



STRENGTHENING LOCAL FOOD PRODUCTION AND TRADE IN THE CARIBBEAN

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The Technical Centre for Agricultural and Rural Cooperation (CTA) is a joint international institution of the African, Caribbean and Pacific (ACP) Group of States and the European Union (EU). Its mission is to advance food and nutritional security, increase prosperity and encourage sound natural resource management in ACP countries. It provides access to information and knowledge, facilitates policy dialogue and strengthens the capacity of agricultural and rural development institutions and communities.

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STRENGTHENING LOCAL FOOD PRODUCTION AND TRADE IN THE CARIBBEAN
STORIES FROM THE FIELD

Lessons for encouraging local production in small island states

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ENCOURAGING LOCAL PRODUCTION IN SMALL ISLAND STATES

Two decades ago, countries belonging to the Caribbean Community (CARICOM) imported 54% of their food. By 2011, the figure had risen to 71% and the food import bill now exceeds US\$4 billion a year. To counter this trend, Caribbean countries have pledged to increase domestic food production and reduce their reliance on imports.

This will be good not just for the balance of payments, but for the health of their people. Imported foodstuffs may be cheap, but they are often calorie-dense and of low nutritional value. This has led to an obesity epidemic and the associated rise in non-communicable diseases, such as type 2 diabetes and various cancers.

Governments, the private sector, and small-scale farmers all have an important role to play when it comes to increasing home-grown food production, and the stories told in this booklet provide an insight into a variety of projects and programmes that are helping Caribbean islands to become more self-sufficient.

In Jamaica, a government programme has significantly increased production of potatoes and other crops. In Trinidad, the bakery trade is leading the way in substituting imported wheat flour with locally produced cassava mash. In Barbados, agritourism, which links farmers and agribusinesses to the tourist market, is supporting higher levels of production among smallholder farmers. Building sustainable and profitable value chains is one of CTA's priorities in the region and I believe that the stories told in this booklet show why there is plenty of room for optimism.

Michael Hailu
Director, CTA

BRINGING BACK LOCAL CONTROL

MOST CARIBBEAN COUNTRIES ARE BECOMING PROGRESSIVELY LESS SELF-SUFFICIENT IN FRESH FOOD AND MORE RELIANT ON IMPORTS OF PROCESSED FOOD

The Caribbean region faces two distinct – but interrelated – crises. On the one hand, the failure by governments and the private sector to invest more heavily in the agri-food sector has meant that the region's food import bill has become dangerously high. On the other, levels of obesity and non-communicable diseases have steadily risen, largely because many people are eating processed products and calorie-dense foods high in fats and sugar, much of which is imported.

Although the 15 countries belonging to the Caribbean Community (CARICOM) have made some progress in reducing undernourishment – the number of undernourished people fell from 8.1 million in 1990–92 to 7.5 million in 2014–16 – levels of obesity have risen dramatically. A 2014 study by the Pan American Health Organization (PAHO) found that 30% of children between the ages of 11 and 13 years in four Caribbean countries were overweight. In Barbados, the number of overweight or obese children doubled during the last decade.

The situation among adults is just as depressing. In Jamaica, 9% of the population between the ages of 15 and 75 years were obese in 2000; this figure had risen to 25.3% by 2008. In terms of obesity, Trinidad and Tobago is now ranked sixth in the world, with 30% of all adults being obese. Non-communicable diseases, including type 2 diabetes, cancers, heart attacks and strokes, now account for over half of all deaths in the Caribbean, and most can be attributed to poor diet and lack of exercise.

Talk to older people in the Caribbean and they will tell you that when they were young they had a relatively healthy diet, based on fresh local produce. Those days are long past, with most countries becoming progressively less self-sufficient in fresh food and more reliant on imports of processed food. Take the three countries that are the focus of this report: Barbados, Jamaica and Trinidad and Tobago. Jamaica imported 39% of its food in 1995. By 2011, it was importing 63%. Comparable figures for Trinidad and Tobago are 66% and 85%; and for Barbados, 74% and 87%. In 1995, CARICOM countries imported 54% of their food; by 2011 this figure had risen to 71%. The food import bill in 1990 was US\$1.4 billion. It had risen to US\$4 billion by 2010 and if present trends continue it will exceed US\$8 billion by 2020.

The food import bill and growing health crisis were a major preoccupation of the 14th Caribbean Week of Agriculture, held in the Cayman Islands in August 2016. “We must invest in agriculture if we are going to tackle hunger and ill health and reduce non-communicable diseases,” said Barton Clarke, the executive director of the Caribbean Agricultural Research and Development Institute (CARDI). “We need to reduce red tape, accelerate government reforms and encourage greater collaboration between the public and private sectors.”

There is nothing controversial about these views; they are widely held in the agricultural sector. As a response to rising import costs, volatile food prices,

environmental challenges and the health crisis, CARICOM countries have agreed to focus on developing and promoting specific sectors: roots and tubers, small ruminants, fruits and vegetables, herbs and spices and crops like breadfruit and plantain. The aim is to increase domestic production and reduce imports.

