried)	25.6	63%
USA – Dominican Republic	Apple	23.9	127%
USA – Dominican Republic	Orange juice (frozen)	11.3	7,015%
USA – Dominican Republic	Apple juice	10.6	2,859%
Belgium – Dominican Republic	Potato (frozen)	10.2	205%
Costa Rica – Dominican Republic	Jams and purées (fruit/nuts)	9.2	106%
USA – Dominican Republic	Grapes	8.0	13%
Spain – Dominican Republic	Orange juice (frozen)	7.1	(was 0)
China – Dominican Republic	Garlic	7.0	139%
Netherlands – Dominican Republic	Potato (frozen)	6.1	171%

Guyana			
Flow	**Product**	**Value (million US$) 2019**	**Growth 2009–2019 (constant 2010 US$)**
Netherlands – Guyana	Potato	3.9	90%
Netherlands – Guyana	Onion and shallot	2.1	102%
Mexico – Guyana	Chickpea (dried)	1.9	–7%
China – Guyana	Garlic	1.7	–46%
Costa Rica – Guyana	Carrot and turnip	1.5	7,913%
Trinidad and Tobago – Guyana	Nuts and other seeds (not groundnut)	1.3	224%
Trinidad and Tobago – Guyana	Mixed juices (fruit/vegetable)	1.3	399%
Netherlands – Guyana	Potato (frozen)	1.2	292%
USA – Guyana	Sweetcorn	1.2	230%
USA – Guyana	Apple	1.1	226%

Jamaica			
Flow	**Product**	**Value (million US$) 2019**	**Growth 2009–2019 (constant 2010 US$)**
Belize – Jamaica	Orange juice (frozen)	7.7	389%
Trinidad and Tobago – Jamaica	Groundnut	7.3	16%
Netherlands – Jamaica	Potato (frozen)	6.2	66%
Costa Rica – Jamaica	Other fruit/nuts	5.9	2,905%
Dominican Republic – Jamaica	Other fruit/nuts	5.3	37%
Belgium – Jamaica	Potato (frozen)	5.0	674%
USA – Jamaica	Potato (frozen)	4.2	237%
Netherlands – Jamaica	Onion and shallot	4.2	41%
Dominican Republic – Jamaica	Potato	3.3	160%
Bermuda – Jamaica	Single juices (other fruit/vegetable)	2.8	(Was 0)

Suriname			
Flow	**Product**	**Value (million US$) 2019**	**Growth 2009–2019 (constant 2010 US$)**
Netherlands – Suriname	Potato	4.7	112%
Netherlands – Suriname	Onion and shallot	3.6	161%
China – Suriname	Garlic	2.0	27%
Belgium – Suriname	Beans	1.1	87%
Netherlands – Suriname	Potato (frozen)	1.0	11%
Belgium – Suriname	Potato (frozen)	0.9	433%
Italy – Suriname	Beans	0.7	775%
Trinidad and Tobago – Suriname	Nuts and other seeds (not groundnut)	0.6	400%
Canada – Suriname	Pea (dried)	0.6	–16%
USA – Suriname	Apple	0.6	–29%

Trinidad and Tobago			
Flow	Product	Value (million US$) 2019	Growth 2009–2019 (constant 2010 US$)
Netherlands – Trinidad and Tobago	Potato	8.1	13%
Netherlands – Trinidad and Tobago	Potato (frozen)	7.1	–33%
Costa Rica – Trinidad and Tobago	Carrot and turnip	5.0	22%
Belize – Trinidad and Tobago	Orange juice (frozen)	4.8	5%
China – Trinidad and Tobago	Garlic	4.6	29%
USA – Trinidad and Tobago	Ethnic vegetables	4.3	4,601%
Canada – Trinidad and Tobago	Potato (frozen)	4.0	76%
USA – Trinidad and Tobago	Apple	3.7	25%
Netherlands – Trinidad and Tobago	Onion and shallot	3.7	56%
Belgium – Trinidad and Tobago	Potato (frozen)	3.7	225%

Source: COLEACP based on Eurostat and CEPII BACI.

Table 31: *Most important import flows by partner and product of other countries in this study – value and growth of flow, 2009–2019. Note that the growth in value is based on value corrected for inflation.*

Flow	Product	Value 2019 (million US$)	Growth in value 2009–2019 (constant 2010 US$)
China – Cuba	Kidney bean (dried)	25.7	–63%
Canada – Cuba	Pea (dried)	20.9	105%
USA – Haiti	Other beans (dried)	13.1	56%
China – Haiti	Garlic	12.1	43%
Netherlands – Cuba	Potato (seed)	10.1	16%
Canada – Bahamas	Potato (frozen)	5.4	9%
USA – Barbados	Grapes	4.3	99%
Chile – Cuba	Tomato products	3.6	–
China – Haiti	Tomato products	3.6	–39%
Spain – Cuba	Vegetables (acid preserved)	3.5	62%
Spain – Haiti	Garlic	3.4	36%
USA – Barbados	Cauliflower and broccoli	3.4	105%
USA – Bahamas	Single juices (other fruit/vegetable)	3.2	4%
Netherlands – Barbados	Potato	2.9	29%
USA – Bahamas	Potato	2.9	38%
USA – Bahamas	Lettuce	2.8	1%
USA – Bahamas	Bananas and plantains	2.8	–23%
Spain – Cuba	Olive	2.7	208%
USA – Bahamas	Lemon and limes	2.7	127%
USA – Bahamas	Grapes	2.5	–6%

Source: COLEACP based on Eurostat and CEPII BACI.

3.6 Roots and tubers

3.6.1 Potato

Potato is one of the main import products of the Caribbean. Potatoes are imported fresh, frozen and as seed potatoes. Adding all the fresh and transformed potato amounts to over 200,000 tonnes during 2019 at a value of US$159 million.

The main exporters of frozen potato to the ACP-Caribbean countries are the Netherlands, Belgium and USA (Table 32), and the main importers are the Dominican Republic, Jamaica, and Trinidad and Tobago (Table 33) accounting for US$59 million in 2019 and are the main processed product imported. Frozen potato registered significant growth of 76% in volume from 2009 to 2019.

Table 32: *Top 5 origins of potato imports of ACP-Caribbean countries by value, 2019*

Origin	Value (million US$)					
	Potato	Potato (frozen)	Potato (frozen) (processed)	Potato (processed)	Potato (seed)	Total
Netherlands	22.30	0.0	27.77	0.17	12.56	62.81
USA	9.68	0.90	14.55	8.57	0.18	33.88
Belgium	0.01	0.002	24.46	0.06	0.11	24.64
Canada	4.90	0.001	13.50	0.03	0.41	18.84
Trinidad and Tobago	0.02	0.001	0.001	4.50	0.0	4.52

Source: COLEACP based on Eurostat and CEPII BACI.

Table 33: *Imports of potato products by ACP-Caribbean countries by value, 2019*

Importer	Value (million US$)					
	Potato	Potato (frozen)	Potato (frozen) (processed)	Potato (processed)	Potato (seed)	Total
Dominican Republic	5.8	0.1	24.7	2.6	1.2	34.4
Trinidad and Tobago	12.0	0.00	16.7	0.5	0.04	29.2
Jamaica	1.2	0.03	17.8	8.4	1.7	29.1
Barbados	3.8	0.01	5.0	3.2	0.001	12.0
Cuba	0	0.00001	1.5	0.2	10.1	11.8
Bahamas	1.8	0.6	7.8	1.2	0.001	11.5
Suriname	4.7	0	2.6	0.6	0.5	8.4
Guyana	4.0	0.017	2.3	1.6	0	7.9
St Lucia	1.9	0.003	1.6	1.1	0.003	4.6
Belize	0.7	0.1	2.1	0.3	0.1	3.3
Grenada	0.8	0.004	0.7	0.5	0.0	2.1
St Vincent and the Grenadines	0.4	0.01	0.9	0.5	0.0	1.8
Antigua and Barbuda	0.3	0.0	0.9	0.0	0.0	1.2
Dominica	0.3	0.0	0.4	0.3	0.02	1.1
St Kitts and Nevis	0.3	0.02	0.5	0.1	0.00004	1.0
Haiti	0.0	0.0	0.2	0.3	0.0002	0.5
Total	**38.0**	**0.93**	**85.9**	**21.2**	**13.7**	**159.8**

Source: COLEACP based on Eurostat and CEPII BACI.

Fresh potato is imported mainly from the USA and the Netherlands to Trinidad and Tobago, Guyana and the Dominican Republic to a value of US$53 million. Fresh potato registered a decrease in demand of 19% by volume (Figures 29 and 30).

A significant amount of potato seeds is imported, mainly from the Netherlands to Cuba; in the production of potato, Cuba ranks first followed by Haiti and the Dominican Republic.

ACP-Caribbean countries are generally not competitive enough to produce potato at scale compared with the large quantities produced in Europe and North America using industrial machinery and productive varieties. However, in Jamaica, with some Government support, there was significant investment in potato production over the period, resulting in a sharp decrease in imports. Several large importers have become large producers of potato over the period. They have created an association, The Potato and Onion Producers Association (POPA), to coordinate their production of potato and onion. This group now offers contracts to small-scale producers, working with the Government to provide a guaranteed price and supply inputs such as fertilisers and seeds, with a targeted production of approximately 1,000 ha of "Irish" potatoes annually. The group has invested heavily in cold storage, logistic and marketing systems, targeting hotels, supermarkets and local markets, and has received requests for imports from Trinidad and Tobago and Cayman, with plans for expansion to facilitate such exports in the future.

POPA has also been able to fund production through loans, revenue from their import businesses, and access facilities such as the Jamaica Business Fund, a programme developed under the auspices of the World Bank to provide concessionary

Figure 29: *Trends in value (corrected for inflation) of ACP-Caribbean imports of potato products, 2009–2019 (Source: COLEACP based on Eurostat and CEPII BACI)*

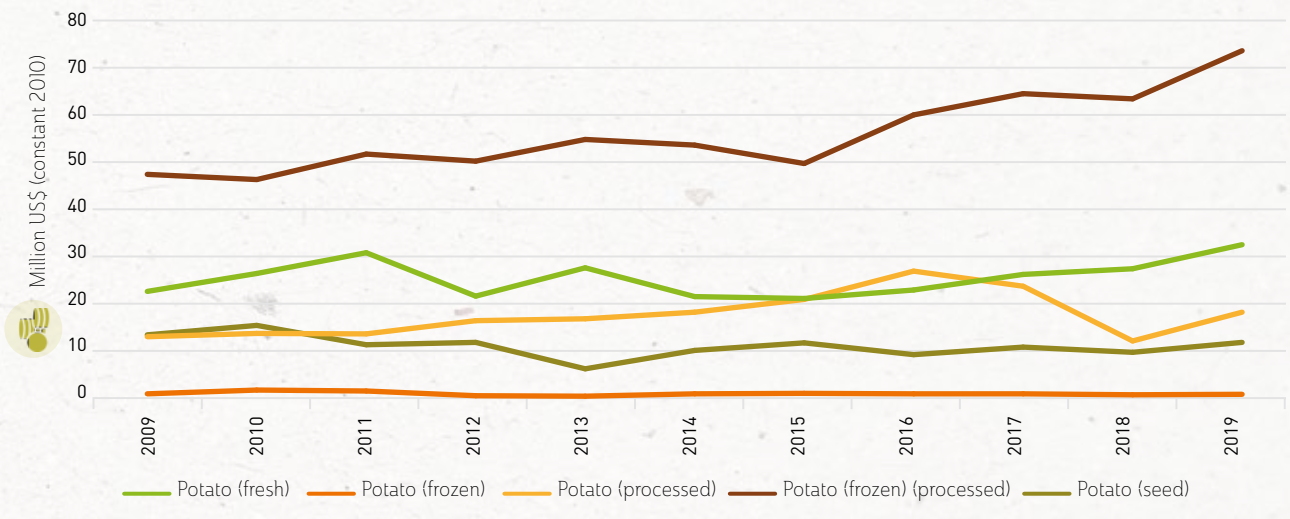
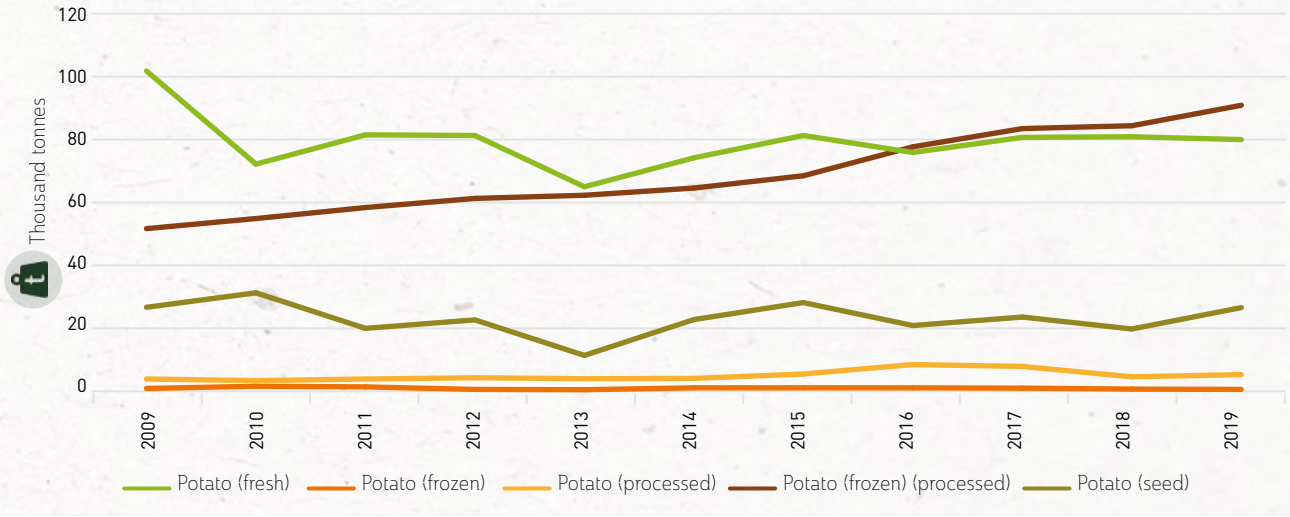


Figure 30: *Trends in volume of ACP-Caribbean imports of potato products, 2009–2019 (Source: COLEACP based on Eurostat and CEPII BACI)*



funding for agri-development opportunities. While potato production in Jamaica remains relatively uncompetitive, consumers have demonstrated preferences for the relatively fresh produce available locally.[22] Jamaica, with its numerous microclimates, has also demonstrated an ability to produce potato all year round once seeds can be accessed.

The potential of frozen potato considerably increased over the last decade, and it could be an opportunity to replace imports if yields in potato production are adequate and the requisite investments are made in storage facilities. Following a massive decline in large farms reported in its 2007 agriculture census, Jamaica has seen a recent considerable increase in large farms focusing on the production of potato, onion, pineapple and cassava, funded by wealthy Jamaicans and supported by expertise from countries such as Costa Rica and Israel.

3.7 Pulses and beans – Legumes

Pulses and beans and prepared pulses and beans totalled US$98 million of imports in 2019 (Table 34). Dried peas registered a growth of 114% in volume in a 11-year period; other beans registered a volume growth of 26%; and dried kidney beans decreased 63% by volume during the same period (Figures 31 and 32).

Quantity-wise, the majority of pulses and beans are imported dried. Major partners are the USA and Canada and most produce goes to Cuba, the Dominican Republic and Haiti, despite the fact that they are the biggest producers of these crops. The decrease in imports coincided with the increase in local production, which could potentially lead to import replacement.

Table 34: *Top 10 origins of ACP-Caribbean pulse and beans imports, 2019*

Country	Prepared pulses and beans (million US$)	Pulses and beans (million US$)	Total (million US$)
USA	6.7	56.2	62.9
Canada	0.2	31.8	32.1
Belgium	1.3	0.4	1.7
Netherlands	0.3	0.2	0.5
United Kingdom	0.3	< 1	0.4
Trinidad and Tobago	0.3	< 1	0.3
Dominican Republic	0.1	0.0	0.1
Total	**9.4**	**88.7**	**98.0**

Source: COLEACP based on Eurostat and CEPII BACI.

22 Interview with Clifton Campbell, Fresh and Direct, August 2021.

Figure 31: *Trend in value (corrected for inflation) of imports of pulses and beans by ACP-Caribbean countries (Source: COLEACP based on Eurostat and CEPII BACI)*

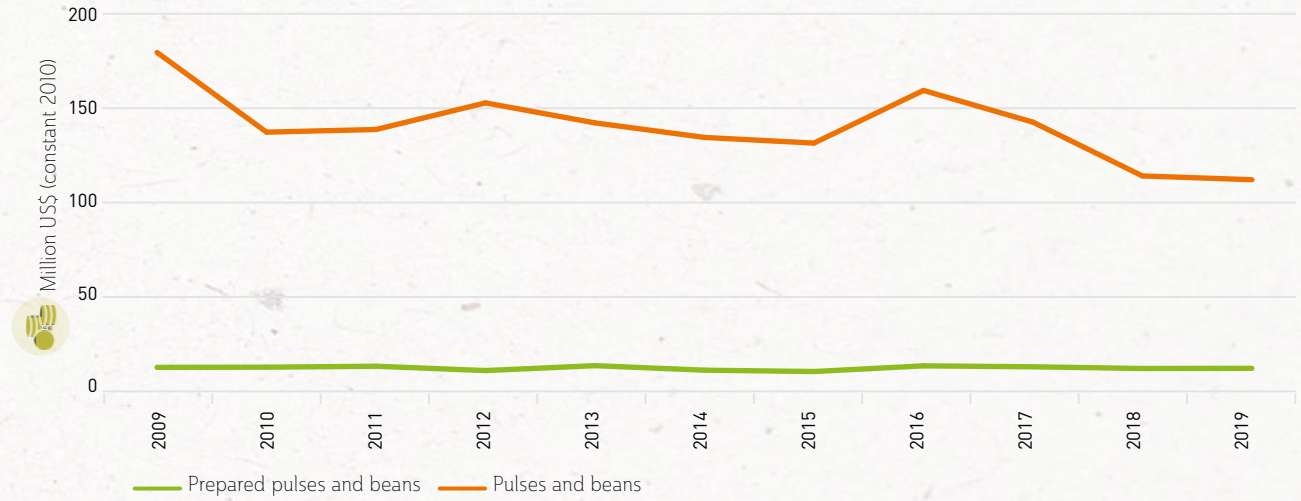
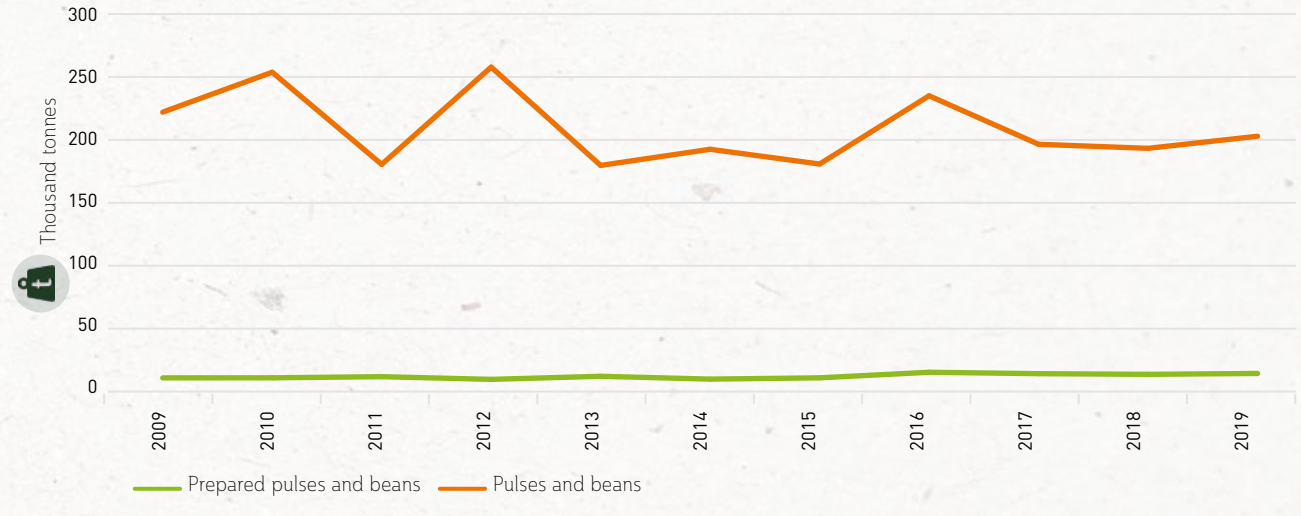
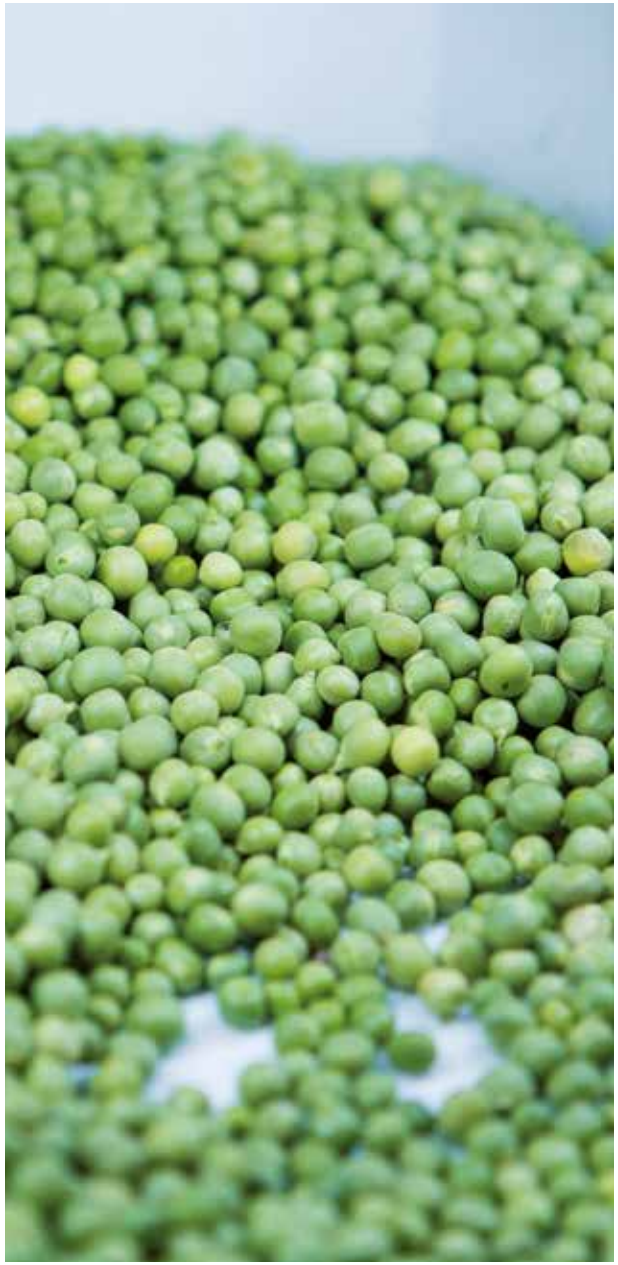


Figure 32: *Trend in volume of imports of pulses and beans by ACP-Caribbean countries (Source: COLEACP based on Eurostat and CEPII BACI)*





3.8 Fruits and nuts

3.8.1 Fresh fruits

Because the Caribbean offers a variety of local fruits, only a few types of fruit are imported in large quantities – for example, apple and grapes (Table 35). Other fruits such as coconut and oranges are imported mainly to feed local industry needs, especially in the Dominican Republic.
The Dominican Republic is the main importer of fruits, reaching an annual import value of almost US$57 million (Table 36).

- Apples are mainly imported from the USA and Canada to the Dominican Republic, Cuba and Trinidad and Tobago to a value of US$40 million (Tables 37 and 35).
- Fresh grapes are imported from the USA to the Dominican Republic, Barbados and other tourism-dependent countries of the region. There are also exports of grapes from Chile to the Dominican Republic. Grape imports cost US$29 million in 2019.
- Lemon and limes are imported from the USA to the Bahamas. Imports reached US$4.2 million in 2019.
- Fresh oranges from Peru and the USA cover the reduced production of the Caribbean. Imports mainly go to the Dominican Republic and the Bahamas, and cost US$5.8 million in 2019.
- Almost 3 tonnes of banana are imported from the USA by Barbados, illustrating the difficulty of direct trade in the Caribbean between neighbouring countries.

- Imports of most fruits remained relatively stable during the 2009–2019 period. Notable exceptions are the growth of imports of apple and the decline in imports of bananas and plantains (Figures 33 and 34)

Table 35: *Top 10 most imported fruits by ACP-Caribbean countries by value and volume, 2019*

Product	Value (million US$)	Volume (1,000 tonnes)
Apple	40.2	38.3
Bananas and plantains	5.0	8.7
Grapes	29.4	13.0
Grapes (dried)	13.0	4.9
Lemon and limes	4.2	2.6
Oranges	5.8	5.6
Other fruits (passion fruit, lychees, tamarinds, etc.)	3.6	2.1
Pear and quince	2.9	2.3
Plums (dried)	3.1	1.1
Strawberry	2.9	0.6
Total	**110.1**	**79.2**

Source: COLEACP based on Eurostat and CEPII BACI.

Table 36: *Imports of fruits by ACP-Caribbean countries by value and volume, 2019*

Importer	Value (million US$)	Volume (1,000 tonnes)
Dominican Republic	56.6	39.6
Trinidad and Tobago	17.8	9.7
Barbados	16.9	11.4
The Bahamas	15.5	10.2
Jamaica	8.4	3.8
Cuba	4.5	9.4
Guyana	3.1	1.8
Suriname	3.0	1.8
St Lucia	2.7	0.8
St Vincent and the Grenadines	1.0	0.4
Belize	0.9	1.2
Haiti	0.8	0.4
St Kitts and Nevis	0.8	0.9
Grenada	0.6	0.3
Dominica	0.4	0.2
Antigua and Barbuda	0.2	0.1
Total	**133.2**	**91.9**

Source: COLEACP based on Eurostat and CEPII BACI.

