

# Innovations in the approach to food and nutrition Security in CARICOM: Linking agriculture and nutrition to improve the health of the region's populations

*Leroy E. Phillip*

*Faculty of Agricultural and Environmental Sciences,  
McGill University, Montreal, Canada*



**UWI**  
ST. AUGUSTINE  
CAMPUS



**McGill**



Foreign Affairs, Trade and  
Development Canada

Affaires étrangères, Commerce  
et Développement Canada

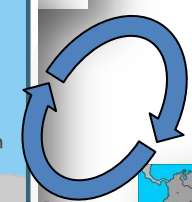


**IDRC | CRDI**

International Development Research Centre  
Centre de recherches pour le développement international

# CIFSRF CARICOM Food Security Project

## Hemispheric & Regional collaboration

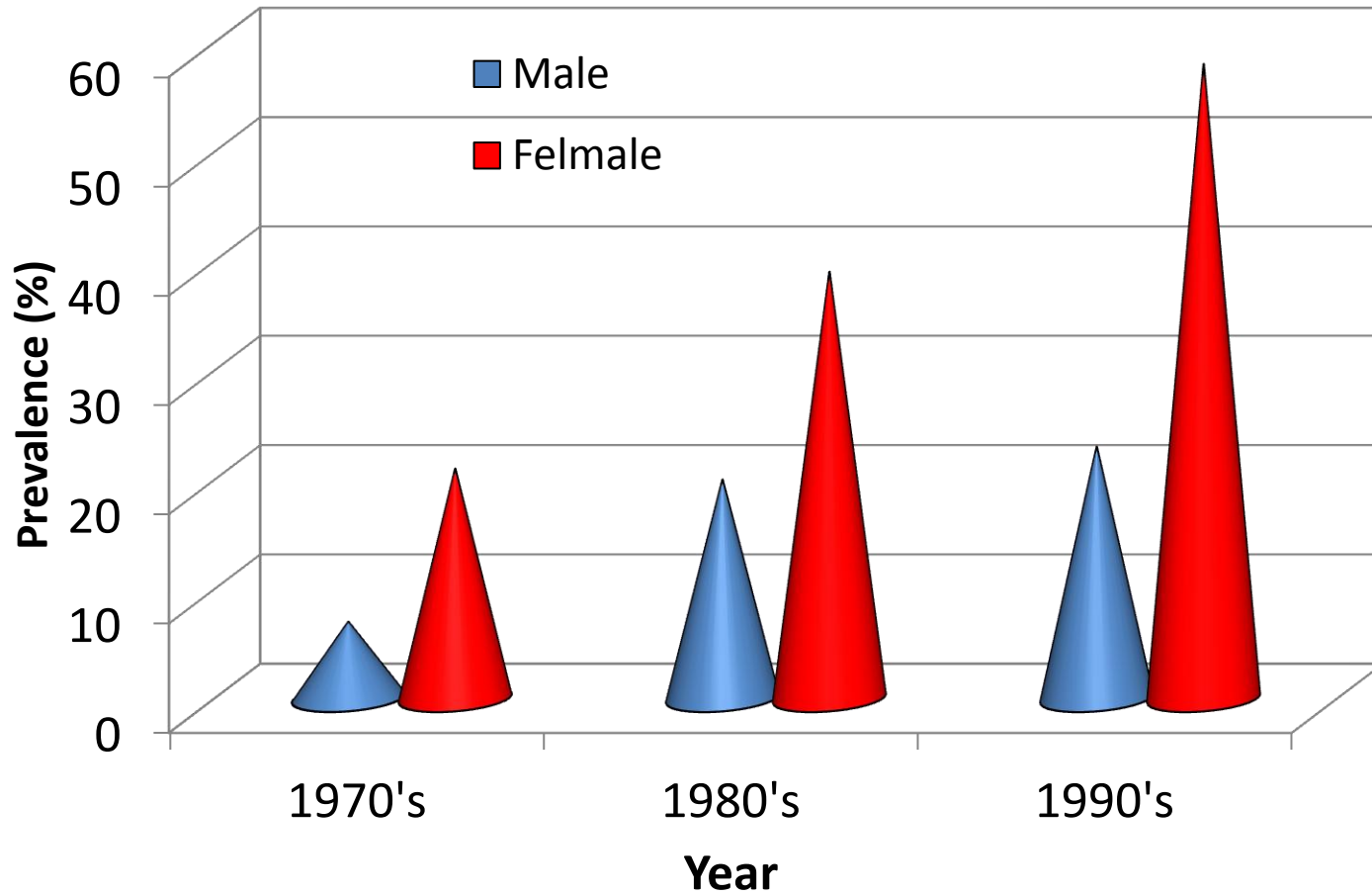


### Project Profile

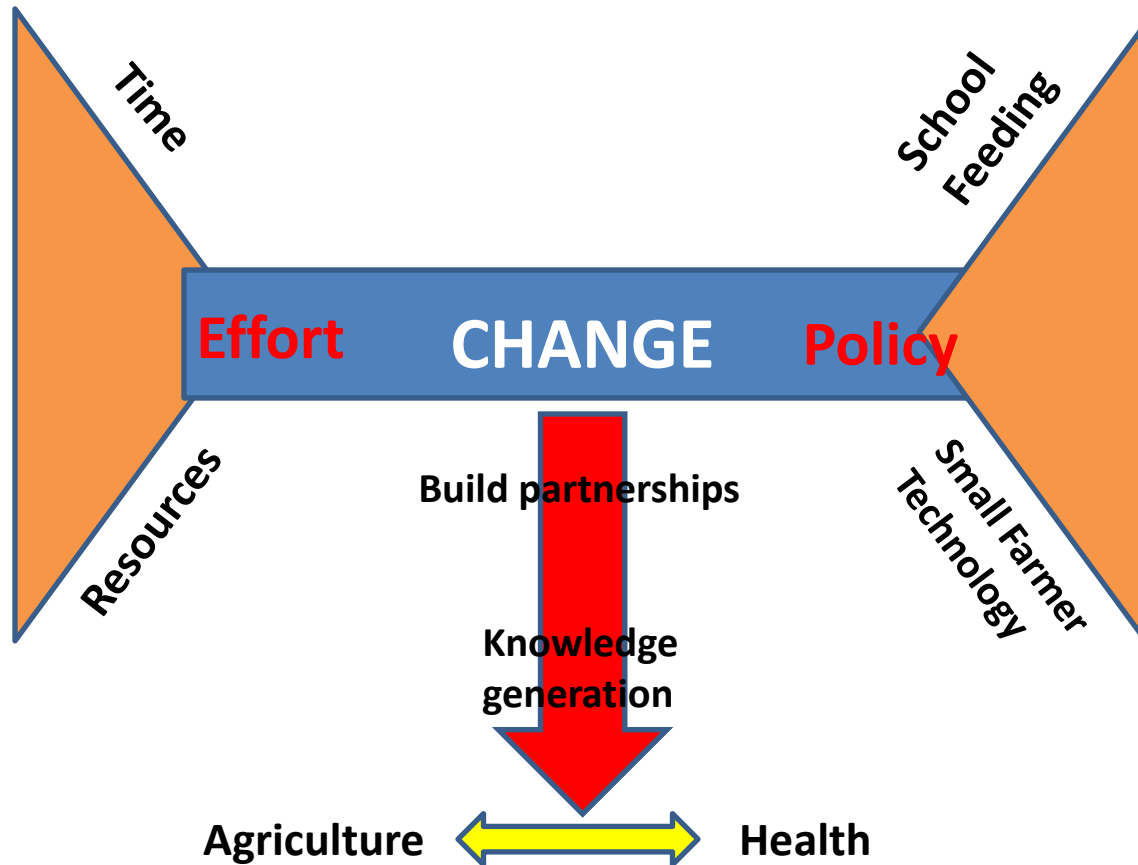
- \$5 M CAD CIFSRF funding over 42 mo (March 2011-Aug 2014)
- 3 Academic Institutions (UWI, UG, McGill)
- 10 Institutional CARICOM Partners
- 200 Field personal trained
- 45 Farmers
- 30 Researchers
- 25 Field staff,
- 21 Grad students & Research Assistants