All of this presents a great opportunity for Caribbean farmers. According to the Caribbean Farmers Network, small-scale family farmers – the vast majority of farmers in the Caribbean have less than 2 ha of land – currently produce 60% of the region's home-grown food. They could play a major role in increasing local food production and creating greater prosperity in the countryside, where almost half the population live.

The first story in this booklet illustrates how governments can play a significant role in increasing home-grown food production. At the time of the 2008 financial crisis, when global food prices peaked, Jamaica's import food bill was US\$800 million a year. The government decided to focus on increasing the production of certain commodities, one being the potato. In 2008, Jamaican farmers were meeting just 30% of local demand. The country is now well on its way to being self-sufficient in potatoes.

The second story focuses on import substitution in Trinidad and Tobago. In 2007, the Trinidad and Tobago Agri-Business Association (TTABA) was given the task of managing the government's National Agri-Business Development »

» Programme. The programme had a major influence on food production and TTABA significantly increased the sale of locally produced, and processed, crops such as cassava, sweet potato, plantain and pumpkin. The story told here looks at the efforts to encourage bakeries to use cassava as a substitute for imported wheat flour.

The final story, set in Barbados, focuses on agritourism, on linking farmers and agribusinesses to the tourist market. Traditionally, tourist establishments – especially those at the high end – have employed expatriate chefs and served menus based on Western culinary ideas, using mostly imported food. During recent years, a growing number of establishments have begun to source their food, including indigenous crops, locally. This is creating new markets for farmers and injecting money into rural areas. It is also helping to reduce the food import bill. A similar story could be told for many other Caribbean islands. Linking agriculture to tourism, and thus promoting home-grown food production, is one of CTA's priorities in the Caribbean.



Joanna Waterman, Barbados, is one of the new breed of farmers boosting local production of crops and livestock to meet local demand and the needs of the tourism sector. Photo credit: *Charlie Pye-Smith/CTA*



Small-scale farmers, like George Allen in Jamaica, could play a major role in increasing local food production and creating greater prosperity in the countryside. Photo credit: *Charlie Pye-Smith/CTA*

CHAPTER 1

ENCOURAGING SELF-SUFFICIENCY IN JAMAICA



“Potatoes can make you or break you,” says Glen Mason, who farms in the hilly countryside in Manchester Parish. “When we get sufficient rain, a potato crop makes good money. But if there’s too much rain or not enough, you can lose a lot of money very quickly.” Fortunately, the good times have outnumbered the bad in recent years and Glen is one of some 3,000 farmers in Jamaica who are benefiting from a government programme to increase the production of potatoes.

The central parts of Jamaica, with high elevations and low night-time temperatures, have ideal conditions for growing potatoes. “Back in the 1970s, Jamaican farmers produced enough potatoes – and sometimes more than enough – to satisfy the needs of the country,” explains Dermon Spence, chief technical director at the Ministry of Industry, Commerce, Agriculture and Fisheries. “But everything changed with deregulation

in the 1990s.” As a condition of structural adjustment programmes, which provided low-interest loans, Jamaica was obliged to lift import controls and encourage a free market in agricultural goods. This led to a surge in imports of potatoes, onions, milk substitutes and various other products. The import bill steadily rose, and local production of potatoes and onions, in particular, declined.

In 2008, the global financial crisis led to a spike in food prices, with drastic consequences for countries that were heavily reliant on food imports. “We looked at the import bill – it had reached US\$800 million a year – and realised that we needed to introduce measures to increase home-grown production,” recalls Dermon. The Ministry decided to focus on crops like potatoes and onions, which had a long history of production and for which there was plenty of technical expertise. It also

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Back in the 1970s, Jamaican farmers produced enough potatoes to satisfy the needs of the country

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wanted to target areas where there were strong farmers’ organisations. The National Irish Potato Expansion Programme has proved a resounding success, with the level of self-sufficiency rising from 32% in 2008 to 90% by 2014.

Working with farmers

The person in charge of the programme on the ground is Locksley Waites of the Rural Agricultural Development Authority (RADA), the national extension agency. “My job is to see that we produce 33 million pounds [15,000 tonnes] of marketable potatoes this season,” he says as we make our way up the steep hills in Manchester Parish. “That is the amount we will need to be self-sufficient in table potatoes.” Locksley almost lives in his pickup, overseeing training programmes and making sure that there is close collaboration between everybody involved in the potato value chain, from farmers through to input suppliers and buyers.

Too little rain in the 2015/16 growing season meant that production fell short of the target. However, approximately 2,800 farmers still achieved average yields of 12.5 tonnes per ha on 1,000 ha of land, which meant that Jamaican farmers managed to produce 84% of the potatoes consumed locally. During the 2016/17 season, Locksley hopes that the programme will push yields up to 18 tonnes per ha. With some 2,800 farmers growing potatoes on 1,200 ha of land, the country would achieve the target of self-sufficiency.