Table 37: *Top 10 import flows of fruits to ACP-Caribbean countries by value, 2019. Note that the growth in value is based on value corrected for inflation.*

Flow	Product	Value
USA – Dominican Republic	Apple	24
USA – Dominican Republic	Grapes	8
USA – Barbados	Grapes	4
USA – Trinidad and Tobago	Apple	4
Chile – Dominican Republic	Grapes	4
USA – Trinidad and Tobago	Grapes	3
USA – Dominican Republic	Grapes (dried)	3
USA – Bahamas	Bananas and plantains	3
USA – Bahamas	Lemon and limes	3
USA – Bahamas	Grapes	2

Source: COLEACP based on Eurostat and CEPII BACI.

Figure 33: *Trends in value (corrected for inflation) of imports of the five most imported fruits by ACP-Caribbean countries (Source: COLEACP based on Eurostat and CEPII BACI)*

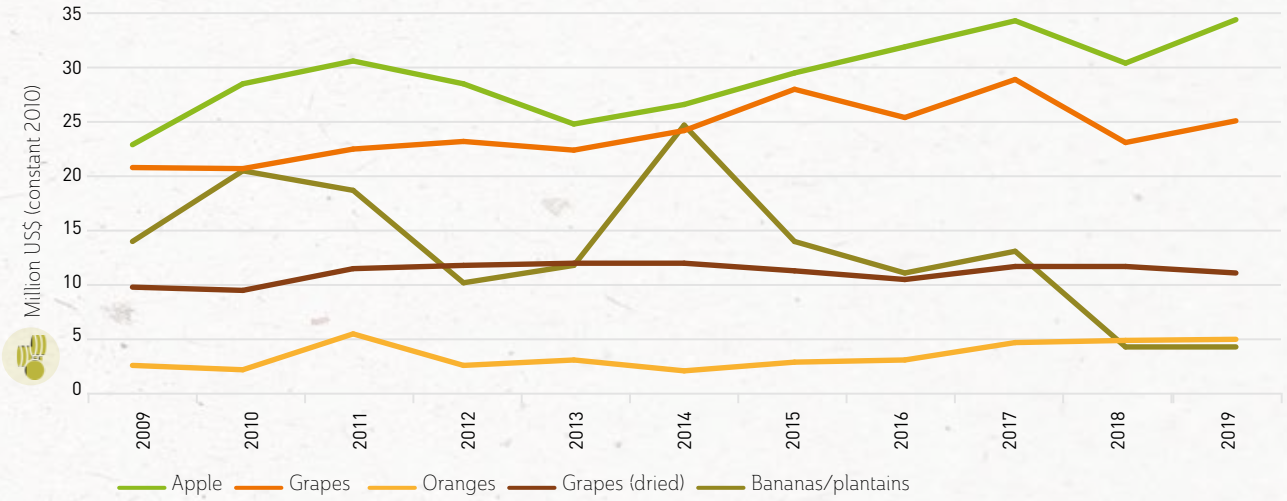
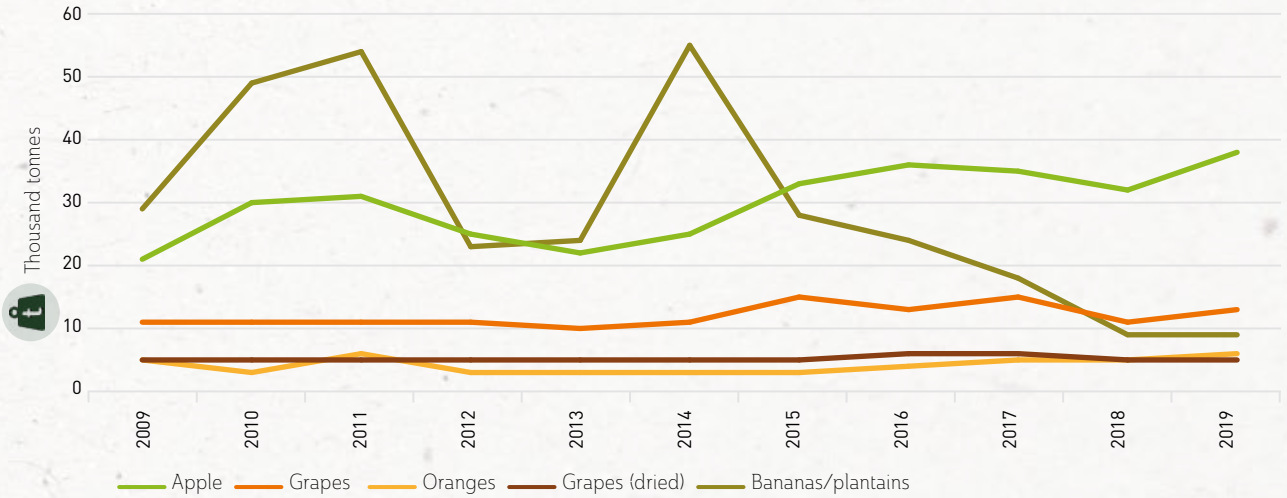


Figure 34: *Trends in volume of imports of the five most imported fruits by ACP-Caribbean countries (Source: COLEACP based on Eurostat and CEPII BACI)*



3.8.2 Apple

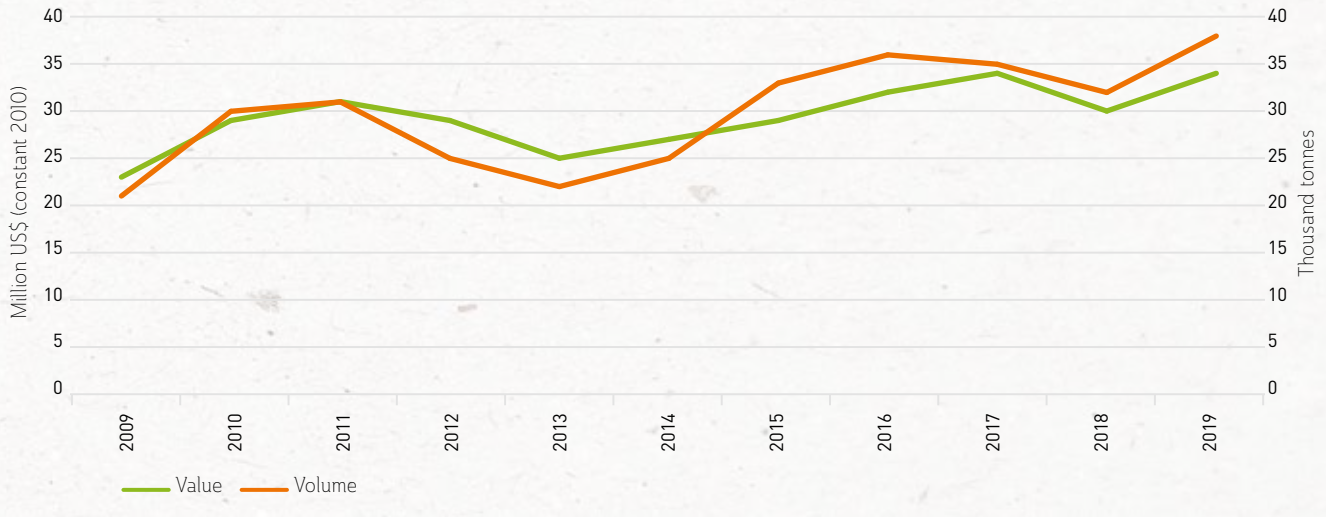
Apple is the main imported fruit, registering a significant growth of 82% volume in 11 years (Figure 35), accounting for US$34 million in 2019 (Table 38). Fresh apples are mainly from the USA, Canada and Chile, and the main destinations are the Dominican Republic, Cuba, Trinidad and Tobago, Barbados and Guyana.

Table 38: *Top 5 importers of apple by value and volume among ACP-Caribbean countries, 2019*

Importer	Value (Million US$)	Volume (1,000 tonnes)
Dominican Republic	24.8	22.5
Trinidad and Tobago	3.9	3.4
Barbados	2.5	1.5
Cuba	2.5	6.6
Bahamas	1.4	1.0

Source: COLEACP based on Eurostat and CEPII BACI.

Figure 35: *Trend in import of apple products by ACP-Caribbean countries, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



Apple juice (HS200970) registered a US$23 million import bill in 2019, with significant growth of 177% in volume in 11 years (Figure 36). Apple juice is from the USA, Guatemala and China, mainly to the Dominican Republic and Jamaica (Table 39).

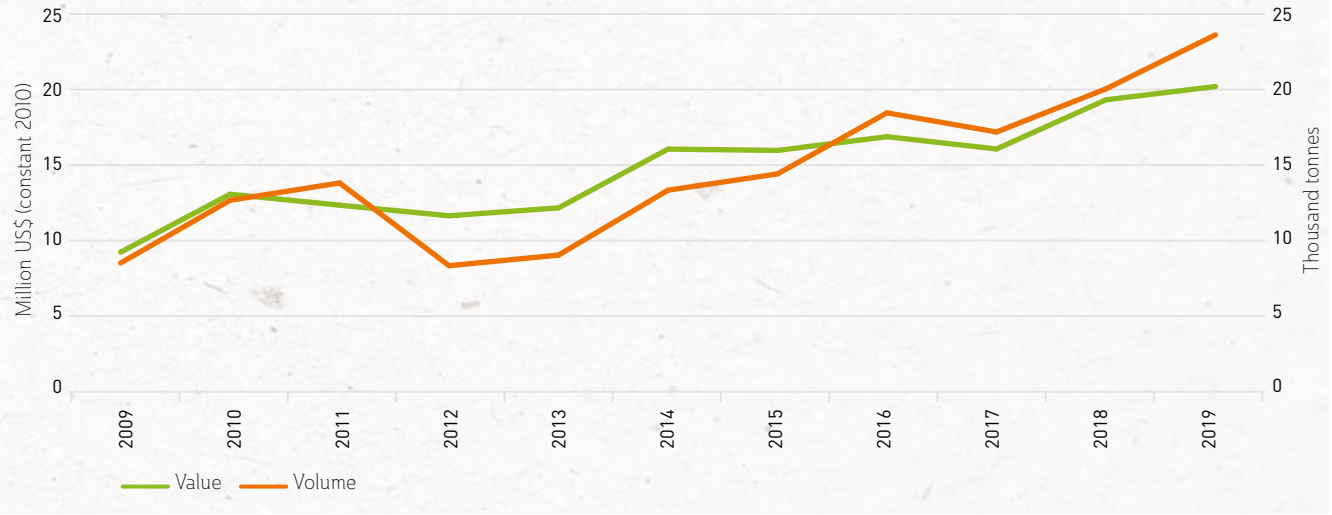
Table 39: *Top 5 importers of apple juice by value and volume among ACP-Caribbean countries, 2019*

Importer	Value (Million US$)	Volume (1,000 tonnes)
Dominican Republic	14.1	13.9
Jamaica	2.7	3.7
Trinidad and Tobago	2.2	1.8
Barbados	1.2	0.9
Bahamas	0.9	0.8

Source: COLEACP based on Eurostat and CEPII BACI.

In the Caribbean, St Vincent and the Grenadines and Grenada locally produce apple for domestic consumption. The consumption of apple and apple juice witnessed a constant growing trend over the last decade. This could reduce the deficit in the balance of trade if apple juice could be produced locally using imported apples and installed juice production facilities.

Figure 36: *Trend in import of apple juice by ACP-Caribbean countries, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



3.8.3 Nuts

The largest importers of nuts amongst the ACP-Caribbean countries are the Dominican Republic (US$12.6 million) and Trinidad and Tobago (US$9.1 million) (Table 40). The flow of coconut from Guyana to the Dominican Republic is the most significant in value. The USA is an important provider of almond to both Trinidad and Tobago and the Dominican Republic. Asia is the origin of flows of cashew nut to both Trinidad and Tobago (India) and the Dominican Republic (Vietnam) (Table 41).

During 2009–2019, the most notable trends were the decline in cashew nut imports from 2009 to 2012, and the drop in imports of dried coconut from 2018 onwards. Imports of fresh coconut (+199%) and almond (+149%) showed most growth (Figure 37). As previously mentioned in this study, coconut is seeing an increase in demand from Dominican Republic industry, which imported them, mainly from Guyana, to a value of about US$6.8 million in 2019. Large plantations of coconut groves have been planted in the Dominican Republic, which will potentially reduce its external demand in the near future.

Table 40: *Top 5 ACP-Caribbean countries importing nuts, 2019*

Importer	Value (million US$)	Volume (1,000 tonnes)
Dominican Republic	12.6	9.4
Trinidad and Tobago	9.1	1.4
Jamaica	1.8	0.4
Barbados	1.2	0.5
Cuba	0.6	0.1

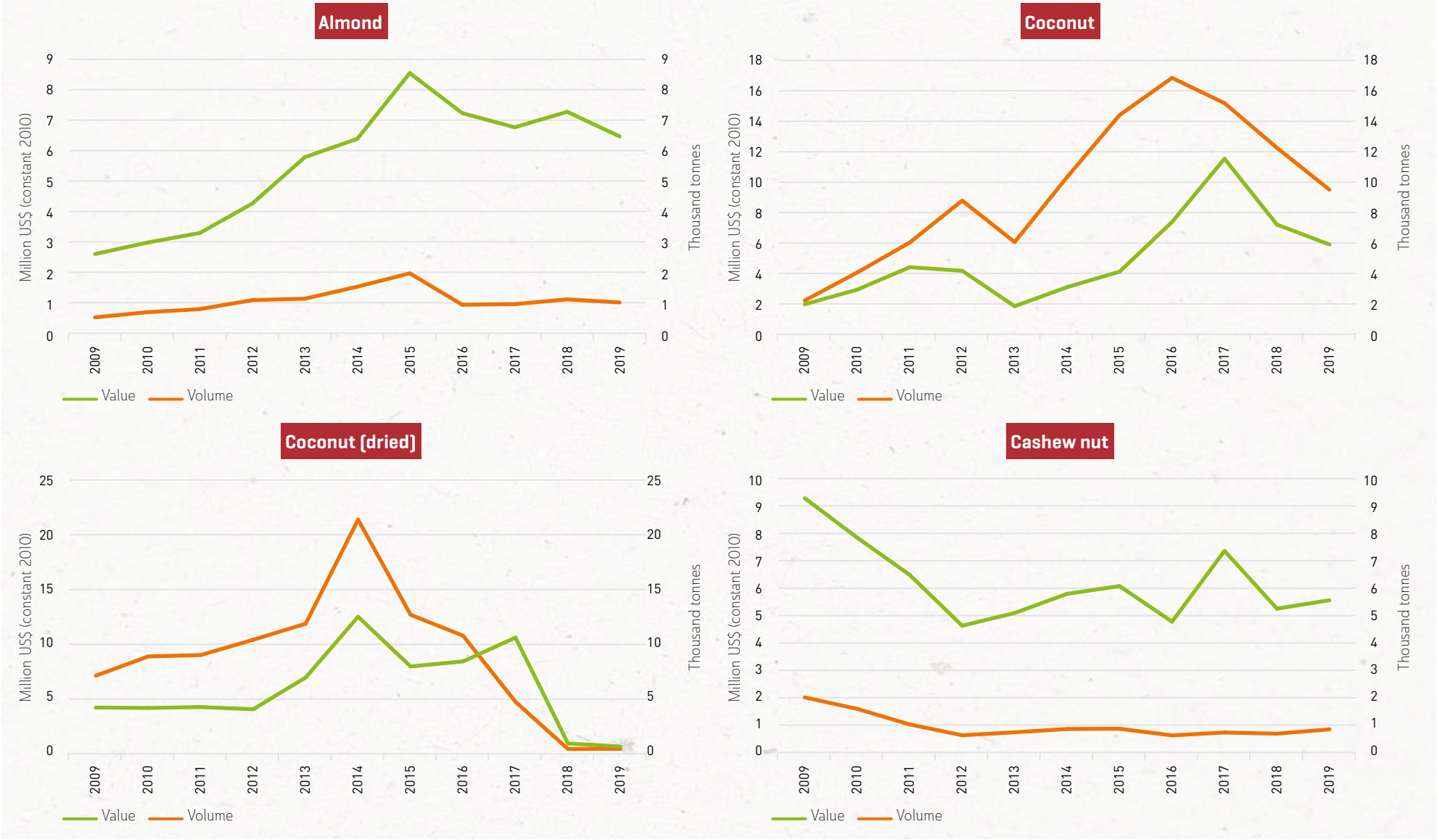
Source: COLEACP based on Eurostat and CEPII BACI.

Table 41: *Top 5 import flows of nuts into ACP-Caribbean countries by value*

Flow	Product	Value (million US$)	Volume (1,000 tonnes)
Guyana – Dominican Republic	Coconut	4.7	7.4
USA – Trinidad and Tobago	Almond	3.2	0.4
India – Trinidad and Tobago	Cashew nut	2.7	0.4
USA – Dominican Republic	Almond	2.6	0.4
Viet Nam – Dominican Republic	Cashew nut	1.7	0.2

Source: COLEACP based on Eurostat and CEPII BACI.

Figure 37: *Trends of imports of main nuts in ACP-Caribbean countries by value and volume, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



3.9 Vegetables

The most relevant imported vegetables in ACP-Caribbean countries are garlic, onion and tomato, which together added US$91 million of imports for the region in 2019 (Figures 38 and 39). Those three products could represent an opportunity to reduce the quantity of imported produce by increasing the local production and yields.

Figure 38: *Imports of the most important vegetables by ACP-Caribbean countries by value (million US$), 2019 (Source: COLEACP based on Eurostat and CEPII BACI)*

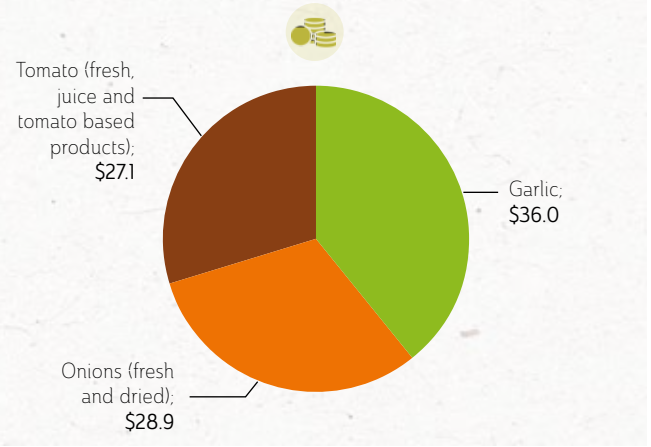
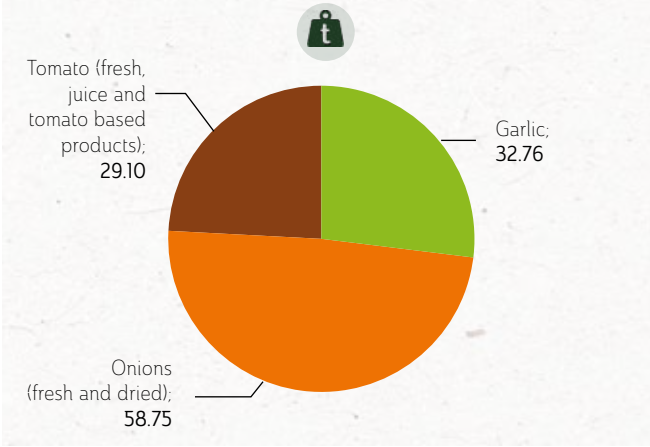


Figure 39: *Imports of the most important vegetables by ACP-Caribbean countries by volume (thousand tonnes), 2019 (Source: COLEACP based on Eurostat and CEPII BACI)*



3.9.1 Garlic

Garlic is mainly imported from China and Spain (Table 42). Main consumers are Haiti, the Dominican Republic, Trinidad and Tobago, and Guyana (Table 43). In 2019, garlic imports cost US$31 million. They reached their peak in 2016 (US$58.4 million). During the period analysed, import value registered a growth of 30% while the volume decreased, showing a rise in the price (Figure 40).

Table 42: *Top 5 of ACP-Caribbean import origins of garlic in value, 2019*

Exporter	Value (million US$)	Volume (1,000 tonnes)
China	30.4	29.7
Spain	3.4	2.2
USA	1.3	0.1
Argentina	0.5	0.4
Egypt	0.2	0.1

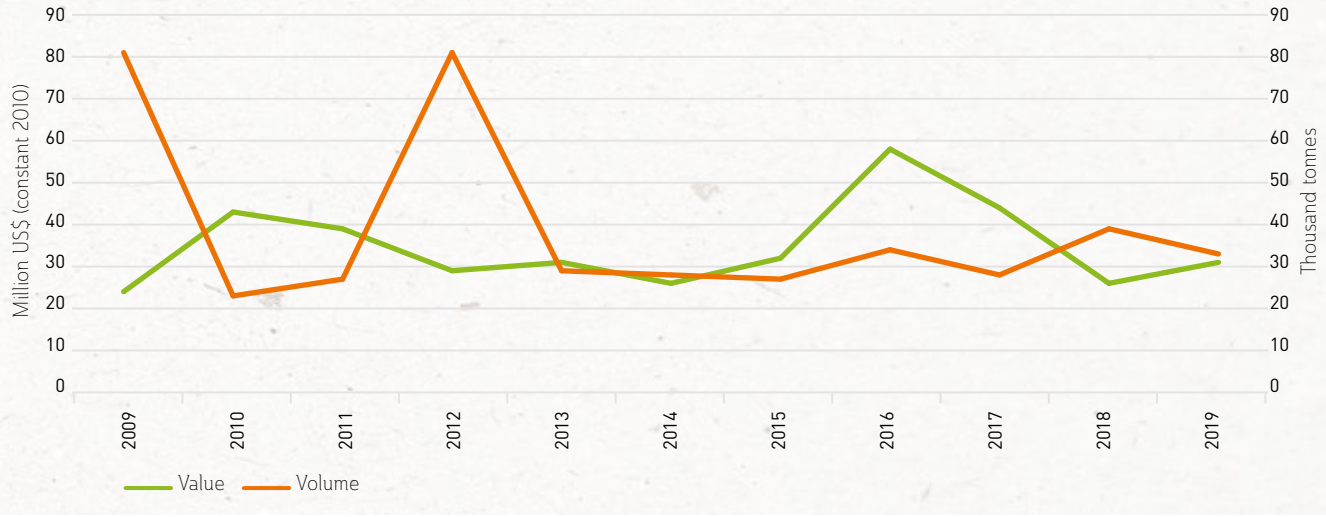
Source: COLEACP based on Eurostat and CEPII BACI.

Table 43: *Top 5 ACP-Caribbean importers of garlic by value and volume, 2019*

Origin	Value (million US$)	Volume (1,000 tonnes)
Haiti	16.0	14.4
Dominican Republic	7.0	7.2
Trinidad and Tobago	4.6	4.0
Suriname	2.3	1.8
Guyana	1.7	2.8

Source: COLEACP based on Eurostat and CEPII BACI.

Figure 40: *Trend of ACP-Caribbean import of garlic in value and volume, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



3.9.2 Onion

Fresh onion is mainly imported from the Netherlands to the Dominican Republic, Jamaica, Trinidad and Tobago, and Suriname (Tables 44 and 45). The USA and Spain export smaller quantities of dried onion to the Dominican Republic, Barbados, Jamaica and Cuba. Onion registered a growth rate of 30% in value from 2009 to 2019 (Figures 41 and 42). In recent years, Jamaica has made serious attempts to substitute imports of onion with local production through the establishment of several large farms.

Table 44: *Top 5 of ACP-Caribbean import origins of onion by value, 2019*

Origin	Onion (dried)		Onion and shallot	
	Value (million US$)	Volume (1,000 tonnes)	Value (million US$)	Volume (1,000 tonnes)
Netherlands	0.0	0.0	21.3	50.7
USA	0.9	0.2	2.7	2.5
Peru	0.0	0.0	0.8	0.0
China	0.1	0.1	0.5	1.2
Spain	0.9	0.3	0.0	0.0
Total	**2.0**	**0.6**	**25.3**	**55.7**

Source: COLEACP based on Eurostat and CEPII BACI.

Table 45: *Top 5 ACP-Caribbean importers of onion (fresh and dried) by value and volume, 2019*

Origin	Value (million US$)	Volume (1,000 tonnes)
Dominican Republic	5.0	13.4
Jamaica	4.9	9.4
Trinidad and Tobago	4.2	8.8
Suriname	3.7	5.7
Guyana	2.2	5.2

Source: COLEACP based on Eurostat and CEPII BACI.

