

**CTA/WUR Inception Workshop –
“Mainstreaming Tertiary Education in ACP ARD Policy Processes:
Increasing Food Supply and Reducing Hunger”
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Food and Nutrition Situation Trinidad and Tobago

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Outline of Presentation

- Level of imports
- No. of malnourished or obese people
- Extent of hunger
- Key elements/goal of national food and nutrition policy
- Key elements of regional food and nutrition policy
- Personal/institutional research, training - curriculum and outreach

Level of Imports

- Food import bill in 2010 accounted for **11.18%** of total imports
- Food import bill estimated at **\$TT4 billion** (2010)
- ***Wheat:*** most imported food item **67,200 tonnes** (2010)



Production Targets For Priority Commodities (2012 – 2015)

Commodity Food Group	Commodity	Current Consumption (Tonnes)	Current Production (Tonnes)	Projected 2014 – 2015 (Tonnes)
Staples	Rice	33 636	2 273	7 500
	Sweet Potato	7 000	3 150	13 090
Fruits	Citrus	32 271	1537	1 780
Aquaculture	Tilapia	112	22	270
Livestock	Sheep & Goat	3 369	355	425
	Dairy Cattle	75 864	4 300	5 650
Pulses	Pigeon Peas	802	130	160

Source: Ministry of Food Production, Land and Marine Affairs: The National Food Production Action Plan 2012-2015 (2011)

Obesity

Obesity in Children is a growing concern in Trinidad and Tobago.

- **23%** of primary school children in Trinidad and Tobago were overweight/obese
- **25%** of secondary school aged children were overweight/obese
- **14%** of secondary school aged children were underweight.

Source: Study conducted by the Caribbean Food and Nutrition Institute (CFNI) over the period 2009 – 2010



THE DIABETES ASSOCIATION OF TRINIDAD & TOBAGO

Incidence of Diabetes in Trinidad & Tobago, 2010

(Diabetes Facts)

- One (1) in every eight (8) person in Trinidad and Tobago is overweight.
- At least **25%** of Caribbean adults are obese and there is evidence that the situation is worsening.

Weight and Obesity

Over **40%** of the population do not get sufficient physical exercise weekly



90.8% eat less than the recommended 5 servings of fruit and vegetable daily

Key Elements of National Food & Nutrition Policy

Based on a **five (5)** pronged mandate:

1. To reduce the food import bill
2. To further reduce inflation, primarily driven by food prices
3. To create sustainable, long term productive employment
4. To contribute to the diversification of the economy
5. To increase the country's food security

Key Elements of National Food & Nutrition Policy

Focus is on six (6) commodity groups:

Staples	Vegetables
Legumes & Pulses	Fruits
Livestock	Aquaculture

Key Elements of National Food & Nutrition Policy

Some general Strategies for the development of the agricultural sector:

- Policy
- Infrastructure Development Programme
- Land Distribution Programme
- Young Professionals in Agriculture Development & Mentoring Programme
- Home Gardening Initiative
- Praedial Larceny Programme

Key Elements of Regional Food & Nutrition Security Policy (RFNSP)

Guiding Principles of the RFNSP:

- ✓ Right to food
- ✓ Rights of indigenous peoples
- ✓ Protection of Forest Resources
- ✓ Agriculture and Food Production
 - ✓ Policy Coherence
 - ✓ Regional Coherence
 - ✓ Regional Dimension
 - ✓ Political Commitment

Key Elements of Regional Food & Nutrition Security Policy (RFNSP): *The Policy*

4 overarching food and nutrition security objectives:

1. Food Availability
2. Food Access
3. Food Utilization/Nutritional Adequacy
4. Stability of Food Supply

Research: Improving the Nutrition & Health of CARICOM Populations by Increased Food Availability and Diversity through Sustainable Agricultural Technologies

**(CIFSRF (Canadian International Food Security Research Fund)
CARICOM-McGill-UWI St. Augustine Food Security
Project)**

To explore how to improve nutrition and health outcomes in Guyana, Trinidad, St. Lucia, & St. Kitts through an integrated, gender equal, environmentally sustainable systems approach to food availability, safety and quality (farm to fork).

2 fundamental themes:

- Community nutrition and health
- Agricultural diversification and food production

Improving the Nutrition & Health of CARICOM Populations by Increased Food Availability and Diversity through Sustainable Agricultural Technologies

This project supported by the IDRC and CIDA through the CIFSRF, uses the “farm to fork” approach to improve food production and nutrition and health outcomes in the CARICOM member states of Guyana, St Lucia, St Kitts and Nevis and Trinidad and Tobago.