Farmers are being supported in three main ways. They are being provided with comprehensive training on good agricultural practices, the use of fertilisers and pesticides and post-harvest storage. The government is giving direct financial support in the form of inputs required, and is also facilitating market linkages with local traders. “The Ministry people have been very helpful,” says Glen Mason. “In the past, I often had problems with blight and other diseases. The training programmes have given me a much better understanding of how to look after my crop. I have always grown potatoes,

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It is hoped that Jamaica will once again be self-sufficient in potatoes in 2017



but I have now expanded the area under production.”

Like most farmers, Glen plants two crops of potatoes a year. For the first crop, he uses seed potatoes retained from the previous harvest. These are planted in August or September and harvested at the end of the year. The second crop, which provides a larger yield, is planted using seed potato imported from the Netherlands and harvested – or reaped as they say in Jamaica – in May or June.

Like most of the farmers in Manchester Parish, where 70% of Jamaica’s potatoes are grown, Glen favours a high-yielding variety called Spunta, which can tolerate a certain degree of drought. To enrich the soil, he applies chicken manure and grazes his beef cattle in the fields between crops. He also buys mineral fertilisers. Ideally, says Locksley, farmers should leave a gap of 3 years between potato crops to reduce the risks of pests and diseases, but most have much shorter rotations.

A few minutes’ drive away from Glen’s farm, after a zigzagging journey up and down steep hillsides, we come to a patchwork of sloping fields rented by George Allen. Potatoes, he explains, are his most profitable cash crop. He also grows yams, sweet potatoes,

carrots and cassava. He first received training in potato cultivation 6 years ago. “Before then, if I planted 100 pounds of seed potatoes, I would reap 600 pounds,” he says. “Now, if I plant 100 pounds of seed potatoes I get at least 1,000 pounds.”

During the 2015/16 season, RADA organised 20 training sessions, each attended by 60 to 70 farmers. Although the sessions are overseen by its technical staff, an important role is played by Fersan and Agrograce, suppliers of fertilisers, seeds and pesticides, and by the Canadian-funded PROPEL (Promotion of Regional Opportunities for Produce through Enterprises and Linkages) project, which has established or supported demonstration plots and organised farmer field schools.

Every farmer you talk to will tell you that potatoes are a high-risk crop. It is not just the vagaries of the weather they have to cope with; inputs have become very expensive and labour costs in the Jamaican countryside are high. In addition, the theft of livestock and crops is an ever present problem. Faced by all these challenges, government support has been essential. “We appreciate the help provided by the government – both in terms of training and contribution to buying inputs – and it has encouraged us to increase the amount of land where we plant potatoes,” explains Lawrence Brown, a farmer in Devon District. He reckons that he and his neighbours have doubled the area devoted to potatoes since 2008.



Spunta potatoes, a Dutch-bred variety that performs well in Jamaica. Photo credit: Charlie Pye-Smith/CTA



Farmers like Glen Mason are benefiting from a government programme to increase production of potatoes in Jamaica. Photo credit: *Charlie Pye-Smith/CTA*

Key role for the buyers

Farmers like Lawrence either sell their crop to higglers – small-scale traders who travel around the countryside – or to the Potato and Onion Producers Association of Jamaica (POPA), which offers contracts to farmers for their marketable potatoes. “It all depends who offers the best price,” he says. Each year, the Ministry suggests a guide price – around J\$50 per pound (€0.80 per kg) in 2016 – and most farmers expect to get that or a bit more.

When the Ministry announced that it was going to launch a potato development programme, companies that had been involved in importing potatoes decided to set up an association to engage with farmers. “We came together out of self-interest so that we could source local potatoes for the Jamaican market,” says Clifton Campbell, vice-chairman of POPA. “Farmers are always saying that they have difficulty marketing their produce, and we realised that we could step in to help.”

POPA has taken a very flexible approach to developing relationships with farmers. “At the beginning of the season, we sign

agreements to buy their potato crop, specifying what we will pay and the quantity we will take,” explains Clifton. The farmers then know they have a guaranteed market. There is another advantage too: farmers can use their agreements as collateral to apply for bank loans.

Small-scale farmers often do not have sufficient money to buy the inputs they need, such as fertilisers and seeds. If that is the case, they can sign a different sort of agreement, either with POPA or its individual members, under which the latter agree to supply inputs. The buyers recoup the costs when they pay the farmer for the harvested crop. “Our arrangements have worked very well so far, both for us and for the farmers,” says Clifton. “I like the idea of increasing local production, because it is good for the country and we have a greater degree of quality assurance than when we import potatoes.” It is also good for customers as Jamaicans much prefer the taste of home-grown potatoes to those imported from the Netherlands and elsewhere.

