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# CARIBBEAN FOOD CROPS SOCIETY

## 44

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Poster Session Abstracts  
With Some Posters Expanded as Full Papers**

**MEETING HOST:**



## Poster #24

### Incubator Farms as a Sustainable Approach for 'Neo Farmers'

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#### ABSTRACT.

Trinidad and Tobago is facing a challenge of urban migration and a reduction in an already ageing farming population. There is an urgent need to attract new and emerging farmers to this vocation and guide them to be economically viable and educated farmers of the future. Incubator Farm is a unique and successfully proven approach which will be appropriate for Small Island States Economies, and will assist to educate aspiring farmers and establish their business as incubators. This paper discusses the creation of a more closed-loop food system through the establishment of several farms for the production of dwarf pommecythere, cassava, and hot peppers linked to a post-harvest facilities and multi-purpose pilot processing plant.

**KEYWORDS:** Incubator Farm, dwarf pommecythere, cassava, and hot peppers

#### INTRODUCTION:

Trinidad and Tobago food production and agro-processing industry is facing a challenge of urban migration and a reduction in an already ageing farming population. This is further complicated with consumers having to face shortages in cereals, particularly rice and wheat products. There is an urgent need to attract new and emerging farmers to this vocation and guide them to be economically viable and educated farmers. Incubator Farm is a unique and successfully proven approach which will assist to educate aspiring farmers to establish their own business and focuses on agricultural transformation (Handy, 2001).

A strategy for sustainable growth and economic development in the agro-production and processing sector can be achieved through farm incubators (Hirschman, 1958). This is used to host and train farmers and small processors as they produce, share equipment and facilities, establish their market (Eaton, 2001) and learn from each other.

There is currently a growing farming population of over 5,000 small part-time farmers or '2 acre farmers' or 'neo-farmers' in Trinidad which arose from the closure of the sugar industry<sup>1</sup>. Most of these 'neo-farmers' would prefer perennial crops with low input and establishment cost, minimal labour requirements and maintenance cost, early revenue generation spread evenly throughout over a 3 to 4 year period, and that can be intercropped (Anon, 1998). These new farmers, although they may have worked in an agro-processing [sugar] industry, really are not culturally farmers and lack the husbandry and skills. However, they would be exposed to low input sustainable agriculture [LISA]

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<sup>1</sup> Sugar Adaptation Strategy for the sugarcane Industry of Trinidad and Tobago

and good agricultural practices [GAP] which will assist in production catering for fresh market and processing plants (Anon, 2002).

When pooled due to their close proximity, the farmers will benefit from irrigation facilities, and participate in a rotational cropping system to ensure a continuous supply of raw material to the processing plant (Anon, 2008). This concept mirrors the “mega-farms’ now touted about by the Agricultural Planners. The most suitable crop for both production and processing on the heavy clay soils of central and south Trinidad are dwarf pommecythere, green coconuts, cassava and hot peppers/chillies. The agronomy<sup>2</sup> and processing protocols<sup>3</sup> for these crops have already been established.

This paper presents the strategy for the creation of a more closed-loop<sup>4</sup> food system through the establishment of several farms for the production of crops linked to a post-harvest facility and multi-purpose pilot processing plant

### **STRATEGIC DIRECTION:**

The Rutland Area Farm and Food Link (Hubbard , 2006 ) had identified a need for a program to nurture beginning farmers, that will in turn start agriculturally based business in the region. The incubator farms were an ideal place where new farmers got their enterprises started and built their markets before making significant capital investments. The vision for incubator farms was for it to operate as a regional agricultural centre supporting a community based food system by providing resources that encourage farm enterprises and expand local agriculture in the community (Sayre, L. 2005).

This background was used in developing a strategic direction for the establishment of an incubator farm for the production of dwarf pommecythere, cassava and hot peppers/chillies in the Waterloo area, which is in close proximity with the Centre Biosciences, Agriculture, and Food Technology, University of Trinidad and Tobago, Point Lisas Campus. Further, it is proposed that together with CARIRI, an agro-post harvest / production and processing facility will be established along side the training facility. This is to be used for hosting and training farmers and small processors as they produce.

### **GOALS & OBJECTIVES:**

The strategic goals and objectives of incubator farms are summarized as follows:

- To connect all people in the local area to develop a viable farms community.
- To provide an economical and diverse agro-processing industry that is market led and technology driven.
- To cultivate land, and optimize production, processing and market opportunities.
- Educate and empower aspiring and potential partners/entrepreneurs to establish their own business.
- To partner with institutions specializing in financial, marketing, R&D, and processing etc services.

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<sup>2</sup> Pers. Com. (2008). Dr. Wayne Ganpat, Deputy Director, ICT, Ministry of Agriculture, Land and Marine Resources.

<sup>3</sup> Caribbean Industrial Research Institute.

<sup>4</sup> Pers. Com., (2008). Dr. Kimberly Fitch, Finance and Program Coordinator, New Entry Sustainable Farming Project.

**APPROACH:**

The Intervale Incubator Farms [Anon, 2008] has developed a program which has proved congenial to a wide range of different types of farms, from crops to marketing strategies to management structures. Intervale Farmers sell to farmers' markets, restaurants, local supermarkets, and co-ops. To achieve the above, it is intended that an effective approach is to study, interact and network with personnel already in the business and conduct a feasibility on integrating production, processing and marketing "on-site", and thus encourage entrepreneurial activity.