Figure 41: *Trends in ACP-Caribbean imports of onion in value and volume, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*

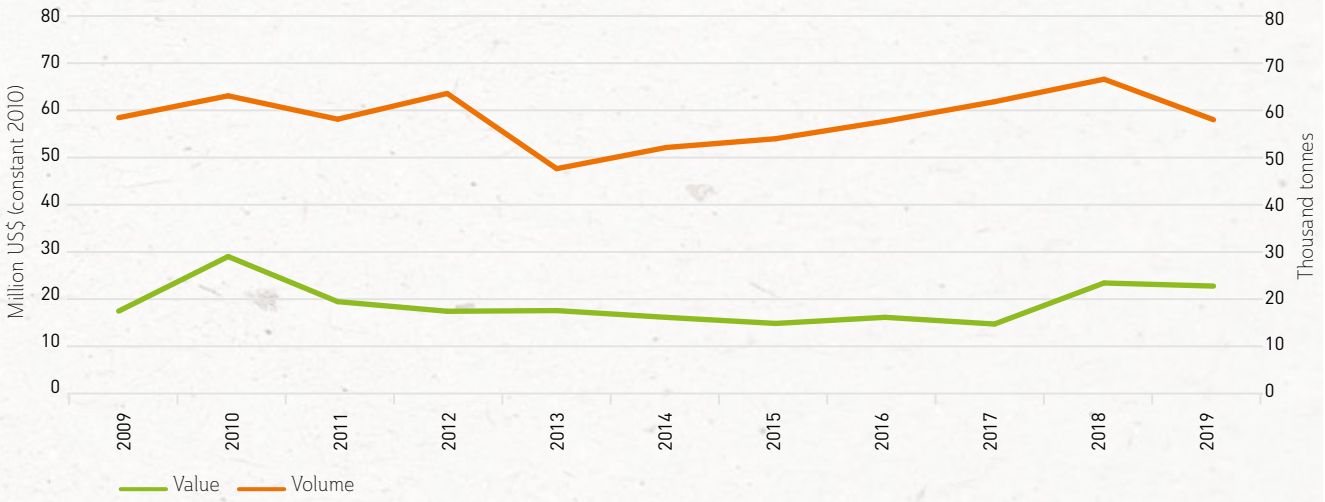
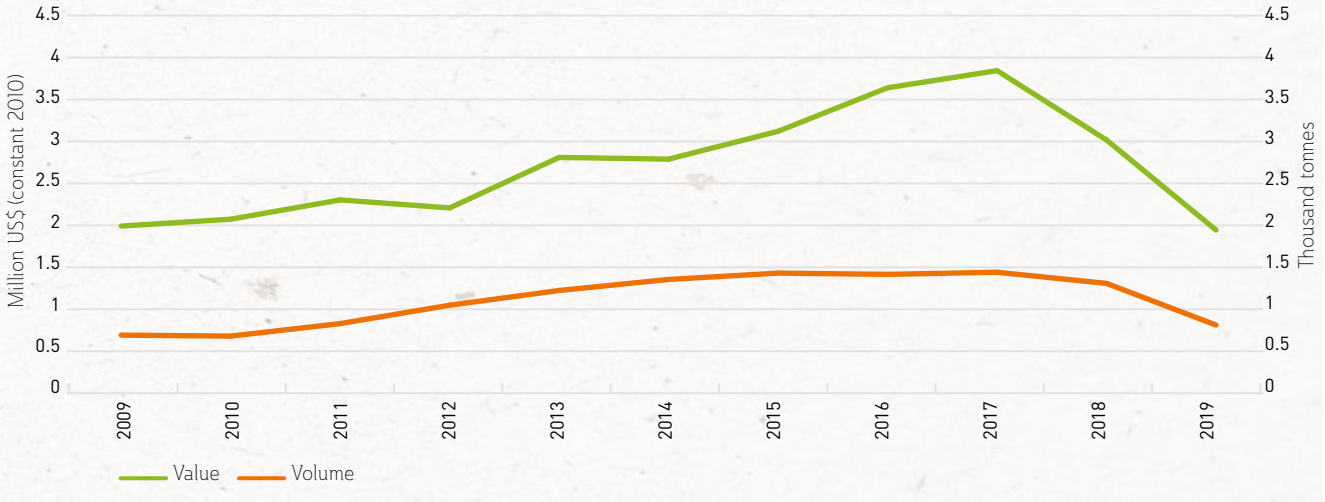
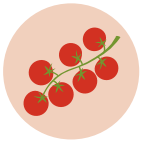


Figure 42: *Trends in ACP-Caribbean imports of onion (dried) in value and volume, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



3.9.3 Tomato



Both fresh and processed tomato are imported (Table 46), competing with local industry, mainly in the Dominican Republic. The main suppliers are the USA, followed by Chile, China, Italy and Spain. The main importers are Cuba, the Dominican Republic and Haiti. The total value of tomato products imported was US$27.1 million in 2019.

The Dominican Republic has an integrated tomato industry, and most imports are made when the local production is not enough to cover local demand.

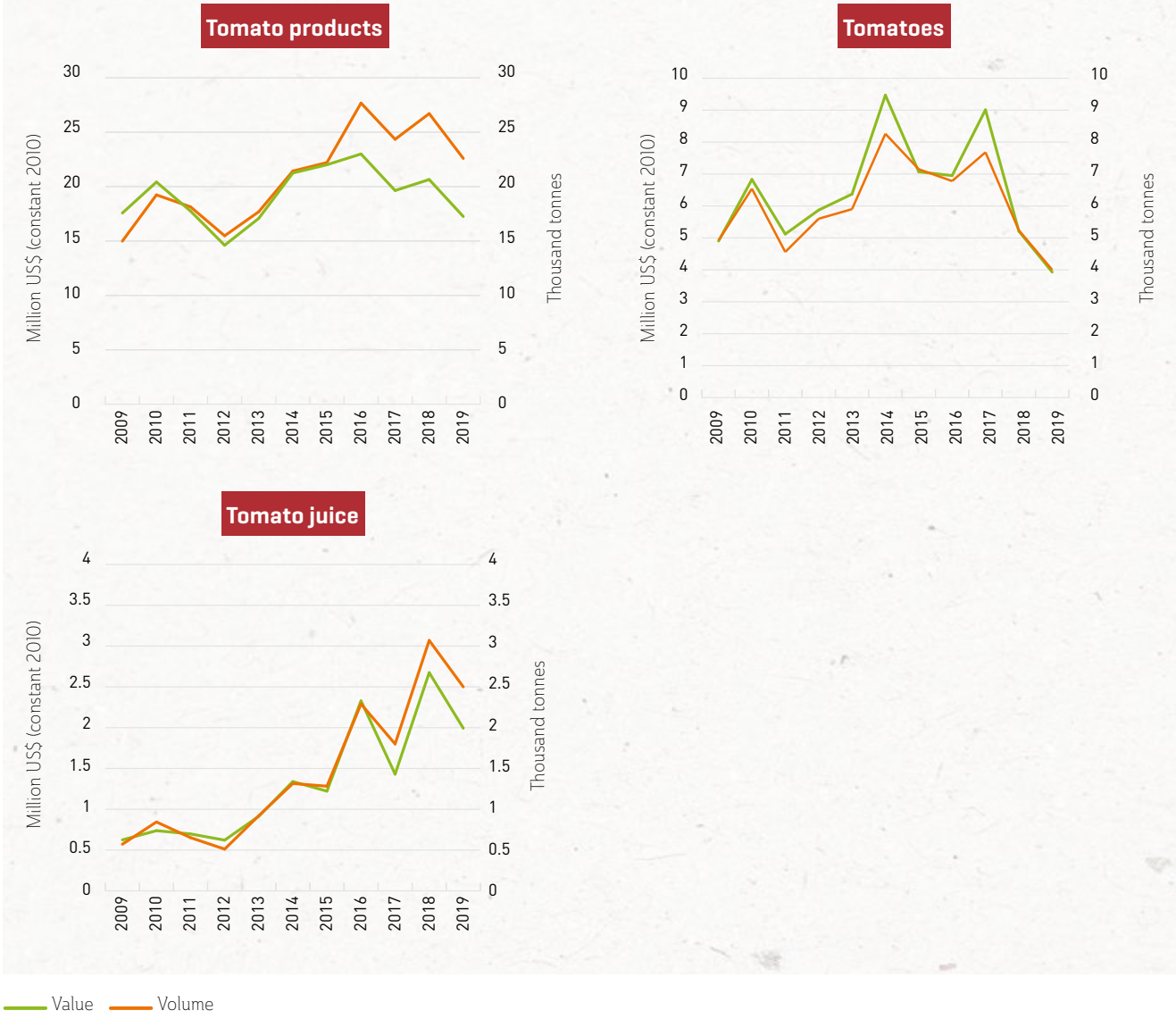
Despite cyclical growth, tomato products registered a small decline in import value of 2% from 2009 to 2019 (Figure 43). Fresh tomato registered a decline in imports of 20% (volume and value).

Table 46: *Main exporters of tomato products to ACP-Caribbean countries by value (million US$), 2019*

Country	Tomato juice	Tomato products	Tomato	Total
USA	1.7	5.4	2.8	9.9
Chile	0.0	7.0	0.0	7.0
China	0.0	4.7	0.0	4.7
Italy	0.0	1.5	1.0	2.4
Spain	0.5	1.1	0.6	2.2

Source: COLEACP based on Eurostat and CEPII BACI.

Figure 43: *Trend in imports of tomato products by ACP-Caribbean countries by value and volume, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



3.10 Processed fruit and vegetables (Juices and jams/purees)

3.10.1 Juices

Fruit juices, including orange juice (fresh and frozen), single fruit juices, apple juice and mixed juices represent a total of US$131 million worth of exchange (Table 47).

Table 47: *Imports of juices by ACP-Caribbean countries, 2019*

Product	Value (million US$)	Volume (1,000 tonnes)
Orange juice (frozen)	35.7	19.2
Single juices (other fruit/ vegetable)	25.3	27.5
Apple juice	23.6	23.6
Mixed juices (fruit/ vegetable)	18.9	17.1
Orange juice	9.2	10.4
Pineapple juice	7.0	6.2
Grape juice	4.3	2.2
Single citrus juice (not orange/grapefruit)	3.3	4.0
Tomato juice	2.3	2.5
Grapefruit juice	1.7	1.3
Total	**131.1**	**114.1**

Source: COLEACP based on Eurostat and CEPII BACI.

The production of orange juice experienced problems in Caribbean countries, especially the Dominican Republic, where pests ravaged plantations, forcing the local industry to increase imports of this product. The amount of imported orange juice in ACP-Caribbean countries totals 19,200 tonnes of frozen orange juice, costing US$35.7 million, plus another US$9.2 million of fresh juice. Orange juice is imported from the USA, Belize and Spain (Table 48), and the main importers are the Dominican Republic, Trinidad and Tobago, Jamaica, the Bahamas, St Lucia and Barbados. Orange juice reached a peak of imports in 2017 (US$38 million), since when imports have been decreasing (Figure 44). Nevertheless, the import value grew 128% from 2009 to 2019. According to JAD[23], the Dominican Republic is making efforts to substitute old orange trees affected by diseases with stronger more resistant varieties.

Other single juices (pineapple, grape, single citrus) account for 27,500 tonnes and US$25.3 million in imports. They are imported from the USA, Guatemala and Bermuda to the Dominican Republic, Jamaica and the Bahamas, and registered an increase of 12.5% over the last decade.

Apple juice accounted for 23,600 tonnes and US$23.6 million of imports in 2019 and is mainly imported from the USA, Guatemala and China to the Dominican Republic, Jamaica and Trinidad and Tobago.

Finally, mixed juices accounted for 17,100 tonnes totalling US$18.9 million in 2019. They are imported from the USA and Trinidad and Tobago, and the main importers are the Bahamas, Jamaica and Guyana. This category of imports registered a decrease of 37.8% from 2009 to 2019.

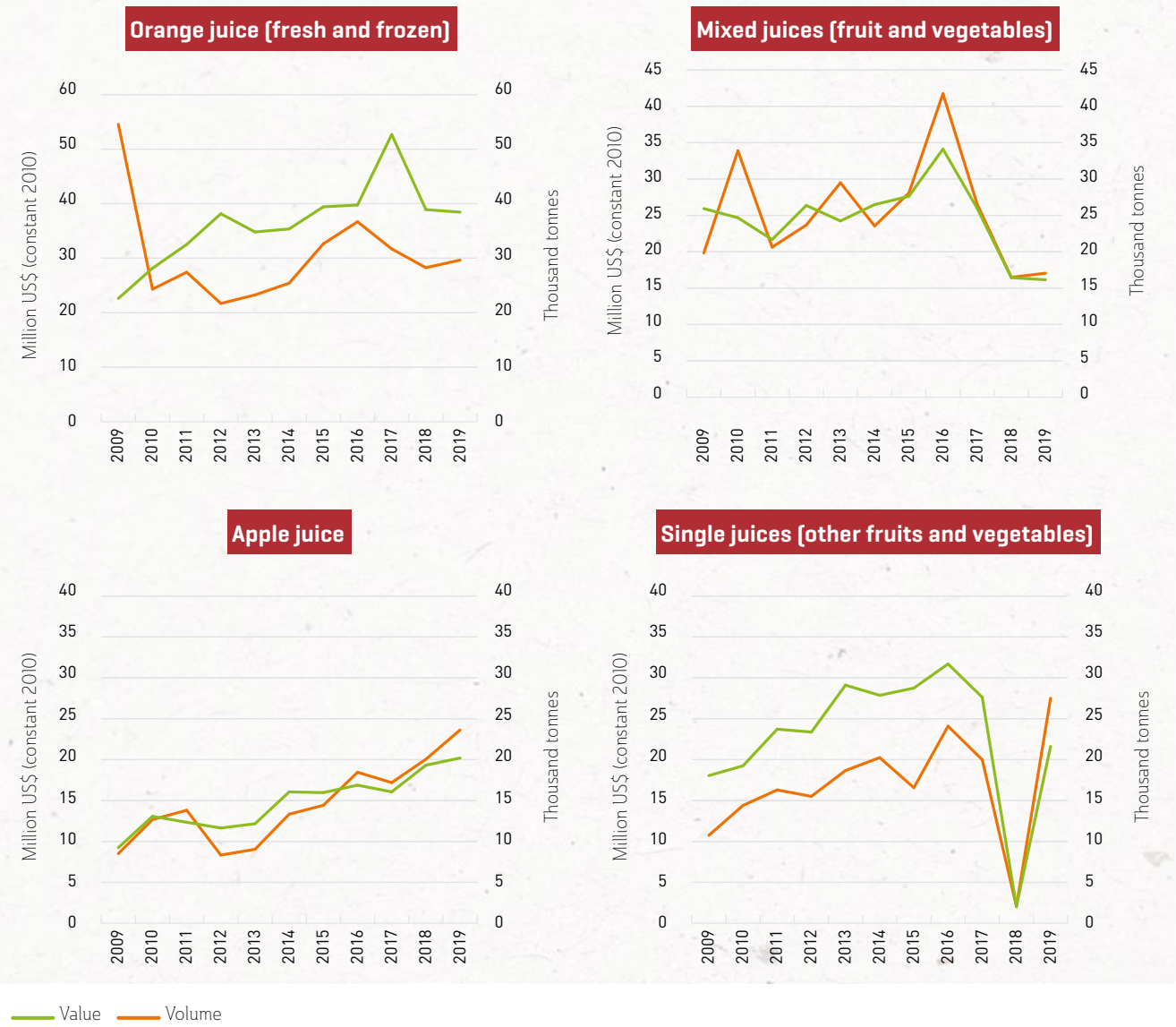
Table 48: *Main origins of ACP-Caribbean imports of juices by value (US$ millions), 2019*

Product	USA	Belize	Spain	Guatemala	Trinidad and Tobago
Orange juice (frozen)	11.9	14.1	7.1	0.0	0.4
Single juices (other fruit/vegetable)	10.1	0.1	0.4	4.5	0.1
Apple juice	14.3	0.0	0.4	1.6	0.7
Mixed juices (fruit/vegetable)	9.3	0.1	0.8	0.4	1.4
Orange juice	5.5	0.5	0.6	0.0	1.7
Pineapple juice	1.3	0.5	0.5	0.3	0.1
Grape juice	2.5	0.0	0.4	0.0	0.1
Single citrus juice (not orange/grapefruit)	1.0	0.0	0.4	0.0	0.0
Tomato juice	1.7	0.0	0.5	0.0	0.0
Grapefruit juice	0.4	1.1	0.0	0.0	0.0
Total	**58.1**	**16.4**	**11.1**	**6.8**	**4.6**

Source: COLEACP based on Eurostat and CEPII BACI.

23 Interview with Osmar C. Benitez, Executive President of JAD, August 2021.

Figure 44: *Trends in imports of the most imported juices by ACP-Caribbean countries by value and volume, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



3.10.2 Jams and purées

Jams and fruit purées are imported from various countries, but mainly Costa Rica, Chile, the USA and Greece (Tables 49 and 50). Some 20,000 tonnes of jams and fruit purées were imported in 2019 with a value of US$25 million. The main importing countries are the Dominican Republic, Cuba, Haiti and Trinidad and Tobago.

Table 49: *Imports of jams and purées by ACP-Caribbean countries, 2019*

Product	Value (million US$)	Volume (1,000 tonnes)
Jams, fruit jellies, marmalades, purees and pastes; of fruit or nuts	12.3	11.0
Jams, fruit jellies, marmalades, fruit or nut puree and fruit or nut pastes	12.0	8.2
Jams, jellies, marmalades, purees and pastes; of citrus fruit	1.1	0.9
Total	**25.4**	**20.1**

Source: COLEACP based on Eurostat and CEPII BACI.

Table 50: *Import flows of jams and purées to ACP-Caribbean countries by value, 2019*

Flow	Value (million US$)
Costa Rica – Dominican Republic	9.2
Chile – Dominican Republic	3.2
Greece – Dominican Republic	1.7
USA – Dominican Republic	1.1
Chile – Cuba	1.1

Source: COLEACP based on Eurostat and CEPII BACI.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4 EXPORT

4.1 Overview

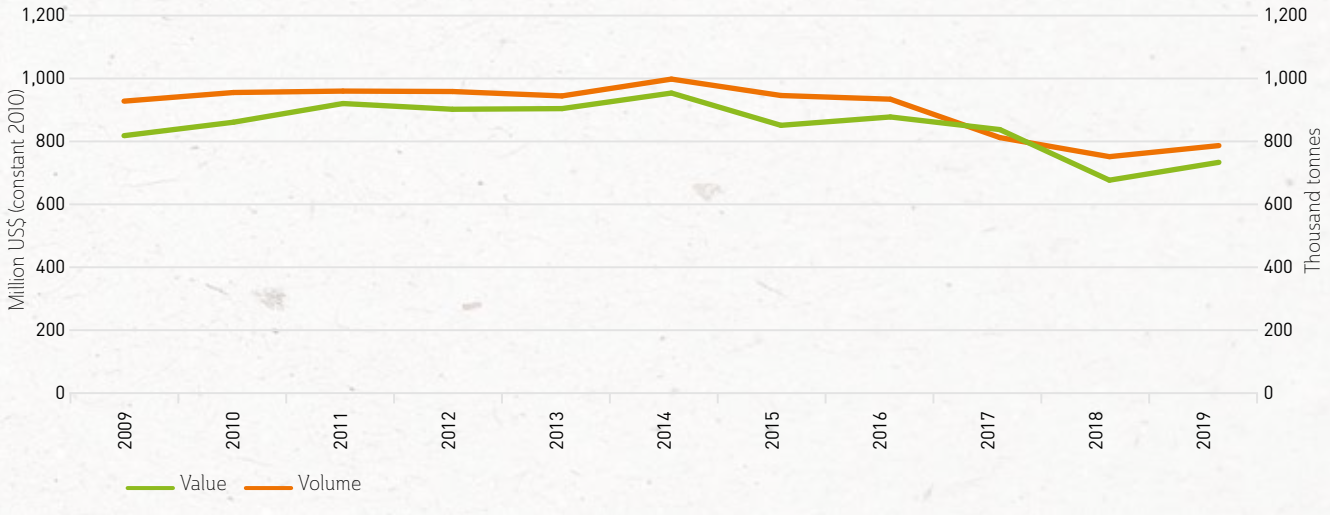
The total exports of ACP-Caribbean country horticultural products (including processed products) showed a 18% reduction in volume and a 20% reduction in value (calculated in constant US$) from 2009 to 2019, from 955,000 tonnes in 2009 to 787,000 tonnes in 2019 (Figure 45).

The major exporter (in the scope of the study) by far is the Dominican Republic, which recorded a total of US$560 million of exports (541,300 tonnes) in 2019, which was 65% of exports of ACP-Caribbean countries. Second is Belize with US$97 million (11% of exports) for 118,200 tonnes, Jamaica follows with US$92 million (36,200 tonnes; 10.2% of the exports of the region). Trinidad and Tobago and Suriname complete the top five exporters with US$29 million (3.4%) for 10,100 tonnes and US$18 million (2.1%) for 21,000 tonnes, respectively. The exports of the remaining countries represent only 7% of the total (Table 51).

None of the analysed countries have a defined growing trend, but all have cyclical patterns of exports with ups and downs that can be significant from one year to another. Horticultural produce not only depend on market conditions, but also on climate effects that in the last decade impacted the Caribbean region on various occasions. The only country registering a deep decline in exports is Suriname (Figure 46).

Suriname is currently facing a self-imposed export ban for produce such as eggplant, bitter gourd and pepper. This decision was made to avoid sanctions from the EU, as several shipments were intercepted with products above the maximum residue limits (MRL) of pesticides and problems with fly fruit.[24]

Figure 45: *ACP-Caribbean exports of horticultural products in value and volume, 2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



24 COLEACP Interview with a Producer Association (professional organisation), Suriname (2021).

Table 51: *Value and volume of horticultural products exported from ACP-Caribbean countries, 2019*

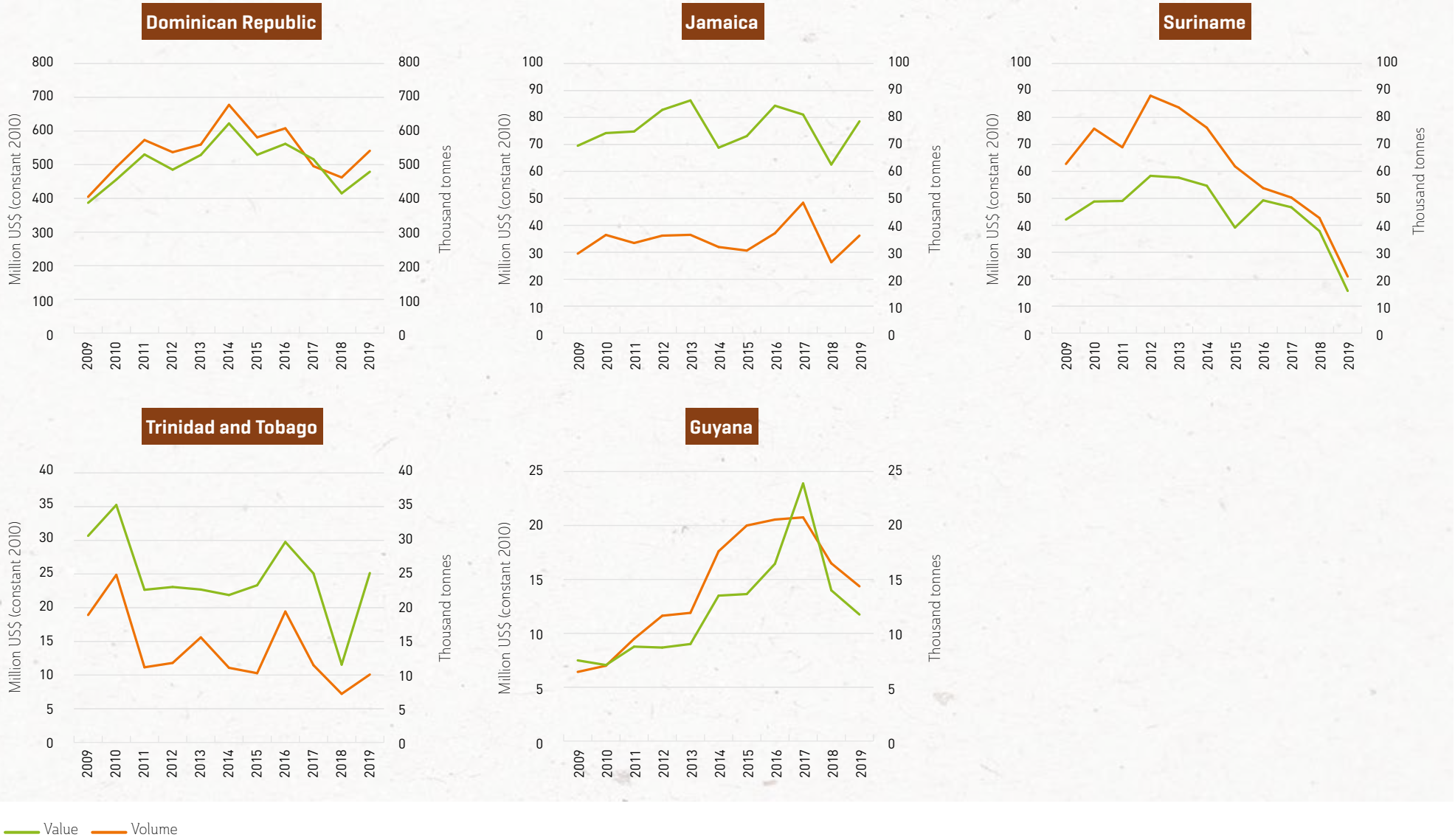
Country	Value (million US$)	% of total value	Volume (1,000 tonnes)	% of total volume
Dominican Republic	560	65.30	541.3	68.80
Belize	97	11.30	118.2	15.02
Jamaica	92	10.71	36.2	4.60
Trinidad and Tobago	29	3.43	10.1	1.28
Suriname	18	2.13	21.0	2.67
Guyana	14	1.60	14.4	1.82
Haiti	14	1.60	9.2	1.17
St Lucia	8	0.94	12.2	1.55
Barbados	6	0.69	4.9	0.62
St Vincent and the Grenadines	6	0.65	9.9	1.25
Grenada	5	0.54	0.8	0.11
Cuba	5	0.53	2.5	0.32
Dominica	4	0.43	5.2	0.67
Bahamas	1	0.12	0.6	0.07
Antigua and Barbuda	0.2	0.03	0.3	0.04
St Kitts and Nevis	0.05	0.01	0.02	< 0.00
Total	**857**	**100.00**	**786.7**	**100.00%**

Source: COLEACP based on Eurostat and CEPII BACI.

Among the five focus countries, Guyana accounts for the smallest amount of exports reaching US$14 million in 2019; however, it registers the biggest growing trend in exports with a 71% growth from 2009 to 2019. The Dominican Republic registers an overall growth in exports of 23% from 2009 to 2019, Jamaica follows with 12% growth, and finally Suriname registers a steep decline of 61% in the same period (Figure 46).