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Farmers are always saying that they have difficulty marketing their produce – POPA helps

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Manchester Parish provides excellent growing conditions for potatoes and is home to 70% of Jamaica's potato production.
Photo credit: *Charlie Pye-Smith/CTA*

A work in progress

At present, Jamaica imports some 8,000 tonnes of French fries a year, most coming from the USA and Canada and a large proportion destined for the hospitality and fast-food sectors. Now that the country is almost self-sufficient in table potatoes – and could be a net exporter soon – the Ministry is turning its attention to reducing imports of French fries. “We are currently carrying out field trials with 19 new varieties – some of them table potatoes and some which are ideal for frying,” says Locksley Waites. “Lots of farmers are willing and waiting to grow them once

we’ve identified which perform best under the conditions in Jamaica.”

The potato programme is an outstanding example of import substitution. Good progress is now being made with onions as well. In 2013, Jamaican farmers satisfied just 6% of the country’s requirements. By 2015, this had risen to 12% and Dermon Spence hopes the figure will rise to 40% by 2017. Jamaica is now also self-sufficient in yams, sweet potatoes and eggs and well on the way to becoming self-sufficient in chicken meat and pork.

Over the coming years, greater efforts will be made to reduce imports of wheat flour. This will be done by encouraging bakeries and the fast-food sector to use root crops such as cassava and sweet potato. More on this subject in the next chapter, which focuses on Trinidad.

CHAPTER 2

ADDING VALUE IN TRINIDAD



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Root crops were seen as having real potential to displace imported carbohydrates, such as wheat flour

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One of the most popular items on sale in the Chee Mooke Bakery, a short distance away from Port of Spain’s Catholic Cathedral in Independence Square, is the 22 ounce (624 g) big roll, which looks like a fat version of a French baguette. “When we launched it in 2009, there was a very positive customer response,” says bakery owner Stokely Phillips. “It took off straight away. I think it has a better taste than pure wheat bread, and it’s got more fibre, less gluten and lots of vitamin B.” That’s because the roll is made with 50% cassava mash and 50% wheat flour.

The bakery developed this and other cassava-based products in collaboration with food technicians from the Trinidad

and Tobago Agri-Business Association (TTABA), which at the time was managing a programme whose aim was to increase local food production and reduce imports of wheat, rice and potatoes by 25%.

“Root crops were seen as having real potential to displace imported carbohydrates, such as wheat flour,” says Vassel Stewart, TTABA’s first CEO and now director of the Caribbean AgriBusiness Association (CABA). “The Caribbean is still spending around US\$800 million a year importing wheat, rice, corn and potatoes. Expanding the production and processing of root crops could help to reduce this. I think TTABA’s experience shows how this could be done.”

Boosting home production



Stokely Phillips, owner of Chee Mooke Bakery, with some of his cassava-based bread products. Photo credit: Charlie Pye-Smith/CTA

The story begins with the closure of Trinidad’s state-owned sugar company, Caroni Ltd. Having lost vast sums of money during almost three decades of state ownership, the government decided to shut down the company in 2003. As part of their compensation package, 7,000 workers were given 0.8 ha plots of sugar-cane land to develop their own agricultural enterprises. To make best use of newly released land, which also included some larger farms, the government launched a National Agri-

Business Development Programme. TTABA was given responsibility for managing the programme.

Approximately 17% of the budget was allocated to research and development; 22% to establishing pilot commercial enterprises; and 15% to purchasing supplies from farmers. By 2011, around 300 farmers were regularly supplying TTABA with a range of crops, and more than 200 companies were buying TTABA’s processed goods. Much of TTABA’s success was based on the close links it forged with the private sector. For example, it worked with Kentucky Fried Chicken and Subway to develop sweet-potato French fries, which were used as a substitute for imported fries made from potatoes. TTABA also became a major supplier to hotels and restaurants, as well as 34 bakeries.

“I think the greatest impact we had was with bakery products,” reflects Vassel. Initially, TTABA processed raw cassava into cassava flour, but this was much more expensive than wheat flour. After further trials, TTABA’s food technicians developed a cassava mash, which was cheaper to produce than cassava flour. Working with bakers like Chee Mooke, the technicians conducted trials with different mixtures and found that a 50:50 combination of cassava mash and wheat flour made an excellent loaf. Cassava mash is also used to make cookies, cakes, muffins, buns and other bakery products – all healthy alternatives to pure wheat products.

To ensure a steady supply of raw material, TTABA worked closely with farmers and helped to establish 15 associations whose members farmed around 2,400 ha of land. It also set up nine organisations that focused on specific commodities, such as cassava, sweet potato, plantain and pawpaw. During the first 5 years, TTABA introduced 11 new varieties of cassava and provided technical advice

to growers. The use of new varieties, improved cultivation methods and the pretreatment of cassava cuttings to achieve better rooting enabled some farmers to increase their yields by a factor of four.

