



Caribbean health

Diversity in local food production to combat obesity

In the Caribbean region, the combination of increased imports of processed foods and limited consumption of healthy foods, such as fresh fruit and vegetables, has contributed to a growing problem of obesity. Around 30% of the adult population is estimated to be obese, and rates of overweight or obesity in children (around 25%) are increasing rapidly.

In response, the *Farm to Fork* project - a multi-sector, integrated approach to food and nutrition security in the Caribbean - has worked with smallholder farmers in St Kitts-Nevis and Trinidad and Tobago, and in Guyana and St Lucia to develop year-round production of fruit and vegetables in order to supply the national school feeding programs, as a step towards improving children's nutrition and dietary diversity. This is in line with regional interventions such as the Jagdeo Initiative (2005), the Caribbean Regional Food and Nutrition Security Policy (2010), and Trinidad and Tobago's Medium Term Policy Framework (MTPF).

Project interventions have included a focus on drip irrigation, post-harvest quality management and new crop varieties, and have had a significant impact on production of tomatoes, string

Did you know?

- The World Health Organization recommends that children should eat 400 g of fruit and vegetables per day.
- Drip irrigation can provide the entire water requirements for vegetable crops using 40-50% less water.
- About 60% of the tomato harvested in St Kitts-Nevis is lost due to on-farm spoilage, sunlight, high temperatures and inappropriate handling at retail level.
- Simple techniques like plastic wrapping can triple post-harvest shelf life of vegetable crops.
- A 1 hectare area of mulato grass can feed up to 70 sheep and goats for six months in the dry season.

beans, pumpkins, and several other vegetables. Year-round production of sheep and goats has also been enhanced through the introduction of a nutritious, drought-tolerant forage crop, mulato grass. Additional policy support is now needed to strengthen farmer groups and institutional systems, revise incentive programs for greater productivity, encourage procurement and consumption of local produce by public institutions and the population, and enhance research efforts towards local food production.

What are the issues?

Over the past decade there have been consistent efforts in the Caribbean to improve the efficiency and diversity of the agriculture sector. In this context, the *Farm to Fork* project has emphasized a number of constraints in the areas of production, marketing and institutions that continue to impede the sector and which deserve attention. Through its interface with farmers and other stakeholders, the project has also identified some of the gaps in the key food and nutrition security policies and programs being implemented by governments. The policy recommendations in this brief address some of these gaps.

Production

Smallholder productivity in the Caribbean is hampered by small-scale operations and poor farmer organization, resulting in higher production costs and inconsistency in supply. Traditionally, Caribbean production of fruit and vegetable crops has been rain fed and seasonal, with limited production during the dry months. In addition, farmers' use of irrigation technologies to address this challenge has been minimal, with high costs of imported equipment being a major constraint. A similar pattern applies to production of forage for small livestock; in the dry months, natural pastures are unable to provide sufficient energy and protein



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Drip irrigation applies small amounts of water directly to the root zone to save water

to sustain animal performance, severely limiting year-round productivity.

Surveys in Guyana, St Lucia, St Kitts-Nevis and Trinidad and Tobago indicate that just 2% of farmers irrigate their crops, and where irrigation is used (such as in greenhouse production), productivity is frequently low due to poor operational knowledge. Post-harvest losses also undermine much horticultural production. In St Kitts-Nevis, an evaluation of production and retailing practices in the horticulture supply chain revealed post-harvest losses of up to 60%.

Poor availability of locally adapted crop varieties also weakens production. While a wide range of vegetable varieties are accessible by local producers, identification and evaluation of appropriate high yielding, heat tolerant and acceptable varieties has been lacking. In response, Trinidad and Tobago's National Food Production Action Plan 2012 identified research and development as a key strategy for improving production. Up to now, however, efforts have been fragmented, with poor cooperation among institutions. As a result, adoption of new crops has remained low, and yields for vegetables are typically lower than international norms. Yields of greenhouse tomatoes, for example, average 4-7 kg/plant in Trinidad compared to international benchmarks of 9-14 kg/plant.

Marketing

Beyond these production issues, the sector suffers from poorly developed marketing systems. Few farmers have contractual arrangements with retailers that might offer a guaranteed market for their produce and an incentive to invest in higher productivity. Despite 'eat local' marketing



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Training farmers to monitor soil moisture helps them to improve crop productivity



Improved agricultural practices enable farmers to supply school feeding programs

campaigns introduced for example in St Kitts-Nevis, and also carried out under Trinidad and Tobago's MTPF for 2011, support is lacking for local food procurement among public institutions, including school feeding programs. Action to promote healthy eating has also failed to significantly change behavior or bring down rates of overweight and obesity, including in children. There remains, therefore, an urgent need to boost acceptance of local foods at the community and national levels and shift consumption away from energy-dense imported foods, thereby also boosting local markets for small farmers.

Institutions

Institutional weaknesses also impact food production in the region. Limited mechanisms to link sectors such as agriculture, environment, tourism, health, trade and education, have restricted the flow of information and knowledge and led to inefficient use of resources to strengthen domestic food production. In a number of countries, a lack of technical staff in support ministries have made it difficult for information and best practices to be transferred to farmers. Producer organizations could potentially play a critical role in the development of agricultural production but organizational strengthening of these groups is needed in order to realize their potential.

Boosting local food production

The *Farm to Fork* project, led by researchers from McGill University and the University of the West Indies, brought together 15 local, national and regional partners in an integrated approach to the challenge posed by increasing rates of obesity and low productivity and availability of fruit and vegetables. This included support for agricultural technology adoption so that smallholder farmers can supply fresh local produce to emerging markets, including school feeding programs in St Kitts-Nevis and Trinidad and Tobago.

In St Kitts-Nevis, 16 smallholder farmers were introduced to drip irrigation technology and trained in techniques for soil moisture conservation. As a result, they overcame water scarcity in the dry season and achieved year-round production of eight different fruits and vegetables to supply the needs of the school feeding program. In Trinidad, selection of tomato, sweet pepper and pumpkin varieties was conducted over a two year period for yield and consumer preferences. The results, in terms of increased yield, shelf life, taste and nutritional value, suggest that investing in these regionally developed varieties would achieve significant benefits for Caribbean farmers and consumers. Lastly, cultivation of mulato grass, a protein-rich, tropical forage species, was found to yield up to 8 metric tons of dry matter per hectare in the dry season, a time when natural pastures are almost barren, enabling year-round production of sheep and goats. As a result, livestock farmers in St Kitts-Nevis have increased their cultivation of mulato grass five-fold.



Mulato grass yields up to 8 mt/ha in the dry season

What are the policy implications?

Strengthen local farmer groups and farming support systems

- Provide increased technical and non-technical support to horticultural producer groups, to ensure consistent supply to school meal programs.

Revise incentive programs to enhance production

- Extend current agricultural incentive schemes to include the use and development of local genetic resources, and installation of drip irrigation and post-harvest facilities at the farm and community levels.
- Organize subsidized plowing and harvesting services for the first year of mulato grass production and offer incentives for farmer acquisition of mulato seed and fertilizers.

Implement procurement of local foods by public institutions

- Revise food procurement policies for public institutions (including schools) placing a priority on locally produced food commodities.

Promote consumption of locally produced foods at national level

- Introduce and strengthen public communication activities that promote consumption of local fruit and vegetables and invest in public awareness campaigns for healthy eating.

Enhance research efforts for increased production of fruit and vegetables

- Create national research steering committees to facilitate this agenda. Major areas of focus should include the development of a strategic crop breeding program for key crops, along with improving production and post-harvest technologies.

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