On deeper analysis, Jamaica's and Trinidad and Tobago's exports have a higher price per tonne of product, which means that those countries export more expensive goods: ethnic roots and tubers, other fruits and nuts (processed), mainly dried fruits; and acid-preserved vegetable products. Meanwhile, Trinidad and Tobago exports mainly processed groundnut, which also has a greater value. On average, Jamaica exports horticultural products that are worth US$2/kg and Trinidad and Tobago US$2.5/kg. At the other end of the spectrum, the Dominican Republic, Suriname and Guyana export large quantities at a lower price per kilogram. On average, the export price is US$0.88/kg for the Dominican Republic, US$0.85/kg for Guyana and US$0.76/kg for Suriname. The trends in volume and price follow a similar trend for all five countries, except for Suriname where price/volume ratio has increased slightly since 2016.

Figure 46: *Horticultural products export trend of ACP-Caribbean focus countries in value and volume, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



4.1.1 Export products

Most products exported by ACP-Caribbean countries are in the category of Edible fruits and nuts, with a total of US$561 million in 2019 representing 65% of the exports by value and 79% by volume. Next comes Processed fruit and vegetables with US$141 million (16%) and 9% of volume. Third is Vegetables with US$75 million (9%) and 6% of volume (Table 52, Figures 47 and 48).

Regarding the trends of the different categories, the only one registering a growth is Stimulant, spice and aromatic crops with 37.5% growth in value (constant US$) between 2009 and 2019 yet the volume is unchanged over this time, in other words for this category only the prices have increased. This category represents only 2% of horticultural exports (Figure 49).

A very modest 1% growth in value was registered by Vegetables in 11 years, but with a decrease of 13% in volume.

The sharpest decline is for the export of Pulses and beans, which registered a 38% contraction in value and 22% in volume. Processed fruits and vegetables also registered a big drop of 33% in value and 66% in volume. Edible fruits and nuts registered a decrease of 5% in the value of exports, but with an increase of 4% in volume, which suggests a slight drop in prices.

In 2019, the category registering the best average price was Stimulant, spice and aromatic crops with an average of US$2.75/kg; Processed fruit and vegetables followed with US$1.65/kg, then Vegetables with US$1.45/kg and Edible roots and tubers with US$1.36/kg. The lowest values are for Pulses and beans and Edible fruits and nuts with US$0.77/kg and US$0.78/kg, respectively.

Figure 47: *Share of value (million US$) per product category in total ACP-Caribbean exports, 2019 (Source: COLEACP based on Eurostat and CEPII BACI)*

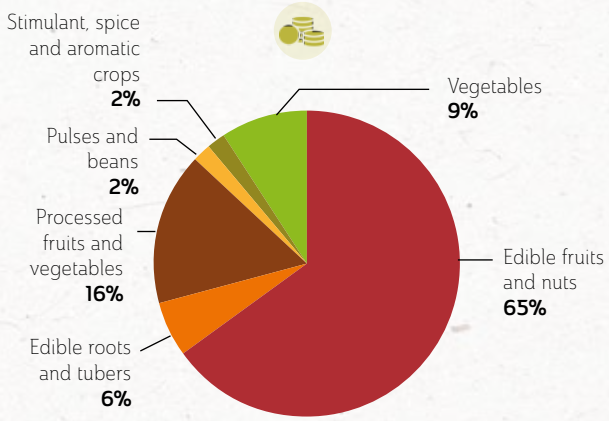


Figure 48: *Share of volume (thousand tonnes) per product category in total ACP-Caribbean exports, 2019 (Source: COLEACP based on Eurostat and CEPII BACI)*

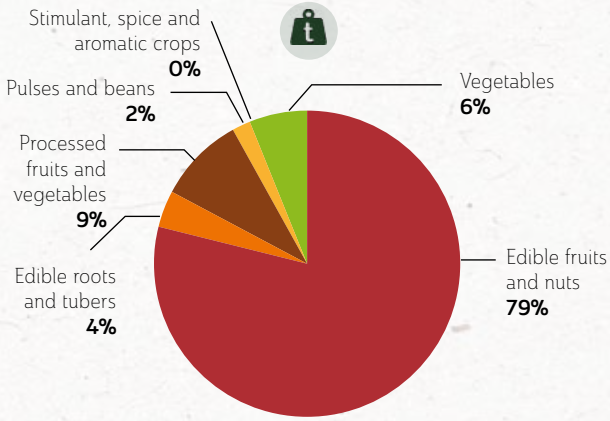


Table 52: *ACP-Caribbean exports, value and volume by category, 2019*

Product	Value (million US$)	Volume (1,000 tonnes)
Edible fruit and nuts	561	619
Processed fruit and vegetables	141	73
Vegetables	75	44
Edible roots and tubers	53	33
Stimulant, spice and aromatic crops	13	4
Pulses and beans	13	14
Total	**857**	**787**

Source: COLEACP based on Eurostat and CEPII BACI.

The products with highest growth in exports (in constant US$) in ACP-Caribbean countries over the last decade were pineapple (359%), followed by avocado (264%), tomato (226%), mango (143%), cucumber (76%), peppers (60%) and coconut (59%). The products notching up the worst performance in the export market are papaya (pawpaw) (-89%), grapefruit juice (-70%) and orange juice (–65%). As noted previously orange and other citrus have been affected by diseases that dramatically reduced their yield. Other more mature markets such as bananas remain more stable over time (Table 53). Banana production in the Dominican Republic has been strongly affected by tropical storms in 2005, 2017 and 2018. Also, exports (and production) of papaya in Belize, once an important producer of this crop, have dropped dramatically due to disease and reforms in agricultural and land use policies.

Figure 49: *Trend of the value of ACP-Caribbean exports by category, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*

Table 53: *Top 20 most exported products by ACP-Caribbean countries by value and volume, and growth over 2009–2019. Note that the growth in value is based on value corrected for inflation.*

Product	Value (million US$)	Volume (1,000 tonnes)	Growth value 2009–2019	Growth volume 2009–2019
Bananas and plantains	377	494	–4%	4%
Avocado	77	42	264%	139%
Mango, guava and mangosteen	56	33	143%	113%
Ethnic roots and tubers	40	23	23%	21%
Other fruit/nuts (processed)	29	9	79%	43%
Peppers and pimentas	22	12	60%	60%
Orange juice (frozen) (processed)	20	15	–47%	–86%
Ethnic vegetables	19	11	–24%	–52%
Tomato	16	8	226%	66%
Sweet potato	13	9	12%	–33%
Coconut	12	17	59%	102%
Pineapple	11	12	359%	379%
Vegetables (acid preserved) (processed)	10	3	8%	1%
Cucumber and gherkin	10	8	76%	104%
Potato (processed)	9	1	60%	–24%
Groundnut (processed)	9	2	38%	60%
Orange juice (processed)	9	7	–65%	–76%
Mixed juices (fruit/vegetable) (processed)	8	9	–9%	33%
Single juices (other fruit/vegetable) (processed)	8	5	84%	64%
Nuts and other seeds (not groundnut) (processed)	7	2	–21%	–61%
Total	**760**	**721**	**15%**	**–3%**

Source: COLEACP based on Eurostat and CEPII BACI.

There are other products with interesting growing trends, such as turmeric, passion fruit, spice mixes and kidney bean; however, the quantities produced are still too small to determine their long-term potential but could be significant products in the future. In the case of kidney bean, it is a product largely imported, so it could reduce imports if produced at scale (Table 54).

Edible fruits and nuts is the main exported category for three of the focus countries, except for Trinidad and Tobago which exports more Processed fruit and vegetables and Jamaica which exports more Edible roots and tubers followed by Processed fruit and vegetables (Figure 50).

The exported product mix differs completely from one country to another. The Dominican Republic is strong in producing fruits such as bananas, avocado and mango, and vegetables such as peppers, tomato and ethnic vegetables. Suriname is also strong in the export of banana and some ethnic vegetables. Jamaica exports large quantities of Ethnic roots and tubers and Processed fruit and vegetables; Guyana's main exports are coconut and organic palm hearts, and Trinidad and Tobago exports are dominated by processed products, mainly groundnut and other nuts (Table 55).

Table 54: *Other products with high growth in ACP-Caribbean exports during 2009–2019. Note that the growth in value is based on value corrected for inflation.*

Product	Value (million US$)	Volume (1,000 tonnes)	Growth value 2009–2019	Growth volume 2009–2019
Other fruits (passion fruit, lychees, tamarinds, etc.)	7	5	392%	181%
Grapefruit juice (processed)	7	3	–70%	–83%
Kidney bean (dried)	7	8	133%	268%
Spices: mixtures of 2 or more products of the same heading	5	1	190%	56%
Other fruits and nuts (frozen)	3	1	114%	31%
Beans	3	2	181%	104%
Other beans (dried)	3	3	384%	441%
Single citrus juice (not orange/grapefruit) (processed)	2	2	205%	395%
Other nuts	2	0	133%	173%
Vegetables (homogenised) (processed)	2	1	95%	101%
Spice: turmeric (curcuma)	1	1	1,271%	838%
Total	**40**	**26**	**20%**	**–1%**

Source: COLEACP based on Eurostat and CEPII BACI.

Figure 50: *Export categories by value and volume from the five focus countries, 2019 (Source: COLEACP based on Eurostat and CEPII BACI)*

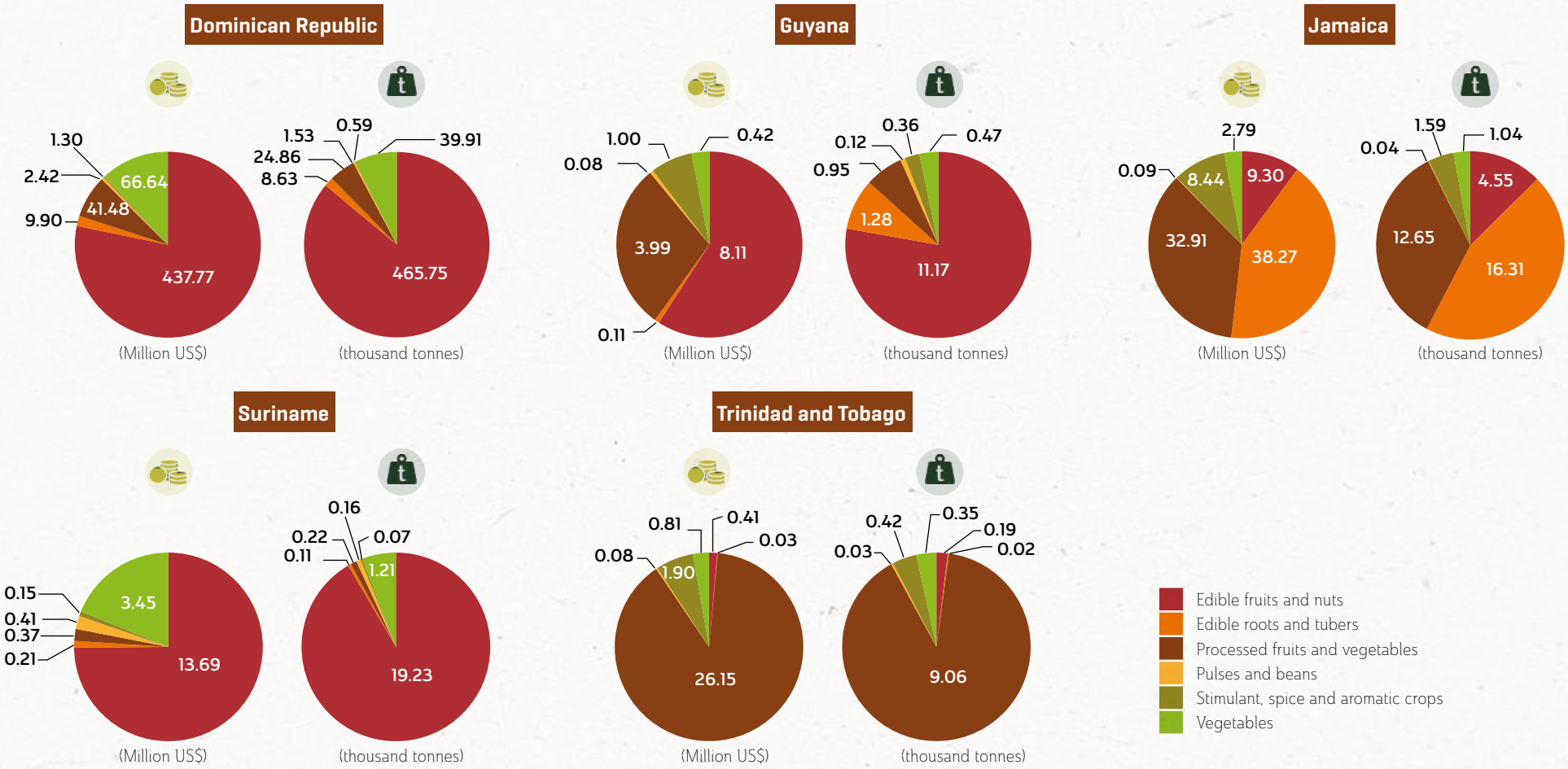


Table 55: *Top 10 export products of ACP-Caribbean focus countries by value, 2019*

Dominican Republic	Value (million US$)
Bananas and plantains	293
Avocado	76
Mango, guava and mangosteen	42
Peppers and pimentas	21
Tomato	16
Other fruit and nuts (processed)	15
Ethnic vegetables	15
Cucumber and gherkin	10
Sweet potato	8
Pineapple	8

Jamaica	Value (million US$)
Ethnic roots and tubers	35
Other fruit and nuts (processed)	12
Vegetables (acid preserved) (processed)	8
Single juices (other fruit/vegetable) (processed)	6
Sweet potato	4
Mixed juices (fruit/vegetable) (processed)	3
Spices: fruits of the genera Capsicum or Pimenta, dried or crushed or ground	3
Spices: mixtures of 2 or more products of the same heading	3
Papaya	2
Fruits and nuts (preserved)	2

Trinidad and Tobago	Value (million US$)
Groundnut (processed)	9
Nuts and other seeds (not groundnut) (processed)	6
Potato (processed)	5
Orange juice (processed)	2
Other fruit and nuts (processed)	2
Spices: mixtures of 2 or more products of the same heading	1
Mixed juices (fruit/vegetable) (processed)	1
Apple juice (processed)	1
Orange juice (frozen) (processed)	0.4
Fruit mixtures (processed)	0.3

Guyana	Value (million US$)
Coconut	6
Palm hearts (processed)	4
Spices: mixtures of 2 or more products of the same heading	1
Coconut (dried)	1
Mango, guava and mangosteen	1
Watermelon	0.3
Other fruit and nuts (processed)	0.2
Spices: mixtures	0.2
Melons	0.1
Spices: pepper (Piper nigrum), crushed or ground	0.1

Suriname	Value (million US$)
Bananas and plantains	14
Ethnic vegetables	3
Eggplant	1
Beans	0.3
Peppers and pimenta	0.1
Mixed juices (fruit/vegetable) (processed)	0.1
Single juices (other fruit/vegetable) (processed)	0.1
Spices: mixtures	0.1
Sweet potato	0.1
Ethnic roots and tubers	0.1

Source: COLEACP based on Eurostat and CEPII BACI.

4.1.2 Export destinations

Most ACP-Caribbean exports are intended for the European market: US$497 million (57%) in 2019, of which US$299 million (35%) to the EU and US$198 million (23%) to other countries, mainly the UK. Other destinations are North America, US$257 million (30%), and Latin America and the Caribbean, US$87 million (10%) (Table 56, Figures 51 and 52).

Table 56: *Destination regions of ACP-Caribbean horticultural exports, 2019*

Destination region	Value (million US$)	Volume (1,000 tonnes)
EU27	299	334
North America	257	165
Europe non-EU27	198	209
Latin America and Caribbean	87	63
Middle East	9	10
Oceania and polar	5	5
Asia	2	1
Sub-Saharan Africa	0.1	0.1
North Africa	0.002	0.0001
Total	**857**	**787**

Source: COLEACP based on Eurostat and CEPII BACI.

The largest growth trend has been in exports to the EU (19%), which contrasts with strong contraction in exports to non-EU European countries (38%). The main fall is from exports to the UK, which may have been caused by Brexit announcements at that time. North America registered a modest growth of 8%, while Latin America and the Caribbean exports registered a contraction of 21% (Figures 53 and 54).

Figure 51: *Share of destination regions in total ACP-Caribbean horticultural export value, 2019 (Source: COLEACP based on Eurostat and CEPII BACI)*

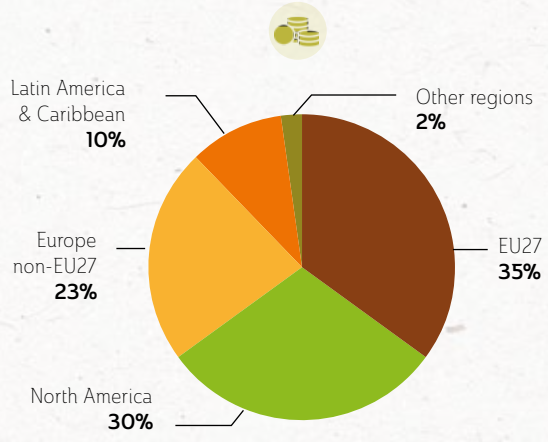
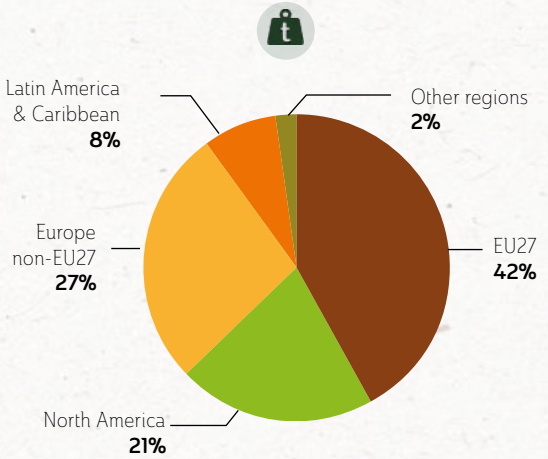


Figure 52: *Share of destination regions in total ACP-Caribbean horticultural export volume, 2019 (Source: COLEACP based on Eurostat and CEPII BACI)*



European countries are the main customers for Caribbean bananas (Dominican Republic and Suriname). Avocado, peppers and tomato are shipped from the Dominican Republic to the USA. Ethnic roots and tubers are mainly shipped to the USA from Jamaica. Meanwhile, the main exports from Trinidad and Tobago (groundnut, processed potato) are going to other Caribbean countries, making the country the exception in the region in terms of main export destinations.

There are some new commercial partners that entered to buy products from the Caribbean including Sweden and Germany, which were not buying products directly from the Caribbean in 2009 (Table 57).

Figure 53: *Trends in horticultural export value to ACP-Caribbean's main export regions, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*

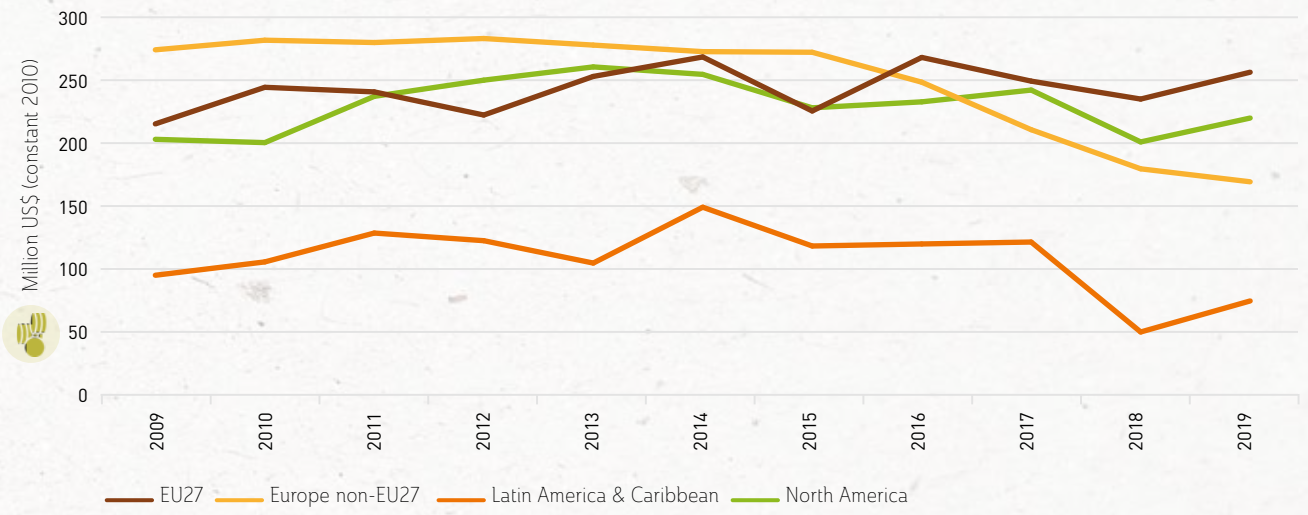


Figure 54: *Trends in horticultural exports volume to ACP-Caribbean's main export regions, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*

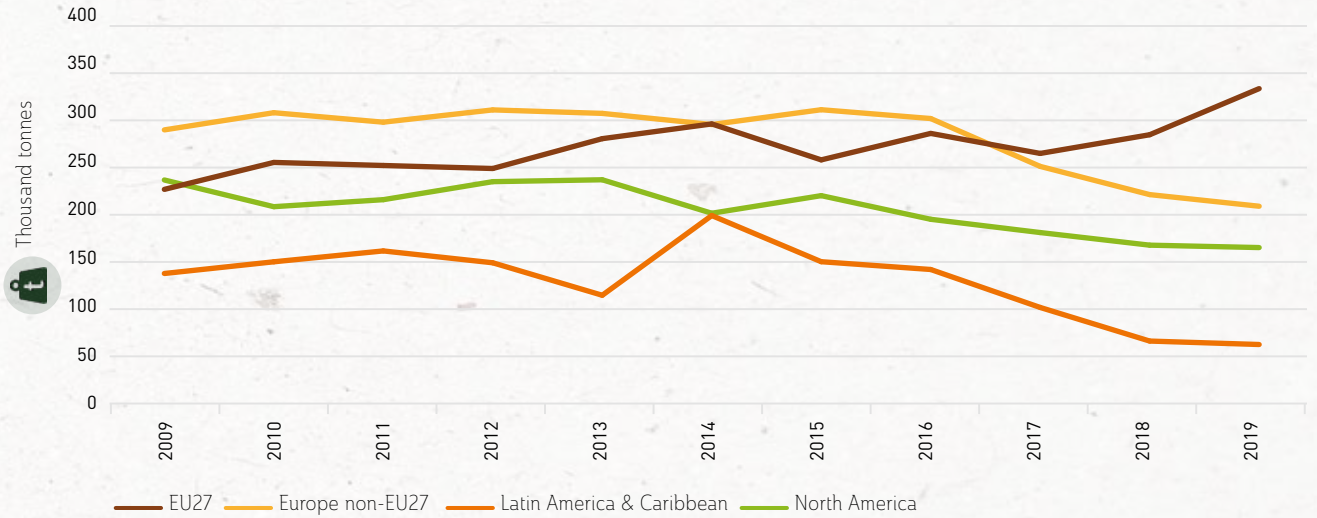


Table 57: *Top 10 horticultural product–partner combinations based on value for the five focus countries, 2019*

Dominican Republic	Value (million US$)
UK – Bananas and plantains	107.1
Netherlands – Bananas and plantains	67.3
Belgium – Bananas and plantains	42.4
USA – Avocado	39.7
Sweden – Bananas and plantains	28.7
Germany – Bananas and plantains	20.0
Netherlands – Mango, guava and mangosteen	20.0
USA – Peppers and pimentas	16.3
Netherlands – Avocado	15.5
USA – Tomato	13.9

Jamaica	Value (million US$)
USA – Ethnic roots and tubers	27.0
USA – Other fruits and nuts (processed)	8.3
USA – Vegetables (acid preserved) (processed)	4.7
Canada – Ethnic roots and tubers	4.2
USA – Single juices (other fruit/vegetable) (processed)	3.8
UK – Vegetables (acid preserved) (processed)	2.8
UK – Ethnic roots and tubers	2.6
Canada – Other fruits and nuts (processed)	2.5
Canada – Sweet potato	2.3
USA – Spices: mixtures of 2 or more products of the same heading	2.2

Trinidad and Tobago	Value (million US$)
Jamaica – Groundnut (processed)	7.3
Jamaica – Potato (processed)	2.5
Barbados – Nuts and other seeds (not groundnuts) (processed)	1.7
Jamaica – Other fruits and nuts (processed)	1.3
Guyana – Nuts and other seeds (not groundnuts) (processed)	1.3
Guyana – Mixed juices (fruit/vegetable) (processed)	1.3
Jamaica – Nuts and other seeds (not groundnuts) (processed)	1.3
USA – Spices: mixtures of 2 or more products	1.0
Guyana – Potato (processed)	1.0
St Lucia – Orange juice (processed)	0.9

Guyana	Value (million US$)
Dominican Republic – Coconut	4.7
France – Palm hearts (processed)	3.3
Trinidad and Tobago – Coconut	1.0
USA – Coconut (dried)	0.5
Canada – Mango, guavas and mangosteen	0.5
USA – Palm hearts (processed)	0.3
Barbados – Watermelon	0.3
USA – Spices: mixtures of 2 or more products	0.2
Dominica – Coconut	0.2
USA – Other fruits and nuts (processed)	0.1

Suriname	Value (million US$)
Belgium – Bananas and plantains	8.9
France – Bananas and plantains	4.6
Netherlands – Ethnic vegetables	2.6
Netherlands – Eggplant	0.7
Netherlands – Beans	0.3
Netherlands – Peppers and pimentas	0.1
Germany – Single juices (other fruit/vegetable) (processed)	0.1
Guyana – Mixed juices (fruit/vegetable) (processed)	0.1
Netherlands – Sweet potato	0.1
Netherlands – Ethnic roots and tubers	0.1

Source: COLEACP based on Eurostat and CEPII BACI.