1. Researchers will assist farmers in increasing food production through
 - Agricultural diversification
 - Conservation of water
 - Efficient use of land
2. Nutrition education and the introduction of nutritious food will
 - Decrease caloric intake
 - Improve nutrition and health outcomes
3. New policies will be developed to secure food supply in the region through improved marketing structures

Expected Outcomes

Improved nutrition, particularly among women and children, leading to reduced rates of chronic, non-communicable diseases

Agricultural diversification, leading to year-round supply of locally produced food products, based on improved soil and water conservation and efficient land use

Adoption of policies to secure food supply through improved marketing structures

Change in consumer behavior to increase consumption of a diversified diet of fruits and vegetables

Expanded regional capacity (human and institutional) to solve problems of food insecurity

Research: Improving the Nutrition & Health of CARICOM Populations by Increased Food Availability and Diversity through Sustainable Agricultural Technologies

Innovations in inclusive market-oriented development and environmental management will lead to policy changes, aimed at securing the food supply through improved marketing structures, in an environmentally sustainable manner.



Evaluation of Rice germplasm to identify suitable genotypes for the Caribbean conditions



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Rice In Caribbean Region

- The region pays US\$ 300 million a year to import rice
- Trinidad and Tobago has an annual consumption of 33,636 tonnes of rice but produces 2,273 tonnes only
- The country was producing around 20,000 tonnes of rice in early nineties
- Since then the number of farmers growing rice has reduced miserably from 6,000 to 20 only.

No Organized Research

- Presently there is no organized research on rice in Trinidad and Tobago
- The rice growers are dependent on the rice program in Guyana for availability of new varieties
- After the restructuring of the CIAT (International Centre for Tropical Agriculture) - the availability of new rice germplasm reduced drastically

- To meet the targets of the National Food Production Action Plan 2012-2015, it has become important to reorganize research and extension efforts to increase rice production.
- To revive the interest of rice farmers, there is need to provide them with agronomically superior rice varieties with demonstrated high yields.
- Availability of latest technical knowledge through extension activities is expected to enable them to realize yield potential of these varieties.

- Keeping in view the need to provide new genotypes of rice to the Caribbean farmers, this project has been planned.
- International Rice Research Institute (IRRI) has been contacted to obtain new germplasm. Seeds of two nurseries is being obtained this year:
- IRON: Module 1: Early maturing
- IRON: Module 2- Medium to late maturing
- This germplasm will be tested at the research stations and the farmers' fields in Trinidad and Tobago, Guyana and Suriname.

Overall Goal and Objectives

Overall Goal: To increase the indigenous rice production by providing high yielding varieties

Specific Objectives:

- To identify suitable genotypes from the germplasm supplied by the International Rice Research Institute (IRRI)
- To utilize the identified genotypes with stress resistance, agronomic and quality traits in further breeding
- To identify contrasting genotypes for development of populations for molecular mapping of economic traits
- The evaluation trials shall be used for student research, including a Ph.D. project to identify an ideal genotype (ideotype) for highest yield in Caribbean conditions.

- **Expected Outcome:**

The project will lead to identification of high yielding rice genotypes - A high yielding variety by early 2015

- **Impact:**

The demonstrated high yields of new rice genotypes are expected to revive the interest of the farmers

Large scale coverage by these varieties shall lead to high rice production

This will reduce the deficit between the consumption and production of rice in the Caribbean region.

Genetic improvement of Banana to develop **Sigatoka resistant** cultivars commercially acceptable in the Caribbean region



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Black Sigatoka

Threat to Banana in the Caribbean

- Banana is an important crop of the Caribbean region which plays a key role in food security and socioeconomic balance in the region
- With the occurrence of Black Sigatoka disease caused by *Mycosphaerella fijiensis*, there has been substantial reduction in fruit yield
- The considerable reduction in Banana production has made many unemployed, working directly or indirectly for banana industry.

Control

- Though the disease can be controlled by chemicals, the cost of chemical application makes it very expensive
- Moreover, it has environmental implications
- The conventional breeding is difficult in Banana due to sterility and different ploidy levels

Resistance in Diploid Musa Species

- Resistance to Black Sigatoka disease has been observed in diploid *Musa* species (Jones, 2000)
- The available protoplast fusion technology can be used as an alternate method of genetic improvement



Banana (*Musa acuminata*)



Musa balbisiana

Collaborative Project

- Project initiated in collaboration with the Plant Cell Technology Laboratory, University of Guelph, Canada
- **Overall Goal:**

Overall goal is to develop commercially acceptable Banana cultivars for the Caribbean region with resistance to Black Sigatoka disease using protoplast technologies.

Specific Objectives

1. To identify/verify sources of resistance among two diploid species, namely, *Musa accuminata* (AA) and *Musa balbisiana* (BB)
2. To develop appropriate protocols for isolation of protoplasts, Somatic hybridization of the recipient and donor species and an efficient protoplast regeneration system
3. Identification of Black Sigatoka resistant **asymmetric hybrids** with minimum alien chromatin and evaluation of the identified derivatives for expression of resistance and agronomic performance

- Black Sigatoka resistant diploid germplasm accessions of *Musa acuminata* (AA) and *Musa balbisiana* (BB) shall be obtained from the International Musa Germplasm Collection, International Transit Centre (ITC), Belgium of the Bioversity International

Outcome

- Black Sigatoka Resistant lines in cultivated Banana background available to breeders
- Release of a commercial line

Thank you