- Improve nutrition & health outcomes of CARICOM populations through availability of foods that would increase intake of vegetables and fruits, decrease caloric intake, and increase micronutrient intake;
- Develop food production systems based on agricultural diversification, water conservation & efficient use of land;
- Increase the rate of technology adoption by small farmers;
- Adapt international standards of food safety and quality for a healthy, market-oriented food supply chain;
- Build and test a Farm to Fork Model for CARICOM food and nutrition security;
- Expand and build human and institutional capacity to solve problems of food and nutrition insecurity in CARICOM;

**Obesity Trends in CARICOM**



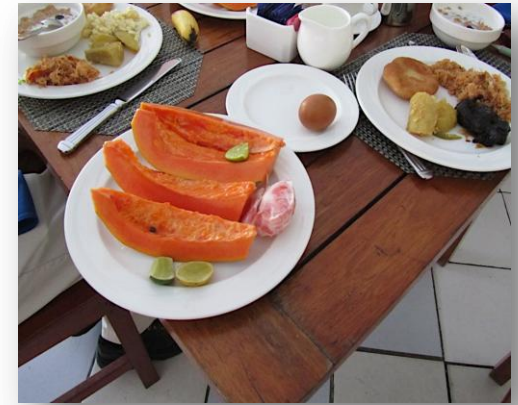
Source: CFNI



# CIFSRF CARICOM Food Security Project

Project Targets: "Community Change Agents"

Children, Caregivers, Women, School Meals staff, Small holders farmers, Policy makers



### From Farm

#### Socio-Economic Studies

- Consumer and Farmer Household Surveys
- Focus groups on innovation & technology adoption



#### Water and Land Resources

- Drip Irrigation, Water and Soil Conservation
- Protected Agriculture
- Open Field Crop Diversification
- Silage conservation for Small Ruminants

#### Environmental Management

#### Market access

- Post-Harvest Loss Management
- Food Safety and Quality



#### Gender Consideration



#### Community Nutrition and Health

- Improving the quality of School Meals
- Nutrition Education
- Consumer food choices

#### Policy Changes for Sustained Food Security in CARICOM

...and beyond



To Fork

**Overall Goal: Improving nutrition and health of CARICOM population through sustainable agricultural technologies that increase food availability and diversity of food choices**