Besides selling direct to TTABA, many farming families were involved in processing. For example, Parbatie Ramsarup, whose family has some 120 ha of fertile land half an hour’s drive from TTABA’s processing plant in Freeport, recalls the time when they employed 30 local people on a daily basis to peel cassava for TTABA. “I think we did a better job than the people in their factory, because we were all farmers, and we knew how hard farmers work to grow crops, so we were very careful how we peeled,” she says. At one time, TTABA’s suppliers provided direct employment at the farm level for 1,150 people, as well as 1,500 temporary jobs during harvesting time

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A 50:50 combination
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A bright future for cassava

In 2011, TTABA employed some 200 staff and had annual sales of TT\$12 million (€1.6 million). It could process 1.5 tonnes of cassava and 4 tonnes of fruit or vegetable purée an hour at its three main plants. And it had TT\$20 million (€2.75 million) in the bank. “We were in a very strong position, with plenty of contracts supplying fast-food chains and supermarkets, as well as hotels and restaurants,” recalls Vassel. Although there had been a change of government in 2010, the new agricultural minister was very supportive of TTABA. However, his replacement in 2012 led to the departure of the CEO and the appointment of a new board of directors.

As a result of mismanagement and the withdrawal of government support, TTABA had to lay off most of its staff and sell many of its assets. By 2014, it was on the verge of bankruptcy. However, all is not lost. Vassel Stewart was invited to return as a consultant and he has been given the task of preparing the company for sale to the private sector. It is still sourcing crops from a dozen farmers and has 20 or so accounts. Drop in at any of the larger supermarkets in Trinidad and you will find a range of TTABA products: bread made with cassava and plantains; papaya tomato ketchup; sweet-potato crinkle fries; cassava cubes; coconut water. All these products are made from crops produced by Trinidad’s farmers.

Elsewhere in the Caribbean, Barbados has been particularly successful in its quest to increase the use of cassava in the bakery business. One of the aims of the state-owned Barbados Agricultural Development and Marketing Corporation (BADMC) is to develop non-sugar agriculture and increase the use of marginalised crops such as cassava. “Collaboration is very important,” says BADMC food production manager Carlton



Processing cassava. Photo credit: *Charlie Pye-Smith/CTA*

Batson. “We can’t do this alone, and we are working closely with farmers and processors.”

Purity Bakeries Ltd, which has 65% of the market share in Barbados, has achieved 40% replacement of wheat with cassava in its sandwich loaf and Great Cake. “Using cassava makes commercial sense, and it’s also good for our customers’ health,” says sales and distribution manager Christopher Symmonds. “Our cassava products not only taste great, they’re low in sugar and salt and very nutritious.”

CTA has promoted the use of cassava as a substitute for wheat at agribusiness fairs in the region, as well as in Europe. The topic was also on the agenda at the 3rd Caribbean Agribusiness Forum, held in January 2017. Purity Bakeries has received training from CTA and the ACP-EU Overcoming Technical Barriers to Trade (TBT) programme in certification and quality management.

BADMC and Purity are members of the Cassava Value Chain Committee, which is chaired by the Barbados Office of the UN Food and Agriculture Organization (FAO). Other members include the Caribbean Agricultural Research and Development Institute (CARDI) and CABA. The committee aims to encourage the use of cassava throughout the region and has recently been involved in training bakers in Barbados, Belize, Guyana, St Lucia and several other countries. According to FAO, home-grown cassava could replace 400,000 tonnes of wheat flour in CARICOM countries, as well as a significant portion of the maize used in poultry rations and other animal feeds.



Ramgopaul Roop and his wife, Beena, have transformed former wasteland into a thriving smallholding. Photo credit: *Charlie Pye-Smith/CTA*

Restoring Trinidad's exhausted soils

In central Trinidad, there are thought to be around 100,000 ha of acidic heavy clay soils. Much of this area was once devoted to sugar. "Restoring these soils is a priority if we want to grow more food," says Ramgopaul Roop, a former extension agent with the Ministry of Agriculture and now a successful farmer in his own right.

A sprightly 69-year old, Roop has created a fertile and productive oasis on land that used to be part of a World War II military base, a few miles from Freeport. This is in stark contrast to his neighbours, most of whose land is smothered with weeds and scrub. One property, immediately next to Roop's farm, looks like an abandoned quarry full of old junk, although it is actually a pig farm.

Roop's parents, neither of whom could read or write, originally came here as squatters; eventually, along with 100 other villagers, they were given title to a 1.2 ha plot, where they grew sugar and vegetables. Roop and his wife Beena

took over the farm in the 1970s. "The land was very acid, desiccated in the dry season and waterlogged in the wet," he recalls. "So, with the assistance from the research division of the Ministry of Agriculture, we set about various measures to improve the soil."