4.2 Export products

4.2.1 Bananas

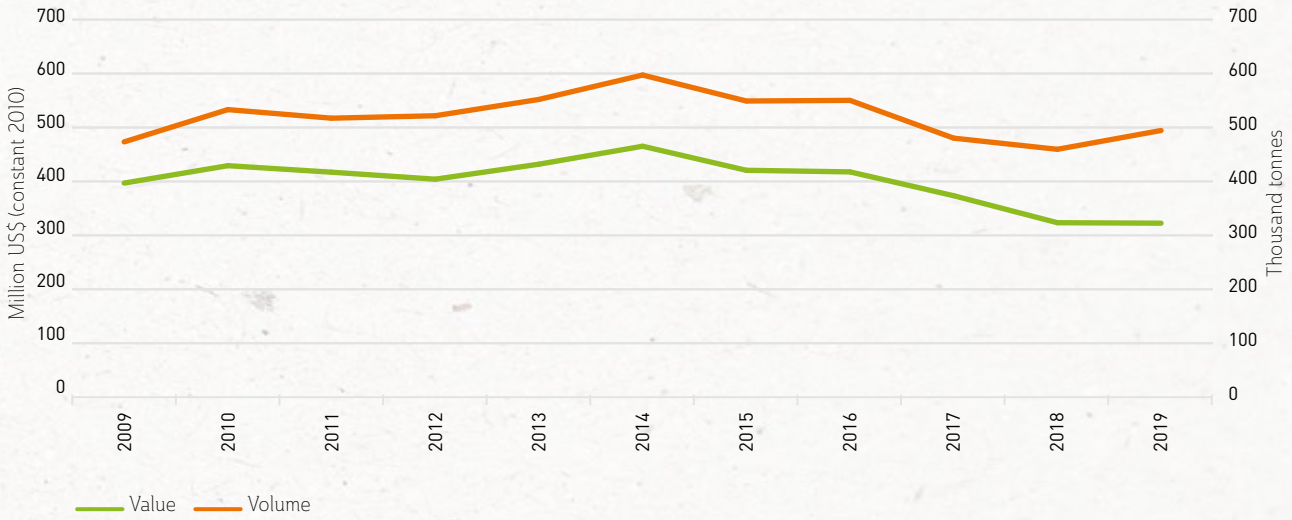
Bananas and plantains are not only the main fruit exported by the ACP-Caribbean countries, but also the main fruit traded in the world with over 14 billion worth of trade in 2019 globally. The biggest exporters in the world are Ecuador, the Philippines and Guatemala. The Dominican Republic is among the top 10 exporters, and it is the main producer of organic bananas. Belize, St Lucia, and St Vincent and the Grenadines are also exporters of banana playing a role among the neighbouring islands (Table 58).

Table 58: *Top 5 ACP-Caribbean exporters of bananas by value, 2019*

Country	Value (million US$)	Volume (1,000 tonnes)
Dominican Republic	293.1	374.0
Belize	60.7	85.9
Suriname	13.6	19.2
St Lucia	6.7	11.0
St Vincent and the Grenadines	1.2	2.6

Source: COLEACP based on Eurostat and CEPII BACI.

Figure 55: *ACP-Caribbean exports of bananas and plantains by value and volume, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



The ACP-Caribbean countries exported a total of 494,000 tonnes in 2019, but with a decreasing trend since 2014, when it peaked at 597,000 tonnes (Figure 55). Over the period studied (2009-2019), banana and plantain exports grew only 4% in volume; however, the value decreased 24% (constant US$), which suggests that ACP-Caribbean countries are receiving less for the bananas, or in other words, the price has reduced from US$0.90/kg to US$0.63/kg while input, labour and other costs have increased, leaving less profit for the farmers.

Exports of this product account for 63% of the volume of export of the Caribbean and almost 40% of the export revenue of the region.

Almost all the bananas and plantains exported (97%) are shipped to Europe, with 59% going to EU27 countries; however, the main single country that imports Caribbean bananas is the UK, receiving 37% of all banana and plantain exports from ACP-Caribbean countries. Banana exports have been affected by a decrease in production caused by hurricanes and tropical storms that affected the Dominican Republic between 2017 and 2019.

Banana is a mature product; however, the Dominican Republic has specialised in organic banana, which is its main export product, and it is the leader of organic bananas worldwide (around 60% of its exported production is organic).

The European market is highly competitive where new players are constantly entering to compete. Organic bananas from Peru, for example, have

more competitive prices and are filling the market. One box of organic bananas (18 kg) is sold on the wholesale markets of Brussels at €23, or approximately €1.27/kg. The final price of an organic Fairtrade banana from Peru to the final customer (Carrefour) is €1.87/kg (August 2021) (Table 59).

There are still benefits for organic and Fairtrade producers with preferential prices that can go from US$5.60 EXW[25] (US$8.40 FOB[26]) for a conventional box of banana (18.14 kg) to US$7.80 EXW (US$11 FOB) for a Fairtrade conventional box and US$9.80 EXW (US$13.60 FOB) for an organic Fairtrade box in the Dominican Republic.[27]

Table 59: *International export prices of bananas, August 2021*

Type	Origin	Incoterm[28]	Price (US$/kg)
Cavendish	Ecuador	FOB, Guayaquil	0.29–0.32
Cavendish	Philippines	FOB, Davao	0.62–0.75
Cavendish	Mexico	EXW, Tabasco	0.37
Cavendish	Costa Rica	EXW, Costa Rica	0.54
Small varieties (organic)	Cameroon	FOB, Douala	0.84
Frozen IQF Bananas-sliced	Ecuador	FOB, Guayaquil	1.11–1.51
Frozen IQF Bananas-sliced-organic	Ecuador	FOB, Guayaquil	1.96

Source: COLEACP based on Tridge[29] market offers.

25 EXW. Incoterm: "Ex-works". Producer sells the product packed and with minimum requirements to be transported in their facility. The buyer needs to arrange pickup of the product, where it will also transfer the responsibility to the buyer.
26 FOB. Incoterm: "Free on Board". The seller delivers the goods cleared and on the ship in the port of shipment where it transfers responsibility to the buyer.
27 FLO (2021) Explanatory document to the prorate tool for banana Fairtrade Minimum Prices and Premium. Bonn: Fairtrade International. https://files.fairtrade.net/EN_Explanatory-document_Prorata-tool-for-FMPs-banana.pdf
28 Incoterm: Set of rules and guidelines to facilitate trade.
29 Tridge (2021) https://www.tridge.com/

4.2.2 Avocado

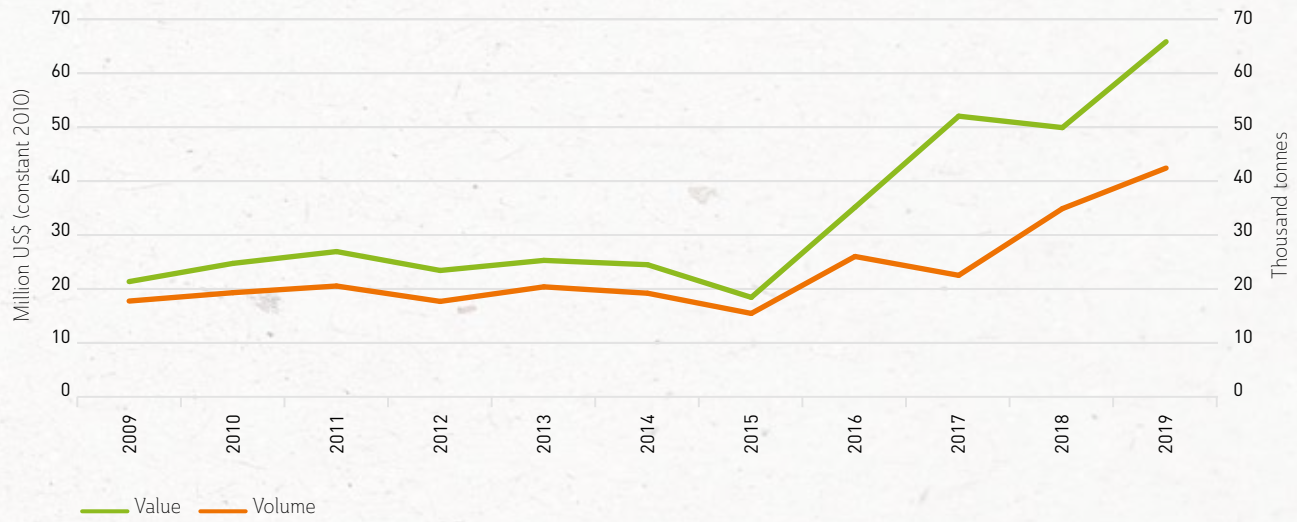
The second product in volume is avocado, which reached 42,000 tonnes and almost US$77 million in 2019. Despite cyclical growth, it registers an overall volume growth of 139% from 2009 and 164% growth in price (constant US$), which means that the price paid for avocados is higher than 11 years ago (US$0.38/kg in 2009 to US$0.57/kg in 2019). Avocado represents 5.42% of the exports of ACP-Caribbean horticultural produce (by volume); however, it represents almost 10% of the export revenue of the Caribbean (Table 60, Figure 56).

Table 60: *Top 5 ACP-Caribbean exporters of avocado, 2019*

Country	Value (million US$)	Volume (1,000 tonnes)
Dominican Republic	76	42
Jamaica	0.2	0.1
St Vincent and the Grenadines	0.2	0.3
Guyana	0.1	0.02
Dominica	0.1	0.09

Source: COLEACP based on Eurostat and CEPII BACI.

Figure 56: *ACP-Caribbean exports of avocados, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



Globally, avocado had US$6.8 billion in export value in 2019. The main producers are Mexico, followed by Peru and Chile. While Mexico provides most of its production to the USA, Peru and Chile target the European market. The USA is by far the largest consumer of avocado worldwide. Other countries such as South Africa, Kenya and Israel have also traded large amounts of avocado and continue to invest in the sector. Kenya and Morocco are the most prominent upcoming suppliers to Europe because of their more competitive prices and closer geographic locations. Kenya also signed a commercial agreement with China to export frozen avocado that could absorb up to 40% of its production. Despite a decline in the global market for avocado in 2020 because of the pandemic, the sector is expected to see annual growth of 6% until at least 2030.[30]

The main export market for Caribbean avocados is North America, which purchases 66% of the exports, the rest mainly going to Europe. The European market is questioning the sustainability of avocado production, mainly because of the excessive use of water required to produce avocados in large plantations, and the destruction of native forest to start new plantations, leading some UK restaurants to ban avocado from their menus.[31]

30 Maina, G. (2021) Avocado market trends 2021: Get key information on the 2021 avocado market trends, 6 May. London: InspiraFarms. www.inspirafarms.com/avocado-market-trends-2021/
31 TRT World (2018) Avocados banned from some UK cafes over environmental concerns, 3 December. www.trtworld.com/europe/avocados-banned-from-some-uk-cafes-over-environmental-concerns-22168

The Dominican Republic is the twelfth largest exporter of avocado. They currently export only 5% of the total avocado production, the rest is mainly used for domestic consumption. There is not yet an established industry to extract oil. The country has placed avocado as the number one priority for exports. Main actions include promotion strategies in the USA, improving cold-chain logistics (post¬-harvest cold storage, packing facilities, cold storage rooms at airports) and improving the quality of the local production of export varieties.

More developed producers such as Mexico have created their own commercial brand to position the product in the USA.

In Belgium, the price of avocado is highly volatile and can go from €7 (€1.75/kg) to €18 (€4.5/kg) for a 4 kg box. In August the offer and the demand are low, and prices are around €13 (€3.25/kg) for a 4 kg box of Hass avocado. Hass and Verde are the most in-demand varieties.[32] The price for the final consumer in Belgium is approximately €1.19 per piece (each piece weights approximately 250 g, so €4.76/kg) for a conventional avocado and €1.49 per piece for an organic avocado from Peru (approximately €5.96/kg).[33]

Table 61: *International export prices of avocado, August 2021*

Type	Origin	Incoterm	Price (US$/ kg)
Hass 4 kg	Colombia	FOB, Cartagena	1.95
Hass 4 kg	Peru	FOB, Callao	2.18
Hass 10 kg	Kenya	EXW, Mombasa	1.70
Hass 4 kg	Mexico	FOB, Veracruz	1.88
Hass 4 kg	Mexico	FOB, Manzanillo	2.70
Hass	Chile	FOB, San Antonio	3.15

Source: COLEACP based on Tridge market offers.

32 Reference prices in Wholesale Market Brussels, Belgium (2021). Therefore, these prices include transport fees and import related costs.
33 Carrefour (French retail corporation) prices, Belgium (2021).

4.2.3 Mango, guava and mangosteen

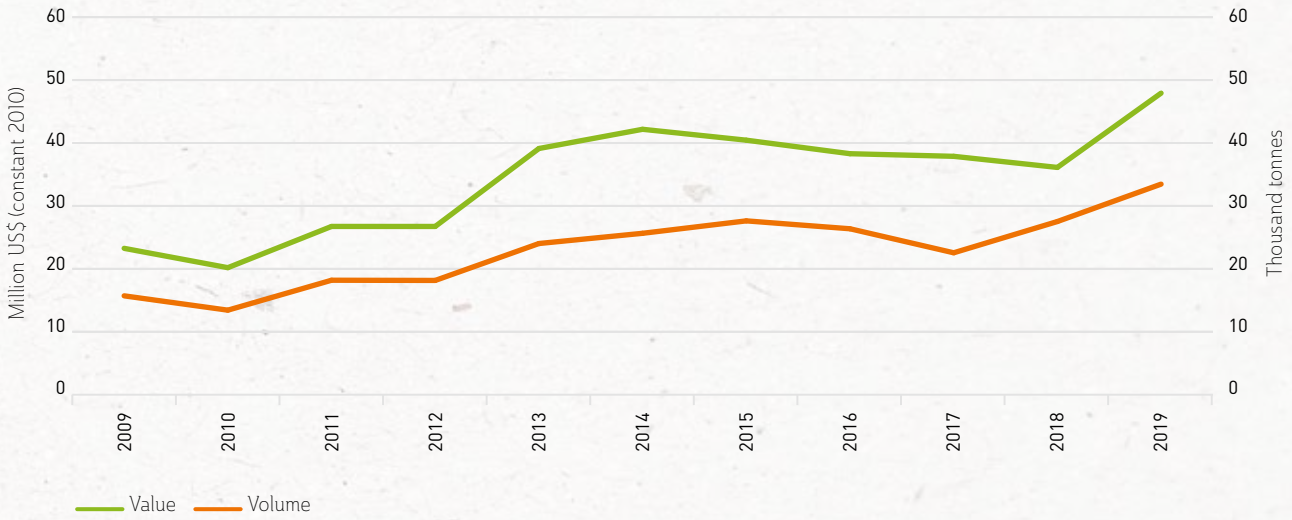
Mango ranks third among Caribbean exports with 33,500 tonnes in 2019, which represented 4.27% of export volume and 7% of export revenue (Figure 57). Mango is mainly exported by the Dominican Republic and Haiti (Table 62). The main customers of Caribbean mango are Europe and North America. Mango had an outstanding growth of 108% (constant US$) from 2009 to 2019 and a relatively stable price around US$1.45/kg (2019).

Table 62: *Top 5 ACP-Caribbean exporters of mango, guava and mangosteen, 2019*

Country	Value (million US$)	Volume (1,000 tonnes)
Dominican Republic	42	24
Haiti	12	9
Jamaica	1	0.4
Guyana	1	0.5
St Vincent and the Grenadines	0.1	0.2

Source: COLEACP based on Eurostat and CEPII BACI.

Figure 57: *ACP-Caribbean exports of mango, guava and mangosteen, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



Mango production is seasonal, and importers are used to working with different origin countries all year round. The total world exports of mango were worth US$3.6 billion in 2019, registering a constant growing demand in the global market. The main exporters are Mexico, followed by Peru and Brazil. Mexico has a longer season that goes from April to September, Peru from January to April, Brazil from September to March and Ecuador from October to December. According to a Tridge report [34], mango prices are expected to increase on the global market despite higher production.

According to JAD[35], yellow-skinned mango from the Dominican Republic has the advantage of being the first to market in the mango season in the USA, which has helped it gain popularity among consumers.

The ACP-Caribbean countries compete directly with the Mexican production season. The mango produced in the Caribbean is more likely to be local varieties, which require a niche market in the destination country. Markets used to the Kent variety are less interested in introducing new varieties.

Kenyan mango will resume exports to the European Union after 8 years of self-ban due to fruit fly. This will welcome a new player in the European market. Jamaica also imposed a self-ban and returned to the UK and US markets in 2021, after putting in

34 Tridge (2021) https://www.tridge.com/
35 Interview with Osmar C. Benitez, Executive President of JAD, August 2021.

place measures to meet US requirements to treat fruit flies.

Around 75% of the Dominican Republic's production is earmarked for export, of which around 50% is exported as organic, Keitt being the most exported variety (66%). In Peru, the price of mango went up in April to US$1.46/kg from US$0.7/kg (FOB) earlier in 2021. In Thailand, the fourth largest producer, the price of mango reached a record low in April of US$0.10/kg (EXW) due to low exports.

In Belgium, the most demanded variety is the Kent, currently coming from African countries (Senegal and Cote d'Ivoire). Mango prices in Belgium for final consumers (supermarket) turn around €1.49 for one mango of 250-300 g, so €4.50-5.96/kg.

International price offers are given in Table 63.

Table 63: *International export prices of mango, August 2021*

Type	Origin	Incoterm	Price (US$/kg)
Chaunsa, white	Pakistan	FOB, Karachi	0.71–0.81
Keitt	Egypt	FOB, East Port Said	2.01
Elephant 20.15 kg	Viet Nam	FOB, Ho Chi Minh	4.03
Arumanis 10 kg	Indonesia	FOB, Juanda International Airport	2.60

Source: COLEACP based on Tridge market offers.

4.2.4 Ethnic roots and tubers

Ethnic roots and tubers registered 23,000 tonnes of exports in 2019, being the fourth most exported group of products, representing 2.97% of export volume and 5.38% of export revenues. Jamaica is by far the biggest exporter of ethnic roots and tubers with over US$35 million in 2019 (Table 64). North America is the biggest importer for this category, being that market's second most important product coming from the Caribbean. Exports of tubers grew a modest 3% over the period studied (Figure 58).

Table 64: *Top 5 ACP-Caribbean exporters of ethnic roots by value, 2019*

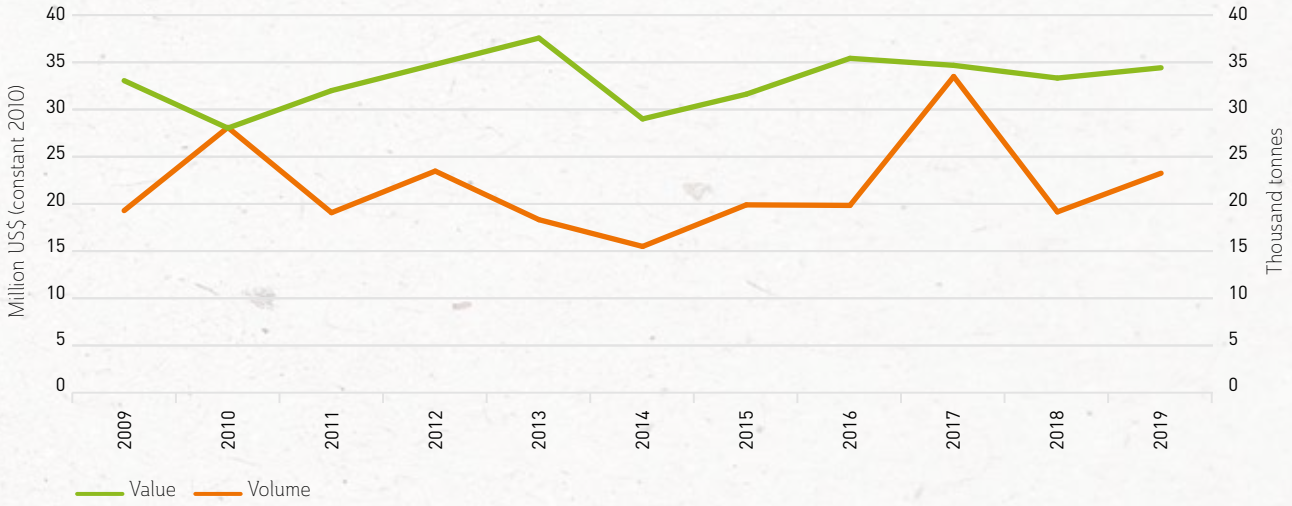
Country	Value (million US$)	Volume (1,000 tonnes)
Jamaica	35	15
St Vincent and the Grenadines	3	4
Dominican Republic	1.1	0.6
Dominica	1.0	1.8
Grenada	0.2	0.1

Source: COLEACP based on Eurostat and CEPII BACI.

The Dominican Republic is focusing on exporting frozen peeled cassava and paraffin-preserved cassava to the USA. The country identified a total business of US$81 million mainly based on Dominican residents in that country.[36]

Cassava is an important staple crop for the countries of the region and is assuming greater importance in the region's battle against non-communicable diseases (NCDs) because of its gluten-free properties.

Figure 58: *ACP-Caribbean exports of ethnic roots and tubers, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



The average price for this category was around US$1.47/kg in 2019; however, the price is highly variable registering troughs of US$1/kg in 2010 and 2017 to a peak of US$2.11/kg in 2013.

Globally, cassava starch represents US$1.7 billion; however, prices paid for cassava starch on the international market are very low at around US$0.47/kg (Table 65). Given that it is necessary to use around 4 kg of cassava to produce 1 kg of starch, it is not a lucrative business and cassava is not produced in very large quantities. Currently, production of starch is concentrated in Asia.

Table 65: *International export prices of roots and tubers, August 2021*

Type	Origin	Incoterm	Price (US$/kg)
Cassava	Costa Rica	FOB, Limon	0.80
Cassava starch 50 kg bag	Thailand	FOB, Bangkok	0.47
Sweet potato – Carolina Ruby	Egypt	FOB, Damietta	0.50
Cassava	Philippines	FOB	0.15–0.20
Cassava	Netherlands	FOB	0.24–0.36

Source: COLEACP based on Tridge[37] and Alibaba[38] market offers.

36 Cluster Consulting (2019) Análisis de Cadenas de Valor de Productos Agrícolas en República Dominicana.
37 Tridge (2021) https://www.tridge.com/
38 Alibaba (2021) www.alibaba.com

4.2.5 Coconut

Coconut is rapidly growing in importance for the region as an export crop, with a positive export trend of 102% growth (volume) from 2009 to 2019 and 42% in export value (Figure 59). The industry is growing fast with special opportunities in coconut milk, cream and oil. Guyana is the main exporter of fresh coconuts, but the Dominican Republic is the largest exporter of fresh and dry coconuts combined (Table 66). In 2014, the region registered a peak in exports of dry coconut, but it has crashed since then. The average export prices for Caribbean coconut have decreased since 2009, when it was about US$1/kg, to US$0.58/kg in 2019.

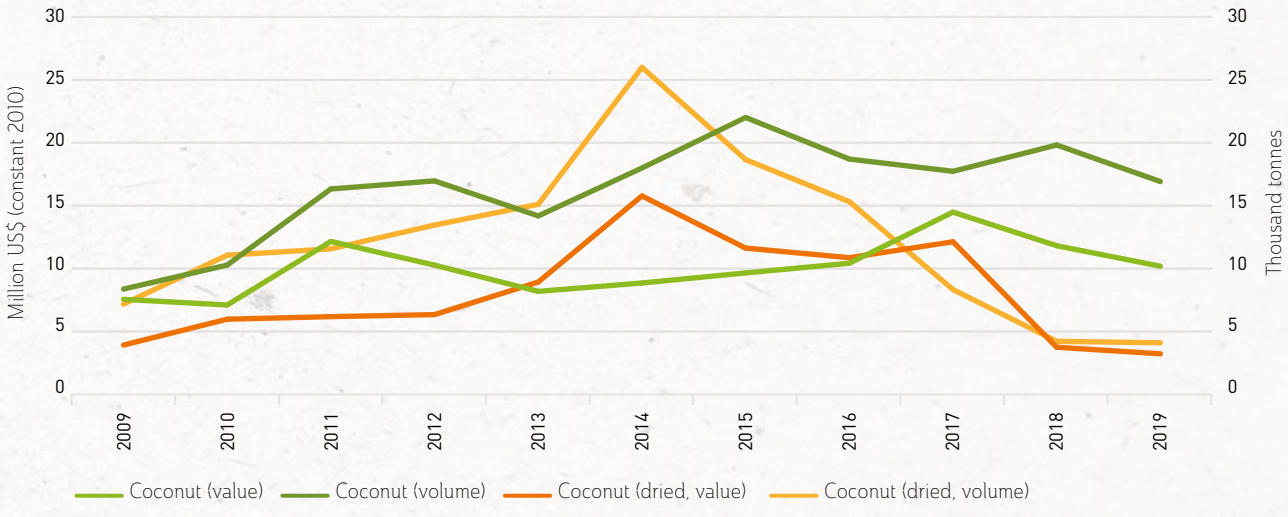
Table 66: *Top 5 ACP-Caribbean exporters of coconut by value and volume, 2019*

Country	Coconuts		Coconut (dried)	
	Value (million US$)	Value (million US$)	Value (million US$)	Volume (1,000 tonnes)
Jamaica	35	35	35	15
St Vincent and the Grenadines	3	3	3	4
Dominican Republic	1.1	1.1	1.1	0.6
Dominica	1.0	1.0	1.0	1.8
Grenada	0.2	0.2	0.2	0.1

Source: COLEACP based on Eurostat and CEPII BACI.

