

The Economic Benefits of Backyard Gardening in Barbados

by Katia Colton-Gagnon, Lauren Forbes and Annelise Miller

Mentored by Dr. Danielle Donnelly, Dr. Stan Kubow, Dr. Francis Lopez, Mr. Jeff Chandler, Mr. Joseph Peltier, Mr. Damien Hinds

Over the years, the Barbadian population has become increasingly less food secure due to many factors including rising food prices, import dependency and changing availability of fresh produce (IICA 2009). Food security as defined by the Food and Agriculture Organization of the United Nations is “a situation that exists when all people, at all times, have physical, economic and social access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO 2002). Barbados is in a very peculiar situation as they are considered in many cases to be in the upper bracket in terms of development and income but at the same time they remain food-insecure in some ways. For instance, Barbados relies heavily on food imports and grows very little itself (Long 1982; Yu *et al.* 2009). The country is therefore vulnerable to external events (changes in trade, natural disasters, etc.) which may significantly compromise food availability and affordability. The lack of a strong agricultural sector is due to a number of reasons the first one being that sugarcane has historically been grown in Barbados instead of vegetables and other food crops (Long 1982). Secondly, there seems to be a long standing stigma attached to agriculture where it is often associated with slavery and, consequently, Barbadians distance themselves from the agricultural sector (Andreatta 1998; Long 1982). Finally, heavy tourism has contributed both to an increase in the amount of imported food and in the price increase of

agricultural land as it is used for development in the tourism sector, consequently, arable land is not readily available to farmers and fewer vegetables can be grown (Seguin 2009; Andreatta 1998). All of these factors result in Barbados having a net food import bill which has led to drive up the cost of food, making it less affordable and forcing people to turn to less healthy, cheaper alternatives (Asfaw 2008; Morland *et al.* 2002). This situation may explain the reason why the average Barbadian only spends 1.98% of his/her total annual income on vegetables (Seale *et al.* 2003).



The use of home gardens has been suggested numerous times as a solution to some of the issues surrounding food security (Yu *et al.* 2009; FAO 2009; Collier *et al.* 2008; IICA 2009). Gardens have been shown to be very beneficial not only in aiding with food security but also has other benefits such as: the ability to feed livestock; the provision of raw materials for handicrafts, fuel wood and construction materials; and the creation of additional wealth through the sale of surplus produce and homemade goods (which can be

quite significant), a good source of rural employment and the use of plants for medicinal purposes (Marsh 1998; Kumar and Nair 2004; Finerman and Sackett 2003).



During the summer of the year 2009, Katia Colton-Gagnon, Lauren Forbes and Annelise Miller, three students from McGill University (in conjunction with the University of the West Indies) worked with the Inter-American Institute for the Cooperation on Agriculture (IICA) to determine the cost benefits of having a home garden. A demonstration greenhouse garden (that had been previously set up by IICA with other McGill students in the backyard of the St. Patrick's Cathedral in Bridgetown, Barbados) was used to plant a variety of vegetables for which growth and yield were monitored in order to determine the value of the annual savings such a garden can potentially provide.



In order to evaluate the economic benefit of home gardening, 25 grocery stores were surveyed bi-weekly over a three month period in order to determine the average costs of vegetables on the island. The survey also showed that all the surveyed vegetables were not available in all stores at all times. In fact, some vegetables are only carried by 40% of the most important food stores on the island. Moreover, data from Barbados Agricultural Development and Marketing Corporation (2008) indicates that the price of vegetables is higher during the months of August through to January which is linked with the weather conditions during these months (wet season in Barbados). However, the proposed greenhouse model for home gardening could easily solve the common problems of growing vegetables under large quantities of rain and permit a Barbadian to grow vegetables all year round. Furthermore, a complete budget was created in order to accurately evaluate the implementation costs, the potential revenue (the yield and its market value), the maintenance cost and the cash left at the end of a year of a typical greenhouse structure. After examining different greenhouse structures it was found that a Barbadian would save the most by buying the required material from Carter's Hardware store and building a greenhouse on their own. The implementation costs of such a garden may have a minimal value of \$1,215 BBD which includes the greenhouse structure and irrigation system investment and the variable and fixed expenses for the year of implementation. The potential revenue of such a garden when vegetables are grown in a tight rotation all year-round was estimated to be \$2,030 BBD and the annual maintenance cost were evaluated to be \$35 BBD. When a