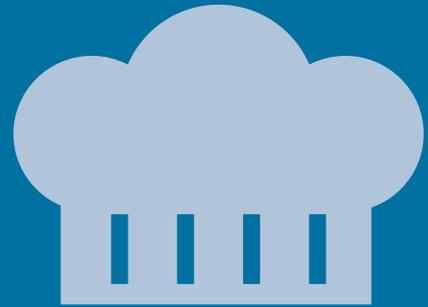
They added crushed limestone and increased the organic-matter content of the soil by mulching with weeds and crop waste. Within a year, the pH of the soil had risen from 3.65 (highly acidic) to 6.38 (near neutral). They dug a large pond, which supplies irrigation water during the dry season, and they have sought to keep the soil covered at all times as a way of retaining moisture. They planted fruit trees, including breadfruit, coconut, mango and pomegranate, and they have surrounded the smallholding with a thick hedge of Caribbean pine, cedar, neem and bamboo. "I wanted to make the place look good, to create a step towards paradise," says Roop.

Since 1987, Roop and Beena have been able to make a living from this small plot of land. A few years ago they built a fine new house – the youngest of their three sons and his family live on the top floor – and they recently switched from growing annual crops to perennial tree crops. Over the past 10 years, Roop has been supplying up to 12,000 fresh limes a week to NAMDEVCO, a state-owned marketing company that distributes to the PriceSmart chain of stores.

At present, Trinidad imports 85% of its food. If it is to reduce this figure, more will have to be done to improve the country's degraded lands. Roop and Beena have shown how and are helping train a new generation of agripreneurs – Rocrops Agrotec, as their smallholding is called, has become a demonstration farm where students, researchers, farmers and extension agencies can learn about the best ways of managing this sort of land.

CHAPTER 3

PROMOTING AGRITOURISM IN BARBADOS



Barbados is the wealthiest nation in the Caribbean, largely thanks to the tourist industry. Every year over a million people visit the island. Around half spend an average of 10 days on the island; the rest come on cruise ships. The sheer weight of numbers has serious implications for the food and farming sectors.

Almost 90% of the food consumed in Barbados is imported. Much of it goes to hotels and restaurants, but the local population also relies heavily on imported food. Unfortunately, much of it comes in the form of calorie-dense carbohydrates and processed foods, high in fats, salt and sugars. A poor diet, combined with a lack of exercise, has led to Barbados becoming – as one chef puts it – the diabetes amputation capital of the world. According to the Pan American Health Organization (PAHO), at least 14% of the population suffers from diabetes. High levels of obesity – Barbados ranks 14th in the world – are also responsible for high levels of other non-communicable diseases, including cancers and heart attacks.



During recent years, many hotels and restaurants have reduced the amount of imported food they serve and bought more produce from local farmers. This may not have a direct bearing on the health of the local population, but it is helping to establish agricultural value chains that will benefit Barbadians and reduce the country's food import bill, which currently stands at over US\$300 million a year.

Richard Archer, of Archer's Organics, is producing 16,000 heads of high-quality, organic lettuce each week for the high-end restaurant market in Barbados. Photo credit: *Charlie Pye-Smith/CTA*

Promoting agritourism



Chefs like Dane Saddler of Caribbean Villa Chefs are sourcing ingredients from local producers and creating unusual dishes such as pulled-pork and breadfruit lasagne. Photo credit: Dane Saddler

When Ena Harvey was appointed as Barbados representative of the Inter-American Institute for Cooperation on Agriculture (IICA) in 2002, the director general asked her to establish a special project on agritourism linkages. Since then, IICA has devoted much time to linking farmers and processors with restaurants and hotels, and many leading chefs are now playing an important role in the agritourism movement. “In collaboration with CTA, we have been encouraging chefs to become advocates for food and nutritional security, and to promote local produce in their cuisine,” says Ena. “By doing so, they can support our farmers and reduce food imports.”

One of the best-known chefs in the region is Peter Edey, whose culinary programmes, such as ‘Cooking the Bajan Way’ and ‘Caribbean Cuisine’, regularly attract over 15 million viewers in the Caribbean and North America. Trained at the Ecole Ritz Escoffier in Paris, Peter is one of a select number of internationally qualified executive chefs in Barbados. He is also a passionate promoter of local cuisine.



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Rustic must become the new elegant

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“It’s got to the stage where many young people think hamburgers and chicken burgers are our national dishes!” he says indignantly. “I source as much food as I can locally and stress the importance of developing and building on our local cuisine. One of the great things that came out of slavery is our food. It taught us how to make the best use of the cheapest cuts of meat and how to create wonderful flavours.”

Peter’s culinary competitions for aspiring young chefs have proved hugely popular, both with those participating and those watching on television. He also runs a culinary school, from which 120 people from across the Caribbean will graduate this year. “It’s still difficult to get regular supplies of carrots, cabbages and many other things we need,” says Peter, “but over 80% of the food used in the competitions is locally sourced.” In his four restaurants and his catering business he makes as much use as he can of cassava, yam, breadfruit, sweet potatoes and other crops grown by local farmers. Expatriate chefs, he believes, have been too influential, both in terms of the menus they have created and attitude towards food presentation.

“Rustic must become the new elegant,” he says. “Diners need to accept that local vegetables don’t always come in a uniform shape, size and colour.”

Peter Edey shared his experience at the Brussels Briefing on the potential of tourism markets and the role of young chefs in promoting local food, held in September 2016.