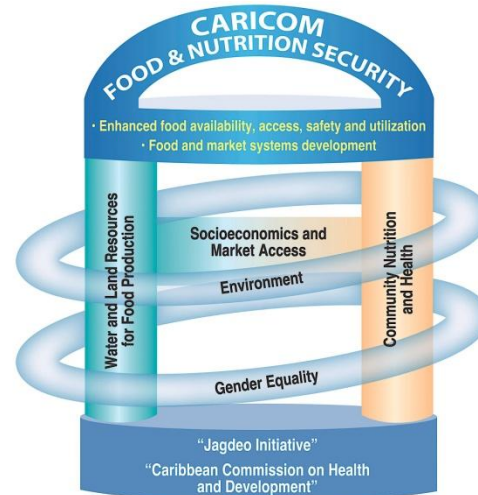
### EXPECTED OUTCOMES



Increased year-round supply and diversity of fruits and vegetables



Adoption of good agricultural practices for food safety and quality



To influence policy makers on food and nutrition security policy

### EXPECTED OUTCOMES

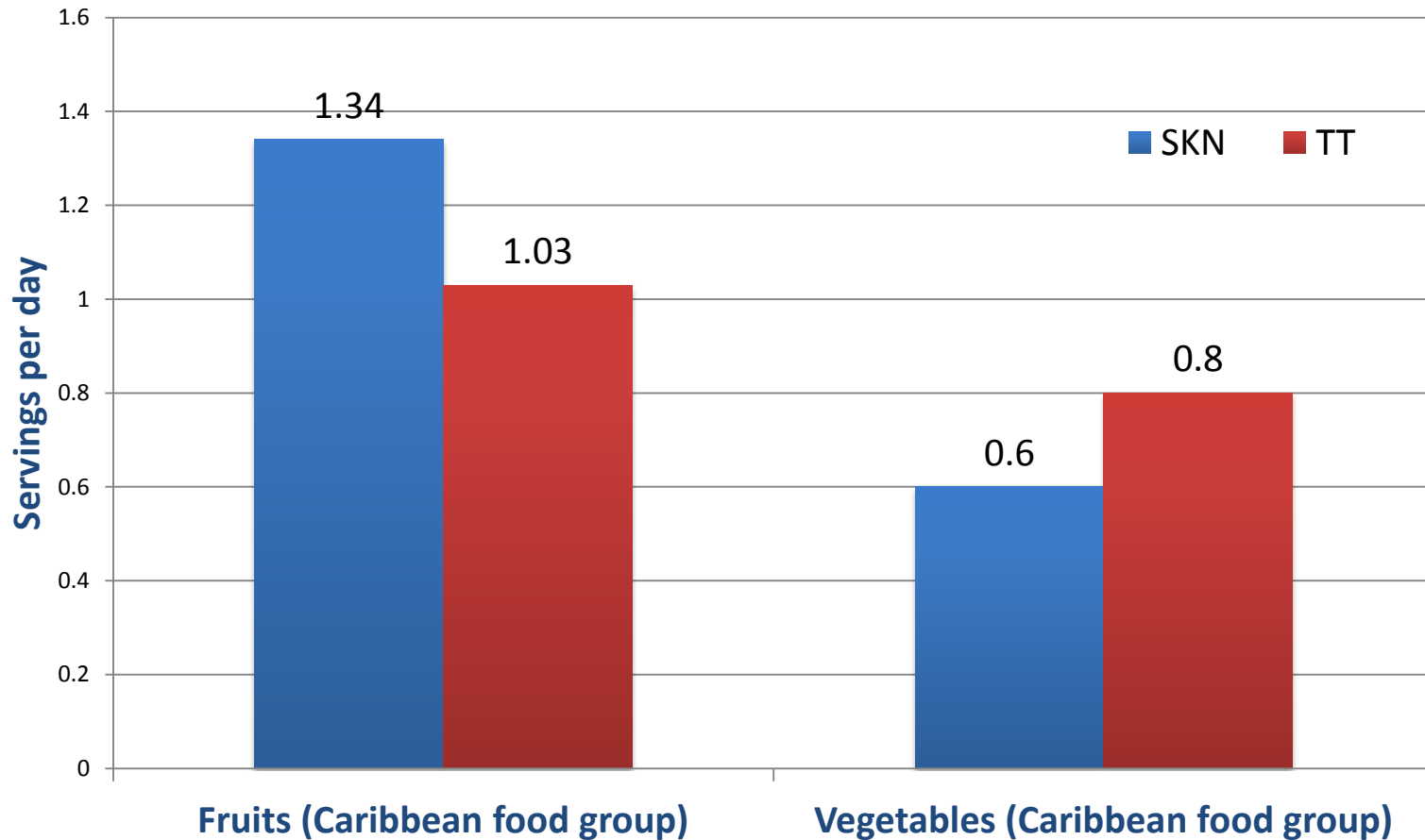