Currently, it is one of the main products being traded within the ACP-Caribbean subregion - between Guyana (exporter) and the Dominican

Figure 59: *ACP-Caribbean exports of coconut, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



Republic (importer). The Dominican Republic is making special efforts to increase its number of coconut plantations, to reduce imports and cover its domestic demand that is unsatisfied. It is exporting around 13% of its production of specially dried coconut and copra, but also coco crunch, which is an innovative way to use coconut husk that produces a material for potting soil mixes.[39]

In Asia, exporters are finding new ways to market coconuts using their own shells, but reducing the volume, so that more coconuts can be transported; easy openers are added to facilitate direct consumption (Figure 60). This is an interesting way to promote the consumption of healthy coconut water and at the same time reduce the use of plastic.

The top exporters worldwide in 2020 were India (US$45 million) and Thailand (US$35 million), the Dominican Republic is among the top five producers in the world with US$7.49 million in 2020. The top three import markets for coconut are the USA (US$40.2 million in 2020), followed by the United Arab Emirates (UAE) and Germany (US$15.6 million each). There is shrinking import demand from China and Malaysia, which used to be among the biggest importers until 2019.

There is interest in this product by European importers that are looking for coconut providers.

Current international prices offers are given in Table 67.

Table 67: *International export prices of coconuts, August 2021*

Type	Origin	Incoterm	Price
Mature coconut Jambi, semi-husked and husked	Indonesia	FOB, Jambi	0.35–0.38 US$/kg
Desiccated coconut – high fat	Indonesia	FOB, Surabaya	2.79 US$/kg
Desiccated coconut	Indonesia	FOB, Jakarta	2.15 US$/kg
Desiccated coconut	Vietnam	FOB, Ho Chi Minh	2.21–2.82 US$/kg
Coconut (water), organic	Thailand		0.86–1.22 US$/unit

Source: COLEACP based on Tridge and Alibaba market offers.

Figure 60: Example of innovative presentation of a coconut

39 Van der Knaap (2021) Coco Crunch. Dominican Republic: growrite DR. http://growrite.do/#coco

4.2.6 Capsicum pepper and pimento

Peppers and pimentos classified under HS 070960 also represent an important export product for ACP-Caribbean countries such as the Dominican Republic and Jamaica (Table 68), although Jamaican exports tend to take the form of processed sauces. Mainly hot chilli peppers are exported to the USA. The market is recovering after registering a drop in 2014-2015 (Figure 61). Most of the exports are earmarked for the USA market. The prices of Caribbean peppers have held up over the analysed period at around US$1.5-2/kg.

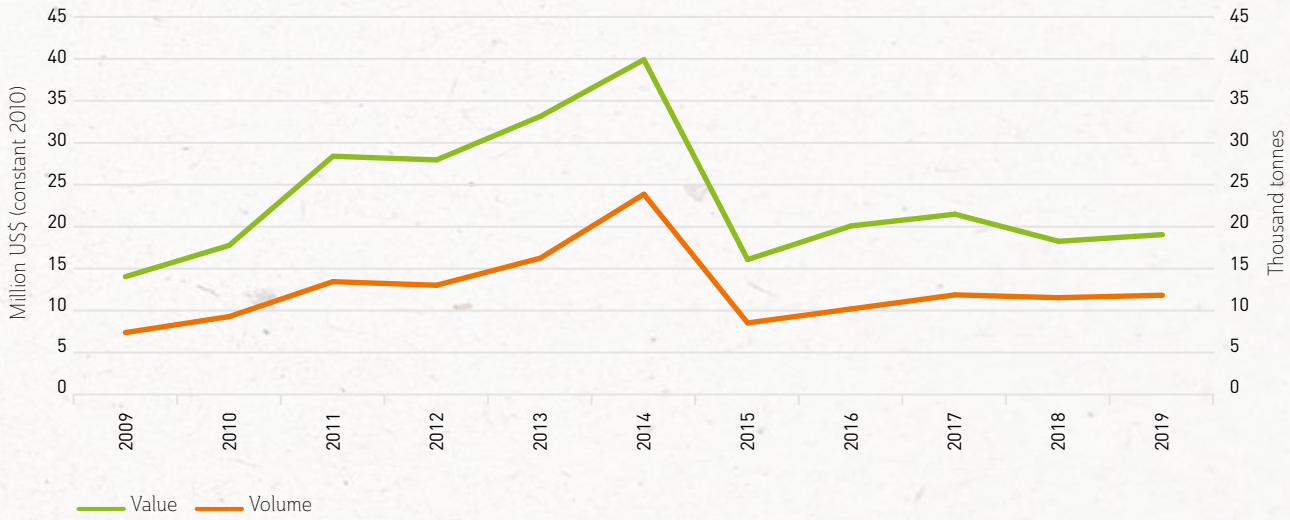
Table 68: *Top 5 ACP-Caribbean exporters of peppers by value, 2019*

Country	Value (million US$)	Volume (1,000 tonnes)
Dominican Republic	21	11
Jamaica	0.5	0.2
Cuba	0.3	0.1
Trinidad and Tobago	0.2	0.03
Suriname	0.1	0.04

Source: Eurostat and CEPII BACI.

The global market value for this product reached US$5.7 billion in 2019 and the main exporters are Mexico, Spain and the Netherlands. The biggest markets are the USA and the UK. Various types of peppers are produced domestically in the EU, mainly in Spain and the Netherlands; this latter production is in greenhouses, which makes this market more competitive. Closer suppliers such as Morocco and Turkey also provide large quantities of peppers to the European market.

Figure 61: *ACP-Caribbean exports of peppers, 2009–2019. Note that the trend in value is corrected for inflation. (Source: COLEACP based on Eurostat and CEPII BACI)*



In supermarkets, several types of hot chilies are available, some of them with very high prices. In Carrefour, Belgium, for example, the customer price for red chilli pepper is €19.83/kg, while Thai chillies (smaller variety) are €31.8/kg (chillies from the Netherlands, Spain, Morocco) and a chilli mix around €29.90/kg (chillies from Kenya or Thailand). The international prices do not reflect, however, the excessive prices at retail level (Table 69).

Table 69: *International prices of capsicum and pimenta, August 2021*

Type	Origin	Incoterm	Price (US$/kg)
Scotch Bonnet (21 tonnes)	South Africa	FOB	0.40–0.60
Chinese long red fresh chilli pepper	China	FOB	0.7–1.20

Source: COLEACP based on Tridge market offers.

In Jamaica, to encourage increased production, the Government has increased the farmgate price of pimentos by 161%, from US$0.33 to US$0.86 per kilogram over the last five-year period. Jamaica produces high-quality pimento, in terms of its oil content, composition of oil and market presentation. Jamaica's pimento industry generates over US$5 million per year, from pimento berry, pimento leaf oil, pimento berry oil, and other products involving pimento. Products such as jerk seasoning, mixed spices and pimento liqueur have a good niche market abroad especially among the Caribbean diaspora.[40]

40 Jamaica Information Service (2021) Export Division. Kingston. https://jis.gov.jm/government/agencies/export-division/

4.3 Intra-ACP-Caribbean country Trade

4.3.1 Export analysis

The commerce among ACP-Caribbean countries has several limitations, mainly lack of infrastructure such as cold storage rooms and deficient maritime and air routes between the countries to guarantee a good transport of horticultural produce. Different phytosanitary restrictions increase the challenge of expanding and sustaining exports. A particular issue arises also with the Dominican Republic that belongs to CARIFORUM but not to CARICOM, and so has to pay considerable taxes of between 20% and 25% when exporting to neighbouring countries. Because Caribbean countries tend to produce the same products, there is fear among smaller countries of bigger countries putting local farmers out of business in their respective domestic markets.

The major exporter country for intra-ACP-Caribbean commerce is Belize with almost 17,000 tonnes in 2019; its major partners are Trinidad and Tobago and Jamaica, which import mainly frozen orange juice and dried kidney bean. Guyana is the second largest exporter supplying coconut to the Dominican Republic, and ethnic roots and tubers to Suriname. St Vincent and the Grenadines exports ethnic roots to Trinidad and Tobago and banana to Barbados. Banana is the major source of income for St Lucia, which exports to Barbados, Trinidad and Tobago, and St Kitts and Nevis (Tables 70 and 71).

Table 70: *Top intra-ACP-Caribbean trade flows of horticultural products by value, 2019*

Flow	Value (million US$)
Trinidad and Tobago – Jamaica	12.68
Belize – Jamaica	10.55
Dominican Republic – Jamaica	9.56
Belize – Trinidad and Tobago	6.68
Guyana – Dominican Republic	4.67
Trinidad and Tobago – Guyana	4.53
Trinidad and Tobago – Barbados	3.73
Trinidad and Tobago – St Lucia	2.72
St Vincent and the Grenadines – Trinidad and Tobago	2.47
Belize – Barbados	2.00
Barbados – St Lucia	1.94
St Vincent and the Grenadines – Barbados	1.54
Dominican Republic – Barbados	1.27
Belize – Guyana	1.20
Trinidad and Tobago – St Vincent and the Grenadines	1.20
Guyana – Trinidad and Tobago	1.11
Jamaica – Guyana	1.06
Total	**68.92**

Source: COLEACP based on Eurostat and CEPII BACI.

Table 71: *Top intra-ACP-Caribbean trade flows of horticultural products by partner by value, 2019*

Flow and product	Value (million US$)
Belize – Jamaica – Orange juice (frozen) (processed)	7.73
Trinidad and Tobago – Jamaica – Groundnut (processed)	7.26
Dominican Republic – Jamaica – Other fruits and nuts (processed)	5.27
Belize – Trinidad and Tobago – Orange juice (frozen) (processed)	4.81
Guyana – Dominican Republic – Coconut	4.67
Dominican Republic – Jamaica – Potato (processed)	3.34
Trinidad and Tobago – Jamaica – Potato (processed)	2.47
Belize – Jamaica – Kidney bean (dried)	2.09
St Vincent and the Grenadines – Trinidad and Tobago – Ethnic roots and tubers	1.83
Trinidad and Tobago – Barbados – Nuts and other seeds (not groundnut) (processed)	1.72
Belize – Barbados – Orange juice (frozen) (processed)	1.42
Trinidad and Tobago – Jamaica – Other fruits and nuts (processed)	1.34
Trinidad and Tobago – Guyana – Nuts and other seeds (not groundnut) (processed)	1.32
Trinidad and Tobago – Guyana – Mixed juices (fruit/vegetable) (processed)	1.27
Trinidad and Tobago – Jamaica – Nuts and other seeds (not groundnut) (processed)	1.26
Dominican Republic – Barbados – Potato (processed)	1.10
Guyana – Trinidad and Tobago – Coconut	1.01
Total	**49.90**

Source: COLEACP based on Eurostat and CEPII BACI.

4.4 Exports to Europe

4.4.1 Export trends

The most important market for ACP-Caribbean countries is Europe, which in 2019 received 538,000 tonnes (68.73%) of exports, of which 333,000 tonnes to the European Union (EU27) countries and 204,000 tonnes to the rest of Europe (including the UK). The UK remains the biggest individual importer of, and most important partner for, ACP-Caribbean products, with a total of 197,000 tonnes representing 26% of the export volume of 2019. This volume, however, has considerably reduced compared with 2009 when the UK accounted for 283,000 tonnes representing 35% of the total volume of exports.

There has been a change in the importing countries over the last decade. A share of the imports distributed by the UK has, since 2018, been handled by the Netherlands, in anticipation of Brexit that entered into force in 2020. Also, countries that imported limited quantities in 2009, such as Germany and Sweden, have considerably increased their direct import of fresh produce (mainly bananas).

The EU27 is the major destination for Caribbean products by volume; the top three products imported in 2019 from the Caribbean are bananas and plantains (294,000 tonnes, or 90.21%), followed by mango (11,000 tonnes, 3.64%) and avocados (9,000 tonnes, 2.94%).

Products exported to non-EU27 countries show a similar pattern with similar percentages: bananas (187,000 tonnes, 92.15%), followed by mango (6,000 tonnes, 3%) and avocado (3,600 tonnes, 1.82%).

An important factor for the UK is that the Caribbean has a diaspora established there promoting and requesting Caribbean products. Around 600,000 people from the English-speaking countries live in the UK.[41] Their link with Commonwealth countries and the language allows English speaking countries to get closer to the UK than to the rest of Europe. In London, there is a British Caribbean Chamber of Commerce promoting the commercial relationships with the islands.[42]

4.4.2 Consumer trends

The European market is highly demanding in terms of standards: GLOBALG.A.P. certification is the minimum norm for most European importers; however, many importers and supermarkets are placing stricter norms and conditions particularly in relation to maximum residue limits (MRL) of pesticides. The COVID-19 pandemic has also changed the way consumers are buying products. A recent report from Fruit Logistica points to an increase of certain fruits and vegetables with high vitamin content such as citrus, ginger and peppers. Health concerns and better nutrition have also driven interest in organic products in Europe during 2020. Countries such as Germany recorded a market size of organic produce of €15 billion in 2020, an increase of 21% over 2019. A similar scenario was seen in the UK, where the organic market registered 12.6% growth in 2020.

The European market is also concerned about sustainability issues, creating new standards and norms to prevent deforestation, excessive water use, better inclusion of small farmers, and identification of alternatives to plastic packaging that producers will have to adapt to enter this market. Supermarkets are constantly changing their packaging, replacing plastic trays with cardboard or biodegradable packaging made of different components such as sugarcane bagasse,[43] which is entirely biodegradable and compostable at home. Other supermarkets are proposing bulk trays whereby customers have to take their own packaging. For labelling and packaging, France has passed a law that will put a ban on fruits and vegetables with non-compostable stickers, and on the use of plastic packaging in fruits and vegetables; this measure will enter into force on 1 January 2022, and will potentially have an impact on new requirements from European importers of horticultural products.

Another factor to consider is that an increased number of European consumers are looking to seasonal products produced locally, which may involve a reduction of the consumption of imported goods, especially when they can be sourced locally. The Netherlands, for example, is currently producing a variety of hot peppers that can act as a substitute to the varieties produced in the Caribbean.[44]

41 Morgan, E. (2019) A united CARICOM diaspora? CARICOM Today, 19 June. https://today.caricom.org/2019/06/19/a-united-caricom-diaspora/
42 The British–Caribbean Chamber of Commerce (2021) www.britishcaribbean.com/
43 Fresh Plaza (2019) Sugarcane-based packaging allows breathability and creates a drier environment. www.freshplaza.com/article/9098139/sugarcane-based-packaging-allows-breathability-and-creates-a-drier-environment/
44 Amar Import & Export (2021) https://amarimport.nl/en/

The European demand for processed fruit and vegetables offered in smaller portions that are customised to individual diet needs is growing. Vegetable manufacturers have also responded to this trend by introducing ready-to-cook frozen blends. Examples include ready-made frozen vegetables for pasta or frozen ready meals for microwave cooking. Convenience can also be aimed at retailers, not just consumers. For example, heat-resistant cartons such as Tetra Recart[45] are gaining popularity and replacing cans. They are lighter and save shelf space due to their rectangular shape.

A good example of the convenience trend is the growing demand for frozen fruit and frozen purées. Frozen fruits are convenient for consumers, who do not need to wash, peel and cut fruit. Mixtures of ready-prepared fruits for smoothies is an important trend in the frozen fruit category. Several brands and retailers have launched smoothie blend brands, such as REWE Bio Smoothies (Germany), Smoothie Rebels (https://smoothierebels.com/, the Netherlands), Love Smoothies (https://love-struck.com/, UK), Farmersland (https://farmersland.de/en/, Germany) and Red Smoothie (Spain). Some of these smoothie products do not even require mixing in a blender or food processor, simply the addition of water.

Another example of convenience products introduced in the processed fruit and vegetables industry is small portions to satisfy targeted daily intake of specific nutrients, such as single snacking portions of dried fruit dubbed "dried fruit shots" and small portions of fortified fruit or vegetable drinks known as juice shots.

Dried fruit shots have recently been launched by the leading dried fruit company in the UK, Whitworths[46], while many companies produce juice shots, including Proviva (Sweden),[47] Bumble Zest (https://b-zest.co.uk/, UK), Kloster Kitchen (Germany) and Organic Human (Denmark).[48] Made from fruit juices, vegetables, herbs and functional ingredients, juice shots are promoted as superfood targeting specific health issues.

Even if the EU27 is counted as a single market, there are substantial differences in the different countries that can open or close the doors to new products. For example, high-quality products and niche products could be more appreciated in France than in Belgium, where the price will be a stronger determinant.

Main events to promote fruits, vegetables and process products in Europe are:

- Fruit Logistica (www.fruitlogistica.com) in Berlin (2022) is the largest fruit fair where COLEACP usually has a stand to promote the products of its partners. It is also the main opportunity to discover innovations of products, packaging, logistics.
- MacFrut (www.macfrut.com) in Italy and Fruit Attraction (www.ifema.es/en/fruit-attraction) in Spain are also two key trade fairs in the EU fruit and vegetable industry.
- SIAL (www.sialparis.com) in Paris (2022) and Anuga (www.anuga.com) in Cologne (2021) are the most important fairs for fresh and processed food in Europe, they are held every other year and present interesting food processing ideas and products, and are the best showroom to introduce a product to Europe.
- Cariforum-EU Business Forum (www.carib-export.com/businessforum) is an event with niche products from the Caribbean – around 150 participants are selected for each edition to promote their products in Europe.
- Biofach (www.biofach.de) is the world's leading trade fair for organic food.

45 www.tetrapak.com/solutions/packaging/packages/tetra-recart
46 https://whitworths.co.uk/recipes/shots-blueberry-cinnamon-porridge
47 www.probi.com/our-products/consumer-products/proviva-superfruit-shots
48 www.organicdenmark.com/antioxidant-shot-100

4.5 Exports to North America

4.5.1 Export trends

North America is the second largest market for ACP-Caribbean products. In 2019, it accounted for 163,000 tonnes of horticultural produce, which represented 20.83% of the exports of ACP-Caribbean countries. Most of the products are earmarked for the USA (second biggest importer of Caribbean goods after the UK). Avocado is the most important product reaching almost 28,000 tonnes in 2019 and almost US$41 million. The growth in this market was 93% in volume over 11 years. The current market price for Dominican avocado in the USA fluctuates around US$3.45/kg (July 2021).[49] Ethnic roots and tubers are the second export product to North America, accounting for almost 15,000 tonnes in 2019, almost US$41 million. This sector experienced small growth of 16% in 11 years. Mango is in third place with 14,000 tonnes and US$18 million in 2019. Peppers and pimentos, with 11,000 tonnes, rank third in terms of revenue with almost US$20 million in 2019.

4.5.2 Consumer trends

A study conducted in the USA revealed that, following the pandemic, 59% of the interviewed people are consuming larger varieties of fruit and vegetables than they did a decade ago. Avocado is among the products that people are buying now that they did not buy previously, while bananas remain Americans' first choice. The study also revealed that nearly 30% of the people are regularly buying organic produce and 38% prefer locally produced products. Another effect of the pandemic is that people ordered more groceries online and at least 42% of the people said that they would continue to buy groceries and fresh produce online after the virus threat has passed.[50]

The diaspora in the USA and Canada is also very important for the development of Caribbean products.

4.6 The role of the Caribbean diaspora in Exports

According to CARICOM information, the total diaspora is around 3.6 million people mainly located in the USA (2 million), Canada (800,000) and the UK (600,000). There are an additional 1.5 million people from the Dominican Republic (not CARICOM) mainly living in the USA (1.7 million), Spain (167,000) and Italy (46,000). Of the CARICOM members, the biggest diaspora comes from Jamaica, Haiti, Guyana and Trinidad and Tobago. The Suriname diaspora is established for historical and language reasons in the Netherlands (400,000).

The diaspora demands non-traditional products in the form of Caribbean fruit and vegetables, sauces, spices and prepared food. Most of the business is handled by the diaspora. Most companies have stores in cities such as London, New York and Amsterdam, but currently many of these stores have online platforms and delivery options to reach a broader market. The products target the nostalgic market, so basically the packaging and product image is the same as in the Caribbean, just adapting labels with minimum requirements to comply with local rules. These products are very different from the products that are intended to reach an international market.

Taking the example of PanChef (https://yamman.co.uk/) in the UK, there is a wide variety of products that range from fresh to processed.

Fresh products

White sweet potato (€4.44/kg), puna white yam (€1.97/kg), mingolo mango (€7.67/kg), Jamaican pumpkin (€3.74/kg), dasheen (€5.01/kg), crown pumpkin (€2.27/kg), cocoyam (€5.87/kg), apple banana (€7.05/kg), Scotch bonnet peppers (€11.80/kg), kabocha pumpkin (€2.20/kg), Jamaican ginger (€5.05/kg).

49 ITC (2021). Market Price Information.
50 The Packer (2021) Fresh trends 2021. Lexena, KS. http://digitaledition.qwinc.com/publication/?m=40749&i=700365&p=1&ver=html5

Processed food

Baba Roots staminizer 148 ml (€2.30), Yam Man ackee (€6.80), Jamaica noni juice 700 ml (€18.29), noni sorrel drink 200 ml (ginger, pimento, cinnamon, noni and sorrel €2.59), Zion Roots drink 150 g (herbal drink €2.59), Bermudez Biscuits 150 g (cinnamon, nutmeg, coconut, raisin €2.36), sun-dried Irish moss 116 g (€4.54), Yam Man bammy 397 g (cassava flat bread €2.05).[51]

Other stores are Caribbean Store (www.caribbeanstore.co.uk) in the UK, Worldwide Holland[52] in the Netherlands, Amigo Foods (www.amigofoods.com) and Caribbean Products Online (https://caribbeanproductsonline.com/) in the USA.

4.7 Processed products and product development

The international market offers various possibilities to promote and offer products especially those with added value. Most countries have promotion desks that can help to prepare the producer for the international market and usually organise matchmaking events and trade show promotions, among other events. It is always advisable as a producer to be in contact with the local export promotion office.

- Prodominicana is the government's office in charge of promoting the exportable offer of Dominican products abroad, JAD also promotes Dominican products in supermarkets and trade shows abroad, especially in the USA, concluding matchmaking deals between producers and buyers.
- Jamaica Promotions Corporation is responsible for helping exporters and for sourcing in Jamaica through its website Do Business Jamaica (https://dobusinessjamaica.com/about-jampro/).
- The New Guyana Marketing Corporation (https://newgmc.gov.gy/) helps to market non-traditional agricultural commodities. It has a web shop that acts as a digital showroom for Guyana's products.
- Export TT (https://exportt.co.tt/) is the National Export Facilitation Organization of Trinidad and Tobago in charge of the generation and diversification of exports.
- Discover Suriname (www.discover-suriname.com/) is the office in charge of promoting exports and investments in Suriname.
- Many websites offer the possibility to promote and source products – for example, Tridge (www.tridge.com) and Alibaba (www.alibaba.com) where you can submit offers.

Information about specific studies and how to enter the European market can be found at the Centre for the Promotion of Imports from Developing Countries (CBI) in the Netherlands (www.cbi.eu) and Import Promotion Desk (IPD) in Germany (www.importpromotiondesk.com/en).

In the Caribbean, we have identified many added value products with potential. Some of them are already being developed in some countries while others have good possibilities to further develop local markets, but with a projection of exporting the goods regionally and internationally.

4.7.1 Processed bananas and plantains

Banana and plantain chips are the most popular transformed banana products produced in ACP-Caribbean countries. The biggest producer in the region is Jamaica Producers (JP), which established a factory in the Dominican Republic in August 2007 and manufactures the St Mary's Banana Chips brand. It is, however, ironic that even though the level of rejected fruit has been adequate to sustain a considerable processing market for fruit unable to meet fresh market standards, in most ACP-Caribbean countries there has been a tardy approach to added value transformation when it comes to processing of bananas.

Banana flour

Plantain flour

51 Prices from PanChef converted from pounds to euros at €1.18/£ (August, 2021).
52 www.worldwideholland.com/food/meals/dutch-surinamese-products/all-surinamese-products/

Other products that can be made with bananas are:

- Banana flour (gluten free), Guyana, net weight 250 g, US$3.45 (consumer price)
- Plantain flour (gluten free), Guyana, net weight 320 g, US$1.53 (consumer price)
- Frozen bananas
- Banana purée – baby food
- Banana juice/drink
- Dried bananas and lyophilised bananas
- Banana jam

4.7.2 Fruit juices

Major orange juice producers can be found in the Dominican Republic. With a significant installed capacity, they are able to produce up to 20 tonnes per hour during season periods and they export their products mainly to the USA and Canada, but also to the Caribbean region. They have been able to produce not only juices, but also concentrates, pulps, extracts, essence and oil (orange), purée, frozen fruits, fresh fruit, seeds and plants.

Other producers are located in Belize and Jamaica. Over the years, diseases have impacted local orange production and concentrate has to be imported. Imports of orange concentrate increased from an average of 6,000 tonnes to 21,600 per annum during the period 2017–2018, but subsequently declined in 2019. A large variety of fruits is being produced: Valencia oranges, Persian lemons, pineapple, tangerine and passion fruit, strawberry, mango, pineapple and guayaba juice – some of them with imported pulp, or frozen juices.

Processing plants have state-of-the-art technologies, which allow them to process juices in the form of aseptic or canned products. The juices can be exported in ISO tanks or packed in cans. The industry has major quality standard certifications. The domestic market is very important in the Dominican Republic, representing around 35% of their sales. Companies have developed vertical integration with direct distribution that allows them to reach 45,000 retail outlets twice a week. Their export markets include 22 countries, mainly the USA and Canada, followed by Germany. In the Caribbean, they export to Puerto Rico and Guadalupe.[53]

In the Dominican Republic, there is a new trend with healthy (green) juices, coconut water and energy-providing juices. These juices are prepared and sold in bottles. They are sold in supermarket chains such as La Sirena, Grupo Ramos and Fresh Markets, but are also bottled with private labels for restaurants.