Kirk Kirton, executive chef at the exclusive Fairmont Royal Pavilion, is Barbados born and bred, the 10th generation of his family on the island. During a spell in London, he worked as a sous chef in Nico Ladenis’s 3-Michelin-star Chez Nico restaurant, and later as head chef at Ladenis’s Incognico brasserie. Since his return to Barbados, he has been a keen supporter of local food. “We chefs all want great fresh ingredients – food you can paint a plate with,” he says. “Fresh produce always tastes better than imported produce, and it has a much longer shelf life.”

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Diversity is the name of the game for small-scale producers like Joanna Waterman. Joanna is supplying several chefs with free-range eggs and a range of vegetables and will soon have lambs for sale from her Barbados Blackbelly ewes. Photo credit: Charlie Pye-Smith/CTA

Consistency of supply is a major issue, and one of the reasons why many chefs are forced to rely on imports. On an average day in the high season, Kirk and his team will serve around 100 people for breakfast, 60 or 70 for lunch and 80 for dinner. Whether it's pawpaw for breakfast, asparagus for lunch or chicken for supper, he needs sufficient quantities and regular supplies. However, many local farmers fail to understand the importance of staggering production. He cites the case of an asparagus farmer who produces a superb product, but harvests the entire crop during a short period of time. It tastes wonderful, and lasts much longer than imported asparagus, but a glut means that the farmer doesn't get the price he would like. As for his customers, they still depend on imports for much of their supply.

Kirk believes the problem stems from what he calls the neighbours' system. A farmer sees that his neighbour has done well with, say, sweet potatoes or pumpkins and decides to grow the same crops. As a result, there is frequently oversupply. "Farmers need to work out what the market requires at any one time," says Kirk. "At the moment there is no coherent agricultural plan for Barbados. We need to look at the import bill, engage agronomists and work out what we should grow, where and when."

One hotelier has taken matters into his own hands. When Mahmood Patel, best known in the Caribbean as a filmmaker, tried to source food locally for his restaurant at Ocean Spray Beach Apartments, he found it impossible to get reliable supplies. He solved the problem

by buying a 22-ha forest, Coco Hill. Here he grows banana, papaya, pineapple, lettuce, pepper, ginger and turmeric. He has also begun raising chickens, both for eggs and meat. "I now serve very little imported food in the restaurant and expect to be even more self-sufficient soon," he says with satisfaction.

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We have been encouraging chefs to promote local produce in their cuisine

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Farming for the future

Damien Hinds, IICA's national programme technical officer in Barbados, works closely with farmers and farmers' cooperatives and he is impressed by the changes he has witnessed during recent years. "We are seeing the emergence of a new breed of farmers in Barbados who are thinking about what consumers really want, and adapting their farming strategies to suit the market," he says.

Take, for example, Richard Archer. After working for 20 years in the multimedia business, Richard spent 10 years growing mangoes before establishing an aquaponics enterprise on an old sugar-cane estate. Aquaponics is similar to hydroponics, in that it involves growing plants in a soil-less liquid medium. It differs in that hydroponic farmers add nutrients, whereas aquaponics relies on the process of nitrification, with bacteria converting ammonia excreted by fish – tilapia in this case – into nitrates. It is also more efficient in terms of resource use. "While two gallons [9 litres] of water are required to grow a head of lettuce in a hydroponic system, just a teacup or so is all that's needed in an aquaponics system," explains Richard. "On an island like Barbados, where there is a serious freshwater shortage, aquaponics makes a lot of sense."

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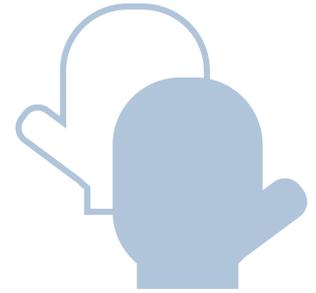
We are seeing the emergence of a new breed of farmers in Barbados

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At Hopewell Plantation, Archer's Organics has 16 troughs covering 370 m². Each is capable of supporting 1,750 individual plants, and Richard staggers production so that he has an output of around 6,000 heads of lettuce a week. The company is supplying around 16 chefs, including Kirk Kirton at the Royal Pavilion. "My lettuce is a bit more expensive than conventionally produced lettuce, because of the costs of production, but the chefs will tell you that it's worth it," says Richard. "It's got excellent flavour and texture and it lasts up to three times longer than lettuce grown in the soil." He hopes that one day every parish in Barbados will have at least one aquaponics enterprise.

Innovation is very much in vogue in Barbados and the island's first commercial freshwater fish farm was established by Kristina Adams in 2015, also on the Hopewell Plantation. Using a recirculating aquaculture system, Kristina's six tanks yield around 227kg of tilapia a week during the tourist season and 114kg throughout the rest of the year. These are sold direct to supermarkets. This is proving a good earner, and the business will be even more profitable once her crawfish come on stream. "Whenever I bring chefs here, they get super excited about the crawfish," she says. Instead of importing them frozen, the chefs are looking forward to buying them fresh.