1-year loan is taken to cover the initial investment and expenses of the first year, the cash left at the end of the first year is \$383 BBD and, by the end of the second year, the cash left is \$2030 BBD which shows that the garden becomes highly profitable by the end of its second year in operation. In fact, whether the vegetables are consumed or sold, the gardener can save or make approximately \$1,650 BBD per year. In conclusion, this study has shown that home gardening can significantly reduce a Barbadian's percentage of income spent on vegetables and potentially give him/her access to another source of income. By producing their own vegetables Barbadians can also increase their total vegetable consumption which can potentially improve their health. Furthermore, backyard gardening could help decrease the food import bill by stimulating a movement back to agriculture and the domestic production of vegetables which could render Barbados more food secure and less dependent on food imports.



Acknowledgements

We sincerely wish to thank Drs. Donnelly and Kubow from McGill University for their continued support and helpful feedback throughout the completion of this project. We also want to thank Dr. Lopez and Mr. Chandler from the University of the West Indies for their continued presence and prompt response to many of our questions faced when writing the report and advising cultural methods appropriate for the Barbados weather and natural resources. Finally, we want to give a special thank Mr. Peltier and Mr. Hinds from the Barbados office of IICA for granting us this internship opportunity which have deepened our knowledge about food production in the Caribbean and for their appreciated guidance and support.

References

- Asfaw, A. 2008. Fruits and vegetable availability for human consumption in Latin American and Caribbean countries: Patterns and determinants. *Food Policy*. 33: 444-454.
- Andretta, S. 1998. Transformation of the agro-food sector: Lessons from the Caribbean: Barbados in Review. Human Organization. Available from http://findarticles.com/p/articles/mi_qa3800/is_199801/ai_n8773889/pg_10/?tag=content;col1 Accessed 6 Aug 2009.
- Collier, A. K., Hayden-Smith, R., Torres, C., and A. Tagtow. 2008. High Price of the Rising Cost of Food in the United States ... An Overview. Food & Society Policy Fellows Program. Available from <<http://groups.ucanr.org/victorygrower/files/59876.pdf>> Accessed 9 Aug 2009.
- FAO. 2002. The State of Food Insecurity in the World. Food and Agricultural Organization (FAO), Rome.
- FAO: Agriculture and Consumer Protection Department. 2009. Improving Nutrition through Home Gardening. FAO: Nutrition and Consumer Protection Department. Available from <http://www.fao.org/ag/agn/nutrition/household_gardens_en.stm>. Accessed 9 Aug 2009.

- Finerman, R., and R. Sackett. 2003. Using Home Gardens to Decipher Health and Healing in the Andes. In *Medical Anthropology Quarterly* 17 (4):459-482.
- Kumar, B.M, and P.K.R. Nair. 2004. The enigma of Tropical Homegardens. In *New vistas in agroforestry: a compendium for the 1st World Congress of Agroforestry*. Kluwer Academic Publishers. Pp. 135-152.
- Inter-American Institute for Cooperation in Agriculture (IICA), Barbados. 2009. IICA's contribution to the development of agriculture and rural communities in Barbados: Annual Report 2008. IICA, Costa Rica: 35 pp.
- Long, F. 1982. The Food Crisis in the Caribbean. *Third World Quarterly*. 4: 758-770.
- Marsh, R. 1998. Building on traditional gardening to improve household food security. *Food, Nutrition and Agriculture*. 22: 4-14.
- Morland, K., Wing, S., and A.D. Roux. 2002. The Contextual Effect of the Local Food Environment on Residents' Diets: The Atherosclerosis Risk in Communities Study. *American Journal of Public Health*. 92(11): 1761-1767.
- Seale, J. Jr., Regmi, A., and J. Bernstein. 2003. International Evidence on Food Consumption Patterns. Economic Research Service, United States Department of Agriculture. Technical Bulletin 1904: 1-67.
- Séguin, P. 2009. Sustainable Land Use. Lecture. McGill University. Bellairs Research Institute.
- Yu, B., You, L., and S. Fan. 2009. A Typology of Food Security in Developing Countries under High Food Prices. International Association of Agricultural Economists Conference, Beijing, China, August 16-22, 2009. Available from <<http://ageconsearch.umn.edu/bitstream/51043/2/IAAE%20food%20security%20typology.pdf>> Accessed 9 Aug 2009.

References

IICA 2007