Other products with a positive trend on the domestic market are packed vegetables and fruits. These products were in high demand among hotels, but with COVID-19 and the drastic diminution and closure of many hotels, producers started to look for different distribution chains to reach final consumers in the Dominican Republic. This segment includes ready-to-eat fruits such as papaya, pineapple and strawberry.

4.7.3 Processed tomato

Within the ACP-Caribbean region, only the Dominican Republic is reported to produce commercial quantities of tomato paste. Trinidad and Tobago is the only country within the region reported as producing tomato juice.

The market for tomato paste in the Caribbean region is significant and has grown 46% over the 2009-2019 period. In 2019, some 22,600 tonnes of tomato paste, valued at approximately US$20 million, were imported into the Caribbean region. Although outside the scope of this study, tomato ketchup and tomato sauces seem to be an important product category that could be worth investigating further.

4.7.4 Processed pumpkin

There have been a few attempts in Jamaica to commercially transform pumpkin into various products such as ketchup. Pumpkin seeds are becoming a popular snack in most grocery stores in Trinidad and Tobago.

53 COLEACP, interview with a producer (2021).

4.7.5 Processed carrot

The volume of carrot juice production in the Caribbean region is not readily ascertainable. However, there are several manufacturers in Jamaica, with Grace Food processors being a major producer of carrot juice.

4.7.6 Processed roots and tubers

The CARICOM region has identified cassava, sweet potato and yam as the root and tuber crops with the highest potential for value-added development and to attain food security. Increased production and processing of these products can help to reduce the Caribbean import bill and create many parallel businesses. In the Caribbean, Goya Products has a major plant in the Dominican Republic, where they produce a large variety of frozen foods. They produce (among others) cassava fries, which is an excellent alternative to reduce imports of potato fries. The processing of roots and tubers in the Caribbean still requires much development. Some of the products with potential in the domestic and international market are:

- Cassava starch, Guyana, net weight 454 g, US$1.72 (consumer price)
- Sweet potato cake mix, Guyana, net weight 436 g, US$5.06 (consumer price)
- Cassava bread, Guyana, US$1.95 (consumer price)
- Cassareep (cooking sauce), Guyana, US$1.32 (consumer price)
- Cassava flour (gluten free), Guyana, 250 g, US$3.45 (consumer price)

Other products based on roots and tubers are:

- inputs for further food processing, including animal feed preparations
- baby foods
- inputs for pharmaceutical and health products such as liquid glucose, modified starches, vitamin C and maltodextrins
- body care products using sweet potato
- cassava leaves, canned and dried (powder)
- miscellaneous edible preparations, such as sauces, ice cream, yeast
- industrial products such as biodegradable "plastics", ethanol, textiles and adhesives.[54]

Currently, cassava is transformed mainly into starch, flour or frozen. There is also some production of bread, cookies and cassava chips for the food industry. According to an FAO study in


Cassava starch

Sweet potato cake mix


Cassava bread


Cassareep


Cassava flour


Coconut flour

Virgin coconut oil

Coconut water

Coconut cream and coconut milk

54 IICA and CARDI (2013) Roots and tubers processing in the Caribbean: Status and guidelines. San Isidro, Costa Rica: Inter-American Institute for Cooperation on Agriculture and St Augustine, Trinidad and Tobago: Caribbean Agricultural Research and Development Institute.

2016, around 80-90% of the cassava is consumed fresh, so there are a lot of opportunities for increasing the production of cassava added value products, especially serving the demand for gluten-free products. This could be an opportunity for the Caribbean countries to reduce their bills of imported food.

4.7.7 Processed coconut

Coconut offers multiple options for processed foods and other types of uses, including water, dried coconut, milk, cream and oil. Some of the products produced in the Caribbean are:

- Coconut flour (gluten free), Guyana, net weight 200 g, US$2.30[55] (consumer price)
- Virgin coconut oil, Guyana, US$6–9.77 (consumer price)
- Coconut water, Jamaica
- Coconut cream and coconut milk, Dominican Republic[56]

Jerk seasoning

Pepper sauces

4.7.8 Pepper sauces (purées and condiments)

One of the most common products available for the export market are pepper sauces and condiments, such as jerk sauce (traditional barbeque sauce made of banana paste, hot pepper and other condiments), hot sauces and chutneys. Jamaica is the leading country producing a wide variety of condiments and seasonings. These are mainly based on hot pepper with other condiments and seasonings. Caribbean condiments are a typical landmark product that is well represented in the UK, USA, Canada and even in Oceania. Some of the brands present in the market are Walkerswood, Tropical Sun and Grace Food. In Guyana, there are new producers trying to reach external markets. In Jamaica, around 1,000 small producers are delivering directly to the Walkerswood Co-operative Pepper Farmers Association, which employs directly around 80 people locally.

Baron Foods also produces different kinds of condiments and pepper sauces in three Caribbean Islands, with headquarters in St Lucia and production plants in Grenada and Trinidad and Tobago. It employs around 200 people and exports its products to all the Caribbean islands, the USA, Canada and Europe. According to their corporate information, they have established strong relationships with farmers and have contractual agreements to maintain a fresh, consistent supply of peppers, herbs, seasonings and fruits throughout the year. As a result of this collaboration, many crops that were allowed to rot as a result of minimal market demand are now harvested and supplied exclusively to the company.[57]

Some of the products produced in the Caribbean are:

- Jerk seasoning, Jamaica, sold in Germany €32–54.28/kg[58] (consumer prices)
- Pepper sauces, Guyana, US$1.17–2.61 (consumer prices)
- Pepper sauces, Jamaica[59]

55 Guyana Marketing Corporation (2021) https://newgmc.gov.gy/
56 Consorcio Citricos Dominicanos (2021) www.citricos.com.do/productos.php
57 Baron Foods (2021) www.baronfoodsltd.com
58 Walkerswood, August 2021. www.walkerswood.com/
59 Grace Food UK, August 2021. www.gracefoods.co.uk/

4.7.9 Dried fruits and nuts

In the Dominican Republic, at least 50% of the production of dried fruit is sold on the domestic market. The drop in prices of fresh organic mango in the last 10 years added to increasing costs of organic certifications and new regulations from the European Union, forced producers to look for alternatives to give more added value to their products. They saw a less restricted market in dried fruits. The natural market for Caribbean producers is the USA. In the USA, products can be marketed with a "natural" label description of the product, which means that the product is not certified as organic, but still produced without any artificial ingredients, which reduces the cost of organic certification.

Dried fruits are mainly exported in bulk to be packed and labelled in destination with a local brand. A few producers have their own brand to sell on the local market, but none of these brands are exported as finished produce. Mango, pineapple, papaya, bananas, jackfruit, gooseberry and tomato are the main dried fruits.

Dried fruits and nuts, papaya, pineapple, strawberry

Dried fruits

There is an opportunity for subproducts made with dried fruits, such as fruit powders obtained through the pulverisation of dried fruits, which have multiple uses as ingredients for cooking, especially for pastry, but are also sold as a nutritional supplement. According to some producers, there is growing demand for these products in Europe (especially the Netherlands).

- Dried fruits and nuts, papaya, pineapple, strawberry, Guyana, 150 g, US$4.02–5.03 (consumer prices)
- Dried fruits, Dominican Republic, 50 g x 25 units, US$37.50[60] (consumer prices)

4.7.10 Other processed products

Canned Ackee: ackee is the national fruit of Jamaica, and it can be a perfectly good substitute for eggs in vegan cuisine (same taste and shape as scrambled eggs), which can open new opportunities in Europe and the USA.

- Canned ackee, Jamaica, net weight 540 g, €8.24 in Europe (consumer price)
- Breadfruit flour (gluten free), Guyana, net weight 250 g, US$2.30 (consumer price)
- Vanilla essence, Guyana, size 200 ml, US$1.65 (consumer price)
- Ginger powder, Guyana, net weight 40 g, US$0.57 (consumer price)

Canned ackee

Vanilla essence

Ginger powder

60 CariFrutas (2021) www.carifrutas.com

4.8 Market access

4.8.1 Certification

The different certificates of production will help farmers and producers of value-added products to find the correct market for their products. A certificate is a quality seal that gives the customer a certain level of trust that a product complies with one or more voluntary standards. A producer is not obliged to obtain a certificate, but to access certain markets it will be obliged to obtain one or more certificates. There are many kinds of certificates, that all have a (slightly) different focus and acceptance in specific markets. It is better to verify which certificates best fit the necessities of the market. There are certificates that guarantee good agricultural practices, organic agriculture, non-GMO products, vegan products or fair commercial practices. Each certificate requires a different evaluation and certification process that can be very expensive and time-consuming. In Europe, for example, most organic supermarkets will require an organic and Fairtrade product. Some of the main certificates are:

GLOBALG.A.P.

www.globalgap.org

This label sets the standards for good agricultural practices, it is the minimum required certificate for almost all fruit and vegetable producers aiming at the international market. It guarantees a safe and sustainable agricultural produce.

They also provide more specific certificates depending on the sector, including:

- Bananas: www.globalgap.org/uk_en/for-producers/globalg.a.p.-add-on/tr4-biosecurity/
- Sustainable use of irrigation water: www.globalgap.org/uk_en/for-producers/globalg.a.p.-add-on/spring/
- Sustainable Agriculture Initiative: www.globalgap.org/uk_en/for-producers/sai-platform/GGFSA/

EU-Organic

https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming_en

This certificate guarantees that at least 95% of the ingredients of a product come from organic agriculture. This certification is mandatory to sell organic products in Europe.

United States Department of Agriculture (USDA)

www.usda.gov/topics/organic

This certificate guarantees that a product is made from organic agriculture. This label is required to sell organic labelled products in the USA.

Rainforest Alliance

www.rainforest-alliance.org/tag/2020-certification-program/

This certificate promotes the protection of forests, improvement of the livelihoods of farmers and forest communities, their human rights, and helps them mitigate and adapt to the climate crisis.

Fairtrade

www.fairtrade.net

This label guaranties a minimum fair price for producers that allows them to perform their activities in a sustainable way. Fairtrade also provides a premium to the producers to further refine their fair trade practices and to further develop and expand fair trade projects.

Demeter

This label certifies organic biodynamic agriculture.

www.demeter.net/certification/standard/

4.8.2 MRL (Maximum Residue Limits)

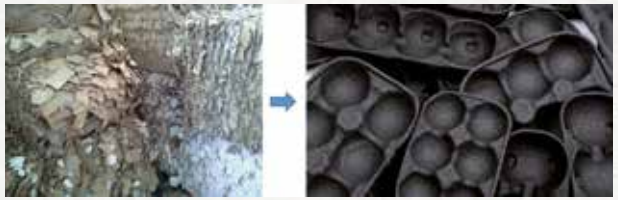
Fresh fruit and vegetables as well as processed fruit and vegetable producers will have to be carefully analysed and comply with regulations of the destination market, especially regarding maximal amounts or even bans on the use of certain chemicals such as pesticides or fertilisers. Depending on the product and origin, regular checks by local authorities of the importing countries will be carried out. The requirements are different for each country/region. Specific information for the most important export regions for ACP-Caribbean countries can be found through the links hereafter.

Region / country	Link
European Union	ec.europa.eu/food/plant/pesticides/eu-pesticides-database/mrls/?event=search.pr
UK	www.hse.gov.uk/pesticides/mrls/index.htm
USA	www.fda.gov/food/chemicals-metals-pesticides-food/pesticides
Canada	www.canada.ca/en/health-canada/services/consumer-product-safety/pesticides-pest-management/public/protecting-your-health-environment/pesticides-food/maximum-residue-limits-pesticides.html

4.8.3 Packaging

Packaging is especially important for European customers. The goal of reducing single-use plastics is pushing supermarkets and fresh-product distributors to look for alternatives to classic plastic trays. Some of the alternatives are:

- Biodegradable packaging made of different components such as sugarcane bagasse and cardboard: www.espulp.co.uk/about/
- Biodegradable packaging https://coffee-service.eu/en/new/packaging/bottom-opp-mat-packaging/
- Banana leaves are used in some supermarkets to pack other vegetables instead of plastic, such as Rimping Supermarkets in Indonesia. It can be a very good way to reduce packaging in the domestic and international markets. www.rimping.com/rimping_and_the_environment_a_green_grocer
- Shaping coconuts and adding easy openers to facilitate consumption of coconut water and flesh: https://genuinecoconut.com/new-genuine-coconut-drink-eat/ (This is a patented idea)
- Compostable stickers for fruits and vegetables mandatory for France from January 2022: www.purelabels.com/blog/ecofriendly-produce-stickers/



4.8.4 Labelling

Correct labelling is another basic requirement that needs to be complied with by processed fruit and vegetable suppliers. Depending on the market targeted, producers will have to adapt their labelling formats and languages. Label requirements can be found in the following links:

- European Union
  https://ec.europa.eu/food/safety/labelling_nutrition/labelling_legislation_en/food_labelling_information_system/start/select-language
- UK
  www.gov.uk/food-labelling-and-packaging
- USA
  www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-food-labeling-guide
- Canada
  www.canada.ca/en/services/business/permits/federallyregulatedbusinessactivities/labellingrequirements.html

It is important to mention, as many of the companies are exporting or willing to export processed fruit and vegetables to the EU, that the EU is taking strong actions to implement its Green Deal policy. In that sense, and as part of the Farm-to-Fork strategy, the European Commission is proposing a series of new measures that food producers, including producers of processed fruit and vegetables, will have to apply in the short term. Some of the measures are as follows.

- Reformulation of processed food, this will include maximum levels for certain nutrients (to be adopted in 4th quarter of 2021).
- Harmonised mandatory front-of-pack nutrition labelling to empower consumers to make healthy and sustainable food choices (to be adopted in 4th quarter of 2022).
- Origin indication for certain products (to be adopted in 4th quarter of 2022).
- Restricted use of "nutritious" and "health food" for products that are high in fat, salt or sugar (to be adopted in 4th quarter of 2022).
- EU legislation on Food Contact Materials to improve food safety, ensure consumers' health and reduce the environmental footprint of the sector (to be adopted in 4th quarter of 2022).
- A proposal for a sustainable food labelling framework to empower consumers to make sustainable food choices (to be adopted by).[61]

Currently in the EU, some countries' initiatives are already on the market to provide consumers with more information when they are making their food choices, for example Nutri-Score, which is a food rating system on a scale from A to E, colour-coded from dark green to dark red, depending on the nutritional quality of the food. It is already required for France.[62] More information can be found at: www.demarches-simplifiees.fr/commencer/nutri-score_enregistrement_france. It can also be applied in other countries such as Belgium, Luxemburg and Germany. To start using Nutri-Score in those countries you will need to register via the following link: www.demarches-simplifiees.fr/commencer/ns_international_registration_procedure

The European Commission has not yet accepted widespread use of the Nutri-Score system, as some country landmark products may be affected with this labelling, such as olive oil. For foreign producers, those measures could potentially become trade barriers, especially for small and medium-sized enterprise producers that will have to constantly update their product standard and labelling to meet European criteria, but at the same time they could provide an opportunity for high-quality natural food on the European market.

61 European Consumer Organisation (2021) The farm to fork strategy: The consumer view. Bruxelles: The European Consumer Organisation. www.beuc.eu/farm-fork-strategy-consumer-view#whatitisabout

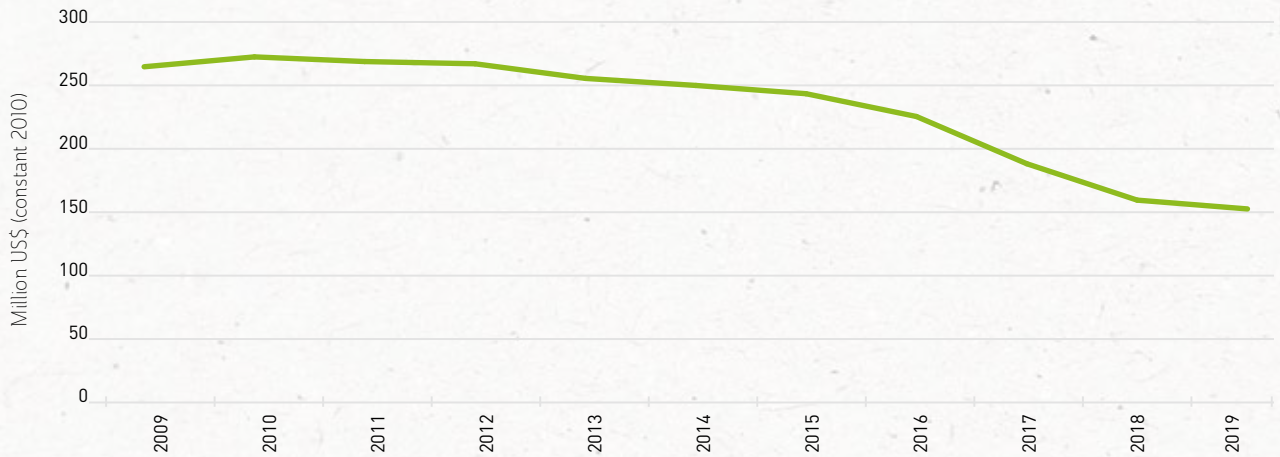
62 Drouot Avocats (2020) Nutri-Score : Nutri-Score : compulsory from 1 January 2021. Paris, 8 December. www.mandeville-avocats-agroalimentaire.fr/nutri-score---obligatoire-a-compter-du-1er-janvier-2021-_ad64.html

5 EFFECTS OF EXTERNAL PHENOMENA ON CONSUMER TRENDS AND VEGETABLE, FRUIT AND SPICE TRADE

5.1 Effects of Brexit

The UK is the main destination of ACP-Caribbean horticultural produce, especially organic bananas coming from the Dominican Republic, but also for added value products coming from the Caribbean. In recent years, the value of the UK's imports of horticultural products from the Caribbean has declined substantially from US$265 million in 2009 to US$153 million in 2019 (Figure 62). Much of this decline is due to diminishing banana exports from the Dominican Republic to the UK. Data indicate that an important part of this flow was relocated to the Netherlands and Germany.

Figure 62: *Value (corrected for inflation) of ACP-Caribbean exports of products in scope of this study to the UK, 2009–2019 (Source: COLEACP based on Eurostat)*



Before Brexit, the UK was part of the Economic Partnership Agreement (EPA) that provided indefinite duty-free quota access for Caribbean goods under preferential conditions. In 2019, the UK signed its own EPA[63] with the CARIFORUM countries which allows continuation of tariff-free access to the UK for Caribbean products (CARIFORUM–UK economic partnership agreement).

The implementation of Brexit has no direct consequences for producers; however, importers and distributors had to adapt to the changed conditions for entering the UK market – even if some of them remain similar, most documents and procedures need to be adapted.

There are greater implications for importers and distributors of fruit and vegetables from the Caribbean operating from the UK to the EU and vice versa, where new companies needed to be established in the UK to continue operations. In other words, to remain operative after Brexit a British importer of Caribbean horticultural products that distributed products to the UK and to the rest of the EU will have to open a subsidiary in the EU to remain competitive. EU importers that used to distribute goods in the UK in turn need to open a subsidiary in the UK. A Commonwealth study reveals that "Traders or distributors of CARIFORUM goods in the UK will not only be importers but also exporters if the products are to be transhipped, and will therefore face multiple layers of customs procedures … While prior to Brexit, CARIFORUM exports (whatever the first point of entry) could be freely circulated within the EU, now there will be the need to comply with border measures between Great Britain and Northern Ireland or into the EU. This includes the need to make full declarations and comply with transit procedures, as well as different SPS requirements for goods, labelling and potentially different certificates of origin".[64]

The UK used to play an important role in the distribution of Caribbean products and Brexit definitely put an obstacle to the distribution of those products: "Most Caribbean goods to the EU are shipped through the UK, and there are contentious and tiresome customs issues now and great delays. As a result, Caribbean exporters to the EU are being

63 www.gov.uk/government/collections/cariforum-uk-economic-partnership-agreement
64 The Commonwealth (2021) Impact of post-Brexit procedural rules for Caribbean exports into the UK.

advised to find alternative shipping and storage routes".[65]

Regarding the downward trend in the imports of horticultural produce from ACP-Caribbean countries to the UK, we cannot be certain that is totally related to Brexit, although from our analysis the decline in volumes of produce imported by the UK are compensated by an increase in the volume to EU27 countries, which may reflect a reduction in the volume of products that used to enter the UK for a further distribution in the EU market. In that sense, there is no real downturn in the volume of exports, but there is a change in the point of entry. These assumptions are based on data that predate the full application of Brexit. The final impact might be only measured at the beginning of 2022 once the first year of Brexit has ended.

5.2 Effects of the COVID-19 crisis

5.2.1 Impact on the food demand in export markets

One recent survey[66] observed that, during the pandemic, with the closure of food service outlets such as restaurants, cafes, bars and schools in the main ACP-Caribbean export markets, namely Europe and North America, there has been a parallel realignment of fresh produce supply chains. The demand for exotic fruit and vegetables previously dominated by the food service industry has shifted to the retail channel, with customers looking for long shelf-life fruits.

In the case of the US market, it has been estimated that there has been a roughly 25% shift in volume across supply chains. Significant modification of consumer cooking habits at home, often cooking simpler, easy-to-prepare foods while trying new recipes, has been cited as the driving force behind this shift. It has been observed that for food service distributors, there has been an almost complete loss of demand, causing many of them to face logistical challenges as they make the shift in contractual arrangements from food service buyers to food retailers.[67]

In the case of European markets, the fresh produce supply chain has remained relatively robust with consumers also moving to purchase food through the retail channel. However, changes in shopping frequency were found to vary from country to country with as much as 40% of European consumers claiming to have changed their food purchasing frequency. The highest rates of change were for frozen and canned foods, cakes and biscuits. Bread, alcoholic drinks and dairy products showed lower rates of change, and in the middle were fruits and vegetables.[68]

The impact of the COVID-19 pandemic for the transformed fruit and vegetables sector was different depending on the country and the target market. However, the impact was generally strong. Some of the consequences included the restructuring of companies to respect minimum safety distances and sanitary conditions; staff reductions; and restrictions on the mobilisation of personnel, raw materials and finished products; closures and restrictions at marketplaces; and contraction of domestic and international demand. The impact on logistics was significant and is not yet resolved. It includes the reduction of frequency and increase in price of the logistics offer. The massive reduction of available containers since early 2020 has increased the cost and the transit time for finished products, but also for supplies from producers such packaging, machinery and spare parts. A similar effect is seen in airfreight cost due to the reduction in the number of passenger and cargo flights. In the Dominican Republic, the impact was especially strong at the beginning of the crisis when the total disruption of flights suspended their exports to Canada and the EU for 2–3 months, which was solved by looking at connecting flights to reach the destinations.[69]

65 Bardouille, N.C. (2021) Towards a post-Brexit UK–Caribbean relationship.
66 Food Insight (2021) Consumer surveys: A continued look at COVID-19's impact on food purchasing, eating behaviors and perceptions of food safety. https://foodinsight.org/consumer-surveys-covid-19s-impact/
67 Richards, T.J. and Rickard, B. (2020) COVID-19 impact on fruit and vegetable markets. Canadian Journal of Agricultural Economics, 68(2): 189–194. https://doi.org/10.1111/cjag.12231
68 Janssen et al. (2021) Changes in food consumption during the COVID-19 pandemic: Analysis of consumer survey data from the first lockdown period in Denmark, Germany, and Slovenia. https://doi.org/10.3389/fnut.2021.635859
69 COLEACP, interview with a government representative (2021).

In some companies the impact has been greater, registering staff reductions of up to 50%. In companies whose sales are made mainly on the domestic market, the consequences of the crisis have been less and in a few cases the market has held up or posted growth.

In the long term, while the use of online platforms and subscriptions of food accelerated in the sector, even if some people return to old purchasing habits after the pandemic, some will rather continue to use the new proposed methods to buy their groceries. Only time will tell whether people's new habits of eating more fruit and vegetables will continue, but it is certain that COVID-19 has promoted a healthier lifestyle, and many people started to cultivate horticultural produce in their backyard during lockdown - demonstrating the capacity to produce a variety of products and reduce their food expenditure. These initiatives are not the exception in the ACP-Caribbean countries, where the pandemic has highlighted vulnerability regarding food security. A concrete action is that the Jamaican government distributed 2,500 kits to start backyard farming.[70]

Finally, during the COVID-19 crisis, both employers and employees have discovered the benefits and challenges of remote working. It seems that many companies are foreseeing that, after the crisis, employees will be able to work at least partly from their homes. As seen during the crisis, this could lead to changed patterns of consumption because of the different consumer needs when working from home instead of the office. An example is the decline in demand for ready-to-eat cut fruit that is mainly consumed during lunchtime in the workplace.

5.2.2 Impact on ACP-Caribbean states' supply chain and food demand

There is not yet any readily available official data on the quantitative impact of the COVID-19 pandemic on food and agricultural product distribution in ACP-Caribbean countries. There is, however, anecdotal and qualitative survey evidence to suggest that, across the region, the pandemic has had varied and negative impacts on food supply chains and demand.

According to FAO in its impact assessment for the Caribbean region, "containment measures and restricted mobility are an obstacle, and in some cases rightly an insurmountable hurdle for farmers, as they limit their access to markets both for buying inputs and for selling fresh produce".[71] Disruptions in the import logistics also contributed to a general reduction in availability of farm inputs.

The FAO survey further revealed that, due to government-imposed restrictions on the movement of farm hands, and despite the fact that, in some countries (e.g. Jamaica), farmers are exceptions to these restrictions, labour-intensive farming activities such as planting and harvesting of vegetables were curtailed.