The strategic approach<sup>5</sup> in the creation of this closed-loop food system is through the coalition of multiple small farm holders [ 2 acres ] for the production of crops. These farms will be clustered in groups of 10 farms to provide 20 acre blocks so as to facilitate sequential field and harvesting operations, and expand the rotational cycle. This grouping ensures the optimum use of field equipment, irrigation facilities, and extends the supply of material and produces to the pilot processing plant. When this is programmed into the intercropping and crop succession cycle, a wider variety of crop will become available.

**ACTIVITIES:**

The following are critical activities which are essential in the establishment of a one hundred acre farm incubator, together with a multi-purpose pilot processing plant and post-harvest facility. The latter will be flexible so that it can expand operations to accommodate several similar size incubators.

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<sup>5</sup> Pers . Com., (2008). Mike Lanier, Agricultural Economic Development Centre N.C. Cooperative Extension, Orange County Centre, N.C.

Activity	Details
Farm Incubator [ fifty 2ac farms]	<ul style="list-style-type: none"> <li>• germplasm management</li> <li>• Nursery Crop production</li> <li>• Access roads, drainage and irrigation facilities</li> <li>• Procurement of field equipment and tractors</li> <li>• Preparation of rotation cycles, intercropping plans, crop production schedules, pest and disease management programs.</li> </ul>
Post Harvest Facility [ multi-purpose pack-house]	<ul style="list-style-type: none"> <li>• Preparation of design physical structure</li> <li>• Renovation / modification of existing building</li> <li>• Procurement of equipment and instruments</li> </ul>
Pilot Plant/Processing Incubator	<ul style="list-style-type: none"> <li>• Establishment of Pilot Plant and Post Harvest facilities</li> <li>• Procurement of equipment and instruments</li> <li>• Testing/dry run</li> <li>• Training and education</li> </ul>
Evaluation of System	<ul style="list-style-type: none"> <li>• Gap Analysis of system</li> <li>• Develop appropriate R &amp; D studies</li> <li>• Marketing system</li> <li>• Recruit relevant R &amp; D personnel</li> <li>• Implement quality assurance system</li> </ul>

#### **FUNDING:**

The initial cost for the development and execution of this project should be borne by the state as ‘seed funding’. The capital expenditure and project cost is estimated at \$9.5 MTTD. This grant funding can be sourced from the Public Sector invest Program [PSIP] funds in the Ministry of Agriculture, Lands and Marine Resources as part of the

European Union Funding for the displacement of sugar farmers / workers and the diversification of the sector This will contribute to social and economic development by empowering the residents in the community to take responsibility of an entrepreneurial activity.

Expenditure	Cost Detail	[\$M.TT]
Capital: [\$M.TT]	Pilot processing plant	3.5
	Post harvest facility	1.5
	Training Room	0.25
	Greenhouse & screen-house	1.25
Project:	Field station	0.25
	training	0.5
	management	0.75
	Fields trials and experiments	0.05
	Inputs	0.75
	Lab. upgrades	0.75
	TOTAL	9.55

The institutional stakeholders in this Project are definitely the Ministry of Agriculture, Lands and Marine Resources, The Universities of the West Indies and Trinidad and Tobago, National Agricultural Marketing and Development Company, Caribbean Agricultural Research and Development Institute, Caribbean Industrial Research Institute, Agricultural Development Bank, Trinidad and Tobago Agri-Business Association, and National Enterprises Development Company amongst others. These institutions can facilitate research and development work, training and provide back-stopping support for the activity.

#### **BENEFITS:**

The expected benefits of this project can be summarized in the following:

- Expansion in number of viable farms [incubators]
- Preservation of productive agriculture lands
- Increased accessibility to small scale local food production and processing
- Improved management of the natural resources and protection of water quality.
- A better informed and developed food security plan with opportunities for new and emerging small scale farmers.

- An appropriate program designed with respect to creating a culture , market, educational opportunities, with identifiable mechanism and institutions
- A developed and enhanced farm and land-based enterprise that can generate economic and social opportunity while protecting the natural resources and bio-diversity of a fragile tropical island.
- A reconnection of former retrenched sugar workers, displaced sugar-cane farmers, potential new farmers, and financially struggling farmers with minimal resources,, but capable of producing fresh food to a urban people with an active lifestyle based on processed foods.

Year	Expected Output
1	A program designed to nurture beginning farmers, processors and entrepreneurs that will in time start agri-based business and build markets before making significant capital requirement
2 -3	Increased acreages under cultivation with selected crops minimum of 50 farmers with 2 acres [100ac]
2	Establish multiprocessing pilot plant and post harvest facilities .
2	Training sessions for farmers and producers, with significant publications and multi-media presentations [6]
2	Minimum of 4 M.Phil and 2 Ph.D graduate
2	A strong research and development program that will be funded by grants, University, and government

#### **SELECTED AREAS OF RESEARCH AND DEVELOPMENT:**

1. Agro-economic studies of integrated farming for specific commodities with processing potential.
2. Non-traditional crop production, processing, and marketing.
3. Value-added agro-processing of crops as natural food colours, additives, preservatives, essential oils, specialized food, and food processing waste technology.
4. Certified seed production and propagating studies.
5. Application of bio-technology advances to production and processing viz tissue culture and genetic engineering

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