Other farmers are also cultivating close relationships with the island's chefs. Joanna Waterman recently made a sudden switch of career, having tired of investment banking. Shortly after moving to St Thomas Parish, she grew a tremendous crop of cabbages, broccoli and cauliflower in her back garden. Emboldened by her success, she signed up for a 6-month Youth Agri-Preneurship Incubator Programme run by the Ministry of Agriculture and took on the tenancy of 1.6 ha of land near her home. In early 2016, she hired contractors to clear away the scrub and plough the land.



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My aim is to produce what everyone else isn't producing

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Within a few months, she was supplying restaurants, bakeries, supermarkets and the general public with a range of products. By October, she had harvested her first crops of zucchini, cabbage and watermelon. She gets over 400 eggs a day from her flock of free-range hens and she's looking forward the first batch of lambs from her 10 Barbados black-bellied ewes. She's also planning to set up an 800-bird free-range broiler chicken unit.

"Before I really got going I did some market research," she recalls as she walks us round the livestock pens, all constructed with second-hand wooden pallets. "My aim is to produce what everyone else isn't producing." She visited chefs at Sandy Lane and Fusion, two of the top places to eat in Barbados, as well as Kirk Kirton. "They told me what they wanted – English cucumber, scallop squash, honeydew melon, spinach – so that's what I'm growing now." Just before our visit, she received a call from Sandy Lane saying they could take 18 kg of spinach a week. "I told them: 'I'll try my best!'" When she met Kirk, he told that he would love to buy her zucchini, and that she should harvest them when they are young.

Working together

Several cooperatives provide high-quality food to restaurants and local families. The oldest of these, St George Farmers Marketing Co-operative Society, runs a busy shop at the Glebe, a settlement near Bridgetown, selling a wide variety of vegetables and fruit to the general public. Away from the coast and up in the hill country, the Addis Alem Cooperative Society Ltd, which was established two years ago by members of the Rastafarian church, is gradually expanding its activities. Most of its 20 or so members have benefited from training programmes organised by IICA. These have helped them to increase their productivity and improve their post-harvest handling. They have also received training in agro-processing and they sell a range of spicy sauces and ketchups.

The sales of organic food have been steadily growing in Barbados, stimulated by an increase in demand from



The Organic Growers and Consumers Association is helping its members connect with the growing market for organic food in Barbados. Photo credit: Charlie Pye-Smith/CTA

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Sales of organic food have been steadily growing in Barbados

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tourists and retired local professionals. One organisation that is taking advantage of this burgeoning market is the Organic Growers and Consumers Association (OGCA), which was founded in 1997. It currently has 20 active members, some with small kitchen gardens, others with larger farms. “There’s a lot of challenges to being an organic farmer,” says its secretary, John Hunte. “You have to tackle pests and diseases without chemicals. It’s hard to get organic feed for livestock. And labour costs are high.” Nevertheless, organic production continues to grow, year by year.

Many OGCA farmers sell direct to hotels, restaurants and markets. The cooperative has also established its own shop, which was selling cucumbers, sweet potatoes, pumpkins, pomegranates, cassava, okra and tomatoes when we dropped by one morning. “By around 11.30, we will know exactly what vegetables we have, and I’ll send a WhatsApp message to various chefs so they can put in their daily order,” explains John.

One of John’s neighbours is Dane Saddler, who worked in some of the island’s top restaurants – his last full-time post was head chef at the Hilton – before setting up Caribbean Villa Chefs. With the support of CTA, Dane has shared his experience across the region and exchanged best practices with chefs in the Pacific islands. His company provides chefs for villas and restaurants and catering for corporate entertaining and special events, such as the 2016 Barbados Food and Rum Festival. “The best part of being a chef is the challenge of being creative with local

food,” says Dane. “Foreign tourists are now much more likely to demand local food than in the past. They haven’t come all this way to eat fish and chips and many want an authentic local experience.”

Dane caters for the needs of health-conscious locals as well as the tourist market. Many local families take advantage of his pre-cooked food delivery service. Dishes are largely based on local ingredients. “These are some of the ones we’re preparing this week,” he says, bringing up some photographs on his iPhone. They include sweet-potato and pulled-pork lasagne, a gluten-free dish made with local fresh ingredients; and pepper steak with breadfruit mash.

“What you see in Barbados is happening across the Caribbean,” says IICA’s Ena Harvey. When Peter Edey and a dozen or more chefs met at the 14th Caribbean Week of Agriculture, held in the Cayman Islands in October 2016, they agreed to establish a new culinary network. The Caribbean Culinary Alliance was subsequently launched by IICA, CTA and leading chefs such as Peter Edey. This will help to promote local food, create closer links with farmers, organise events and provide training for young people in the culinary arts. As a result, says Ena, the agritourism movement can only get stronger.

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Stories
from the field

STRENGTHENING FOOD SECURITY IN THE CARIBBEAN



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