The operations of major food processors in some Caribbean countries were also temporarily disrupted in terms of access to raw material inputs and labour availability. In the case of local origin food products that are normally destined to municipal markets and supermarkets (which are the principal outlets for consumers accessing fresh produce), there was limited disruption of supply and distribution chains in the initial stages of the pandemic. However, with the passage of time and more restrictions, access to municipal markets became more of a challenge to producers. Primarily because of the closing of borders and the resulting sharp reduction in tourist arrivals and hotels, food purchase through both local and import supply chains associated with the hotel and restaurant sectors was severely disrupted.[72]

On the demand side, the restricted opening hours for Caribbean municipal markets has curtailed consumer access to fresh produce. In a recently conducted CARICOM Caribbean COVID-19 Food Security and Livelihoods Impact survey,[73] over 60% of survey respondents reported loss of income and higher-than-usual food prices. There was an overall increase in the consumption of less expensive and more accessible canned, packaged and non-perishable products that are readily available from supermarket chain stores and corner shops. In many tourism-driven economies, such as the Dominican Republic, Jamaica, Barbados, the Bahamas and St Lucia, the hotel and restaurant sector, which accounts for approximately 50–60% of food imports, is currently seeing a demand for less

70 Inter Press Service (2021) La pandemia acelera la inseguridad alimentaria en el Caribe.
71 FAO (2020) Food systems and COVID-19 in Latin America and the Caribbean. Rome: Food and Agriculture Organization of the United Nations. www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1276828/
72 Hall-Hanson, R. (2020) Impact of COVID-19 on the Jamaican agriculture sector. United States Department of Agriculture Foreign Agricultural Service and Global Agricultural Information Network, 3 June. https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Impact%20of%20COVID-19%20on%20the%20Jamaican%20Agriculture%20Sector_Kingston_Jamaica_05-29-2020
73 WFP (2021) Caribbean COVID-19 Food Security and Livelihoods Impact Survey – Round 3.

fresh and processed food products. It seems that, with more and more people being vaccinated, demand for international travel is rising again. It is difficult to tell when it will be back to its pre-COVID-19 level, but there are promising signs. In the newspaper El Pais[74], Encarna Piñero, CEO of Grupo Piñero stated that "Occupancy in their hotels was lower overall in the first six months of 2021, but this is expected to change." She stresses that with what has been booked so far, occupancy rates are already up 50% compared with 2019. This positive trend will soon be reflected in an increased demand for horticultural products by the local Caribbean tourism industry.

Another observation is that institutional market segments such as school feeding programmes have experienced a fall in end-user demand. The closure of schools has resulted in an estimated 65 million schoolchildren across the Caribbean region not having had their usual form of food delivery.[75]

Across the ACP-Caribbean region, with over 60% of the population experiencing loss of income, it is estimated that, at the macro level, the number of people categorised as food insecure has increased by 57%, from 1.7 million in April 2020 to 2.7 million in February 2021.[76] The situation is most acute in poorer countries such as Haiti. At the meso level, urban households in Caribbean countries are normally economically better off compared with those in rural areas, and they have fared better during the pandemic, with many using online ordering/home delivery services to meet their food needs. However, mainly because of lack of financial means, for poor, lower-income urban and rural households, access to food markets has been a challenge. The COVID-19 pandemic has forced them to purchase cheaper foods and smaller quantities. Over 40% of people impacted by the construction and agriculture sectors report that they skip meals or are eating less than usual. Another 8-10% reported going an entire day without eating.

5.3 Climate change effects

Production in the Caribbean is constantly challenged by climate change effects, devastating crops and affecting production considerably. Tropical storms, hurricanes, floods, droughts and sea level rise are some of the main concerns for ACP-Caribbean countries. The Dominican Republic has experienced big impacts and, according to the FAO, crop yield declines of 10-25% may be prevalent by 2050 because of climate change. Extreme heat, droughts, floods, saltwater encroachment due to rising sea levels, and storms all harm agricultural productivity and cause food price hikes and income losses. In Grenada, post-Hurricane Ivan, the country's surplus of US$17 million turned into a deficit of US$54 million. The total damage and loss to the agriculture sector experienced by Dominica and Antigua and Barbuda after the 2017 hurricane season was US$212 million and US$0.5 million, respectively. There is an urgent need for the region to implement climate-sensitive agriculture to minimise the risks associated with climate change.

Climate change is motivating consumers to buy more responsibly. In that sense, some brands claim they are doing more for the environment than they actually are. This has received the name of "greenwashing". The EU is currently screening the websites of traders and exporters that claim sustainable production with no substantial basis. The EU says that in 42% of cases the claims were exaggerated, false or deceptive, and could potentially qualify as unfair commercial practices under EU rules. Some of the misused terms are "conscious", "eco-friendly" and "sustainable", which aimed to convey the unsubstantiated impression to consumers that a product had no negative impact on the environment.[77]

74 El País (2020) Dominican Republic: a tourism success story.
75 FAO (2020) Food systems and COVID-19 in Latin America and the Caribbean.
76 CARICOM (2021) Caribbean COVID-19 Food Security & Livelihoods Impact Survey. Regional Summary Report, February. Caribbean Community, Caribbean Disaster Emergency Management Agency, World Food Programme Food and Agriculture Organization of the United Nations. https://reliefweb.int/sites/reliefweb.int/files/resources/WFP-0000125496.pdf
77 European Union (2021) Screening of websites for "greenwashing": Half of green claims lack evidence. European Commission, 28 January. https://ec.europa.eu/commission/presscorner/detail/en/IP_21_269

6 SWOT ANALYSIS

6.1 For the domestic market

	Positive	Negative
Internal	**Strengths** ▪ Adequate weather conditions and availability of land ▪ Proximity to local markets, and strong incoming tourism market ▪ No need to comply with international standards and regulations for exports ▪ Goodwill consumers for buying local produce ▪ Shorter circuits (chains), lower chance of waste ▪ Lower environmental footprint	**Weaknesses** ▪ Lack of control of imported products sometimes leads to unlevel playing field for local producers ▪ High interest rates form a barrier for investments in both agricultural and food processing sectors ▪ Limited access to adequate machinery ▪ Ageing farmers and lack of interest in agriculture among younger people ▪ Low yields; for many products it is not possible to meet local demand ▪ Few organic markets or differentiated marketing strategies for organic products ▪ Lack of trained workforce
External	**Opportunities** ▪ Preference for local food (fresher), consumers' willingness to pay a premium for local food ▪ There is a movement towards healthy eating given the high rates of non-communicable diseases in the Caribbean ▪ COVID-19 has increased interest in healthier food (support immune system) ▪ Convenience is growing in importance – this means opportunities for fresh and processed fruit and vegetable producers and distributors (healthy snacking, ready-to-eat products) ▪ As part of their investment in attraction programmes, governments in some Caribbean countries have incorporated a push for the tourism industry to engage local agriculture suppliers to buy local products ▪ Increase in domestic tourism ▪ Government programmes to provide free planting material to the agricultural sector to mediate COVID-19 effects and encourage farmers to continue to produce ▪ Logistic support by government through local distributors to assist farmers to sell their produce during the pandemic period ▪ Increasing demand for coconut water, avocado, mango and other tree-based crops ▪ Change to a perspective of agri-business modelling ▪ Growing e-commerce could lead to sales of produce online locally ▪ Emerging market of subscriptions to fruit baskets for households and businesses ▪ Current low consumption of fruits and vegetables could be turned into an opportunity	**Threats** ▪ Low consumption of fruits and vegetables ▪ Low domestic purchasing power ▪ Commercial treaties cause flooding of cheaper imported agricultural products on local markets ▪ Climate change effects: hurricanes, floods, droughts ▪ Extended COVID-19 impact ▪ Companies in major trade partner countries have better access to finance, have higher capital investment levels and are technologically more advanced ▪ Uncertainty of the tourism industry: international tourists (specifically from the EU) could travel less because of their increasing awareness of climate change ▪ The tourism sector still needs time to recover from the COVID-19 crisis, causing a (temporarily) lower demand for local products

6.1.1 Conclusions and recommendations for the domestic market

The domestic market plays an important role in the Caribbean horticultural sector. The first step is to identify potential products that can replace imports; if those products are already being produced, different measures to increase yields of production should be taken. Before attaining external markets, it is important to gain volume of production in the domestic market, increasing the quality and specialising. As the ACP-Caribbean countries are very vulnerable to external events such as climate change effects, compounded by low consumption and economic difficulties following the COVID-19 outbreak, it is important that the region or every country takes measures to tackle external events and improve internal weaknesses. Some priority actions could be the following.

Actions by **governments**

- Keep promoting agricultural insurance to cover potential climate events
- Develop more irrigation systems with a rational use of water to face drought
- Keep promoting the construction of water reservoirs that could potentially store water in times of heavy rain
- Promote crops more resistant to climate effects and to pests and diseases
- Continue to provide low interest rate credit to promote agri-business and value-added products
- Keep promoting healthier diets with higher consumption of fresh fruit and vegetables and integrate local fruit and vegetables and local processed fruit and vegetables in government food programmes
- Promote, teach and incentivise more subsistence farming, which could potentially decrease the expenses of families and reduce the amount of food imported
- Facilitate access to land for new horticultural projects, promoting sustainable farming models.

Actions by **producers and investors**

- Develop more processed food and value-added products to reduce post-harvest losses and use rejected products from exports, e.g. dried fruits, lyophilised fruits, frozen fruits and vegetables, baby food, juices, fruit purée, avocado oil, cassava flour, chips (banana, plantain, cassava, taro)
- Keep developping sustainable projects with a zero-waste policy, e.g. the production of alcohol, biogas and compost from the waste of the processing plants, the extraction of essential oils from peels of citrus, subproducts with coconut husks
- Keep promoting local produce and value-added products in hotels and restaurants – this is the best way to promote national products locally with an important impact abroad
- Develop more e-commerce initiatives to cater to local convenience food demand through food boxes with or without subscription services.

Other recommendations and potential actions

- Continuous technical assistance in agri-business administration, best agricultural practices, sustainability, food safety and quality management (advice, training and coaching)
- Continue to collabore with local government access to finance programmes
- Develop more research and development for new value-added products
- Help to implement a Hazard Analysis Critical Control Point (HACCP) in small and medium-sized enterprises
- Develop more agricultural projects with young people to increase their willingness to take over agricultural businesses
- Incentivise more business matchmaking between tourism industry and producers.

6.2 For the regional Caribbean market

	Positive	Negative
Internal	**Strengths** ▪ Similar needs among some countries ▪ Adequate climate conditions and soil quality for production ▪ Some cargo sea routes for non-perishable goods (processed food) ▪ Good farming culture and strong interest in food production across the region ▪ The region generally produces good-quality products	**Weaknesses** ▪ Deficient logistic services across the Caribbean ▪ Lack of cold rooms and facilities ▪ Non-tariff barriers within the region, phytosanitary requirements are very strict in some countries ▪ FTA rules regarding 0% tariffs are not always applied correctly ▪ Tariff barriers for Dominican Republic products in some non-CARICOM markets, with whom CARICOM does have a signed FTA ▪ Language barriers among some countries (English, Spanish, Creole, French, Dutch) ▪ Similar fruit and vegetables produced among some countries
External	**Opportunities** ▪ Opportunity to establish a logistic service across the Caribbean ▪ Coconut has shown regional growth ▪ Countries in the region are relatively complementary when it comes to production of fruits and vegetables ▪ Increasing demand for processed fruit and vegetables in the region ▪ Potential for greater intraregional trade ▪ Replace important extra-regional imports such as onion, garlic, potato, pulses and beans with regional produce – since local produce of these corps at this point does not satisfy local demand, an increase in production would be needed	**Threats** ▪ Climate events can affect neighbouring countries ▪ Plant pests and diseases could be transmitted from one country to another ▪ Limited financing available to support the sector

6.2.1 Conclusions and recommendations for the regional market

The regional market still faces many important challenges in its efforts to become an important centre of development. As many countries produce similar products, it is important to identify complementary partners in the region to encourage trade and avoid overlapping production. Smaller countries have more potential to focus on value-added products, while larger countries should also focus on developing new crops, where a potential of organic production could drive the production of countries such as Guyana and Suriname. This should come with a long-term project that involves training in organic agriculture. Increased effort should be made regionally to increase and develop new connecting routes within the region and install local cold room facilities to assure good-quality products.

The correct implementation of commercial treaties and rules should facilitate trade, assuring phytosanitary security across the region.

Actions from **governments**

- Advance the implementation of commercial treaties to eliminate non-tariff barriers among members – for example, treaties between CARICOM and the Dominican Republic are not always applied correctly
- SPS requirements are not harmonised in the region, which sometimes results in a country taking years to authorise an import from a neighbouring country
- Promote and incentivise new trading routes among countries
- Identify more specific countries with complementary products
- Keep encouraging joint ventures between countries
- Provide knowledge platforms and training programmes to improve knowledge among farmers, processors and traders.

Actions from **producers and investors**

- Integrate organic food for the tourism sector
- Implement more cold storage facilities
- Provide more cold transportation services inside the countries
- Improve value chain activities.

Other recommendations and potential actions

- Continuous technical assistance to comply with phytosanitary restrictions, packaging and labelling requirements
- Funding to develop or expand production and marketing programmes across the region
- Keep seeking funding for smallholder farmers to improve their farming systems and production methods, and product quality
- Continue to provide support to assist regional governments to improve technology dissemination throughout the region
- Help to implement HACCP in small and medium-sized enterprises
- Keep advocating with regional governments to ease non-tariff restrictions and implement active trade agreements among the ACP-Caribbean countries.

6.3 For the international market

	Positive	Negative
Internal	**Strengths** ▪ Diaspora representation across the USA and Europe can facilitate the expansion of nostalgic (non-traditional) products ▪ Available land to develop organic agriculture, especially in countries with large areas of land, such as Suriname and Guyana ▪ The region generally produces good-quality products	**Weaknesses** ▪ Lack of knowledge on the correct use of pesticides and fertilisers ▪ Lack of knowledge on organic agriculture and permaculture ▪ Lack of implemented standards (GLOBALG.A.P., Rainforest Alliance, organic, Fairtrade and others) ▪ In some Caribbean countries there is a lack of organisation of the producers; in general, there are many small producers
External	**Opportunities** ▪ Increasing consumption of fruit and vegetables in the world ▪ Specifically increasing demands for produce that is traditionally produced in the Caribbean countries (avocado, mango, ginger, spices, peppers, roots, etc.) ▪ The taste of EU and US consumers for exotic produce ▪ Increased demand for niche products with organic and Fairtrade certifications ▪ Demand for Caribbean products by Caribbean diaspora ▪ Growing international market for processed fruit and vegetables: - substitutes for meat, e.g. veggie burgers - gluten-free products, e.g. cassava flour, cassava bread preparations, banana and plantain flour, breadfruit flour - vegetable milks, e.g. groundnut milk ▪ Growing demand for convenience products ▪ Growing global demand for products with a high export growth such as pineapple (359% increase), avocado (264%), tomato (226%), mango (143%), cucumber (76%), peppers (60%) and coconut (59%) have better possibilities of finding an external market. ▪ Consumers are interested in healthy food – a trend accelerated by the COVID-19 pandemic ▪ Increased interest in home cooking and baking ▪ Consumers have become more interested in slowing down and enjoying the good things in life, growing attention on mental health (importance of quality time with friends and family) ▪ Higher purchasing power of older generations in destination countries ▪ Low overlap (complementarity) in production and export of horticultural products with countries in Mercosur (Southern Common Market) and Central America[78]	**Threats** ▪ Strong continuous international competition and competitiveness of East Asian and Central American producers/exporters ▪ Relative misuse of pesticides and lack of control can lead to import detentions and export bans ▪ Frequent change of EU regulations can cause problems for farmers and structural organisations trying to enter the EU market ▪ More people consuming local products can lead to a reduction in imported goods (mainly in the EU) ▪ Overregulated markets create barriers to trade and increase the administrative cost ▪ Consumers in North America and Europe are increasingly aware of the origins of their food and the impact of their consumption on the environment ▪ Consumers in North America and Europe are increasingly aware of the social conditions in which their food was produced ▪ Consumers will hold brands accountable for their environmental footprint; packaging that is not eco-friendly could lead to consumers no longer buying these products ▪ Growing importance of environmentally friendly packaging and footprint in the EU and North America

78 FAO (2020) Agricultural trade of the Latin America and the Caribbean region: Status, challenges and opportunities. Rome: Food and Agriculture Organization of the United Nations.

6.3.1 Conclusions and recommendations for the international market

The international market for fruit and vegetables is very important for ACP-Caribbean countries, especially the Dominican Republic, the biggest exporter. A diaspora of almost 5 million people living principally in the USA, Canada and the UK provides a platform to develop Caribbean cuisine and ingredients internationally and to capture the interest of others in the products and traditions of the region. Moreover, the historical links with different European countries also creates a potential market for growth. Most difficulties lie in an overregulated market with changing conditions that require more effort and costs in producing countries. A growing demand for fresh fruit and vegetables, organic products, processed healthy food (meat substitutes, vegetal milk, virgin oils, gluten free, etc.), sustainable food and better use of resources can leave a door open to reach potential new niche markets.

Actions by **governments**

- Establish better strategies to handle pests and diseases
- Adapt local law to forbid the use of pesticides that are banned in other countries
- Incentivise the implementation of voluntary standards
- Continue to improve the framework to further develop the agriculture sector
- Develop programmes to encourage more innovation and to attract young people to the sector.

Actions by **producers and investors**

- Keep improving the yield and the quality of produce by implementing good agricultural practices
- Produce more value-added produce and products that have a growing trend in the international market
- Specialise in certain products with biggest potential for regional markets, e.g. Grenada with spices
- Develop more e-commerce platforms to reach both B2C and B2B clients in the USA and the EU.

Other recommendations and potential actions

- Continuous technical assistance to comply with phytosanitary restrictions, maximum residue levels (MRLs), pest and plague control, packaging and labelling requirements
- Assist in implementation of HACCP by small and medium-sizes enterprises
- Monitor and keep up to date with new international regulations that can affect ACP-Caribbean countries' goods
- Keep advocating for and defending the interests of the agri-food sectors at international level
- Continue to provide accurate information about production and logistic services to its associates
- Participate more in fairs and trade shows with a basket of new Caribbean products.

7 CONCLUSION

7.1 Summary for key vegetables, fruits and spices in terms of status

Crop		Market		
		Domestic	Regional	International
Fruits	Banana	C	C	C O
	Avocado	C	O	C O
	Mango	C	O	C O
	Pineapple	C O	O	O
	Other / ethnic fruits	C O	O	C O
	Coconut	C O	CO	O
Vegetables	Beans and other pulses	C O	O	
	Fresh ethnic vegetables	C O	O	C O
	Roots and tubers	CO	C O	O
	Capsicum peppers	C	C O	C O
Processed	Banana	C O	C O	O
	Fruit juices	C O	C O	O
	Pumpkin	O		
	Coconut	C O	C O	O
	Dried fruits (except banana)	O	O	C O
	Roots and tubers	C O	C O	O
	Tomato	C	C O	
Spices	Purées and condiments	C	C	C O
	Aromatic crops (ginger, nutmeg, turmeric)	O	O	CO

C = currently well-established; O = opportunity.

7.2 Final conclusions and recommendations

This study analyses current production, imports and exports of main crops and value-added products of the horticultural sector. The trends from 2009 to 2019 have been analysed in depth for the most relevant products, detecting potential markets at domestic, regional and international levels. The horticultural sector is facing many challenges such as low yields, pests and diseases, and extreme climate effects. The study also considers the impact of the COVID-19 crisis on the tourism sector, which has reduced demand and complicated access to some products in the regional and international markets.

Organisation and support of farmers

In the Caribbean, a large portion of producers are smallholders who could benefit greatly from professional organisations such as farmers' cooperatives. Currently, many of these organisations are underfunded, which reduces their abilities to support farmers. Some cooperatives, however, especially in the Dominican Republic's organic sector, are receiving annual funding from Fairtrade sales. These funds are, for example, used to provide technical support to farmers, provide them with agricultural inputs such as seeds, pesticides and fertilisers at reasonable prices, and for the construction of packing facilities.

Many cooperatives could benefit from guidance on management practices and leadership at both organisational and commercial levels. In places where there is a complete lack of properly organised cooperatives, structures should be built by facilitating the creation of professional organisations. At government and farmers' organisations level, special attention should be given to the accessibility of good-quality agricultural inputs such as seeds and fertilisers. Some countries in the region have already developed seed policies aimed at improving quality. Seed prices can also be an issue for smallholder farmers. Efforts should be made to provide high-quality seeds (and planting materials) at accessible prices. Some successful examples can be found in the coconut sector, where Guyana is making efforts to provide good-quality plants to expand plantations. Similar efforts are being made in the Dominican Republic. Regarding fertilisers, improvements could be made on one hand by organising accessible soil testing to prevent over- and under-fertilisation and, on the other hand, supporting farmers with access to affordable and good-quality fertilisers would help improve production levels. Moreover, guidance on the use of pesticides that are permitted by the international markets – to avoid product detentions and sanctions – could improve Caribbean export success.

Innovation is key

Innovation is key to overcome obstacles of the Caribbean region (lack of soil and water, and extreme weather conditions); for example, a solution found in Barbados is vertical farming. Developed inside a container under controlled environment it can produce lettuce, basil and other herbs all year round, using minimal quantities of water (up to 85% less water); it resists inclement weather and could be located right next to the market.[79]

Innovative value-added products such as vegetable meat substitutes, gluten-free flours (cassava, banana) and vegetable milks could not only reduce post-harvest losses but potentially increase local demand by entering new market segments and diversify export opportunities.

Importance of local markets

The local market is very important for horticultural produce and the linkages with tourism (including the cruise industry) and food industry have been shown to be of paramount importance in countries such as the Dominican Republic and Jamaica. Local governments should promote and incentivise these links in countries where the linkages across sectors are weak, keeping in mind the different Caribbean e-commerce initiatives developed in recent years.

Import replacements

Regarding imports, the study shows that mainly processed products such as frozen potato, dried pulses and beans, and fresh produce such as onion, garlic and potato have a higher impact on the balance of trade. If some of these products could be produced even on a small scale, building on subsistence agriculture and permaculture, a large part of these imports could be reduced, while also providing the population with larger quantities of fruit and vegetables required for a better health and quality of living. Some projects are already happening with "Irish" potato being produced in the Dominican Republic and Jamaica. A good example of replacing imports in Jamaica is Fresh & Direct,

79 Ino-gro Hydrioponic Farm (2021) www.inogroinc.com/

which is promoting the production of potato and onion. Guyana and Trinidad and Tobago are also doing tests with these crops with good results.

Trends in exports

Over the last decade, the horticultural sector registered a growth of 28%, with 18,541,000 tonnes of produce. Grenada, Guyana and the Dominican Republic registered the biggest growth trends. In international commerce, the volume of exports reduced by 17.5% and the value by 10.26% (constant US$ 2010), while the volume of imports is almost unchanged; the value of the imports has slightly increased (by 2.4%). In 2019, exports registered a value of US$857 million and imports US$938, leaving a deficit of US$81 million for horticultural produce. The drop in exports was mainly caused by tropical storms (banana), diseases (citrus fruits and juices) and reforms in the agricultural sector (papaya). As a conclusion, even while exports have dropped considerably, the increase in overall domestic production has avoided greater growth in imports.

A better implementation of free trade agreements by individual countries

From a regional perspective, there is no real dynamism in the trade relationship between the Caribbean countries, but rather a few specific transactions among some countries. The main factors blocking a better exchange are deficient logistic services (e.g. absence of cold rooms and lack of air and sea connections) and poor implementation of commercial treaties. Relaxed individual phytosanitary requirements in line with the intent of regional agreements should dynamise the flow of commerce within the region. Another explanation is the overlap in production and exports between the CARICOM countries, as identified by FAO, which does not give a strong incentive to further regional trade integration. Increase of interregional trade could lead to specialisation and increases in competitiveness, and potentially a reduction of imports from outside the region.

Opportunities on international markets

On the international market, the Dominican Republic is leading the exports of organic fresh fruits, especially bananas, and has excellent prospects with other products such as avocado, mango and even pineapple and coconut. Jamaican exports lead on roots and tubers, but also value-added products such as sauces, which are entering the international markets. Other countries such as Guyana and Suriname must work harder to have better pest and disease management and maximum residue limits (MRL) to avoid produce interception. Trinidad and Tobago is more focused on the value-added activities related to nuts and leads the region in this area.

Furthermore, from an international point of view, consumers such as EU citizens will pay more and give greater priority to socially and environmentally responsible grown produce. For producers, this is something to take into account because it will become even more important as the preference to buy and consume local products will play a bigger role in the EU consumer basket. An important initiative can be to implement blockchain, a traceability system that allows consumers to track the origin of the product through a QR code.

The untapped potential to develop large-scale organic agriculture in countries with bigger land mass, such as Guyana and Suriname, will depend on the legal security and economic stability that these countries can offer, to attract potential foreign investors who wish to increase their production from these countries. This will have to be linked to long-term policies of adequate training of farmers and guaranteeing a good logistical connection that allows them to better reach destination markets.

The EU+UK is the largest export market for ACP-Caribbean countries, while the USA is the largest import partner. This demonstrates the attractiveness of the European market despite its geographic distance and demanding regulatory requirements.

In the context of the European Union's Green Deal and Farm to Fork strategy, it will be important to support ACP fruit and vegetable value chains to ensure that EU regulatory changes do not constitute obstacles to these value chains accessing this remunerative market. The ACP-EU trade is an important contributor to the development and transformation of local agricultural systems.

The ACP-Caribbean countries have many opportunities available. However, the ability to take advantage of them will depend on the political will for intraregional cooperation among Caribbean countries, with the support of all stakeholders such as universities, research centres, NGOs and professional organisations, to realise the full potential of the horticultural sector and thereby improve the lives of all families depending on this sector.

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