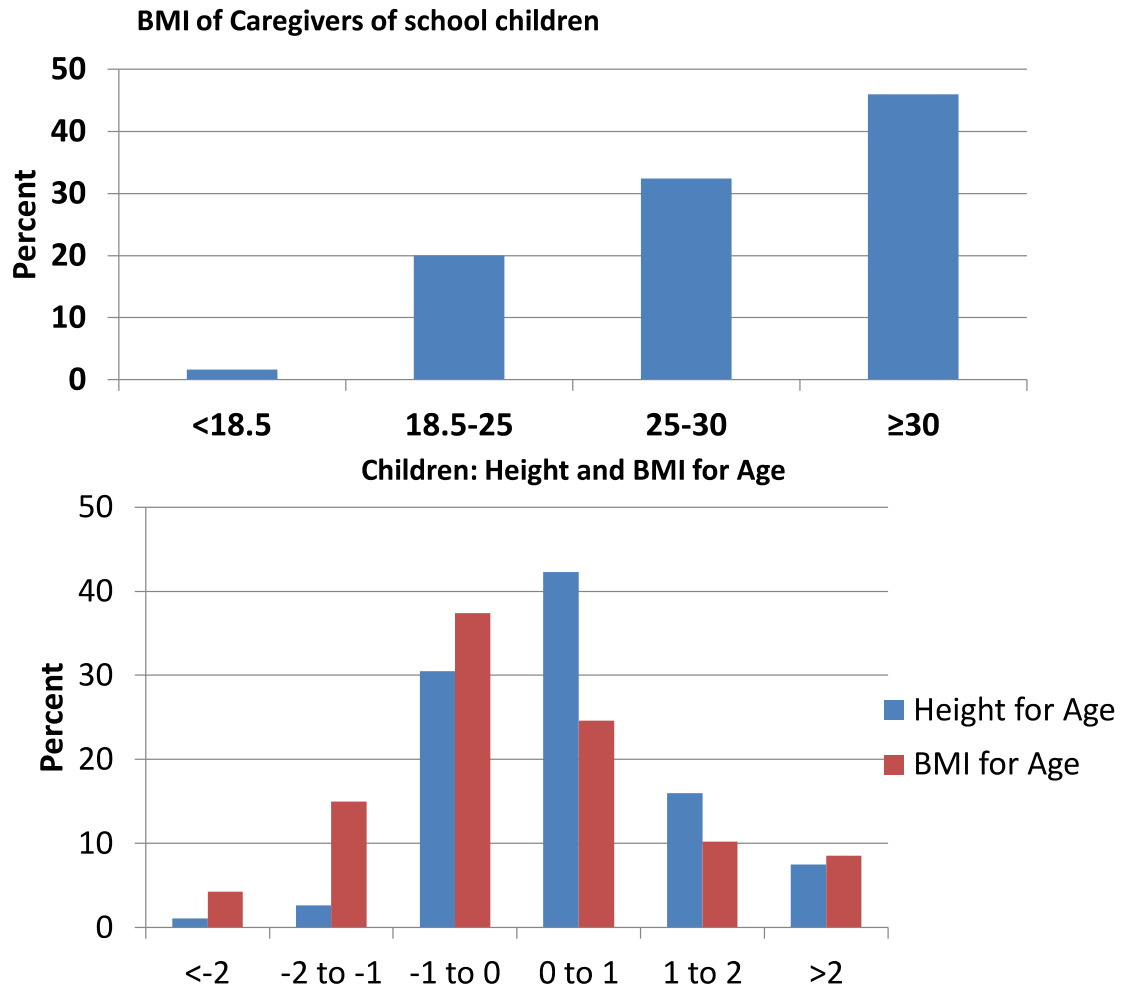
Healthy changes in body mass index and diet diversity through increased intake of fruits and vegetable



Development of a sustainable "farm to fork" model for CARICOM food and nutrition security





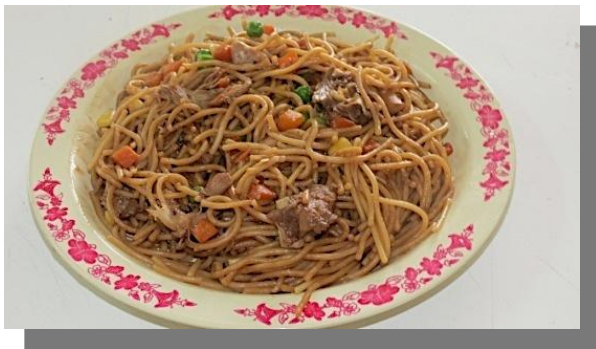


### Before

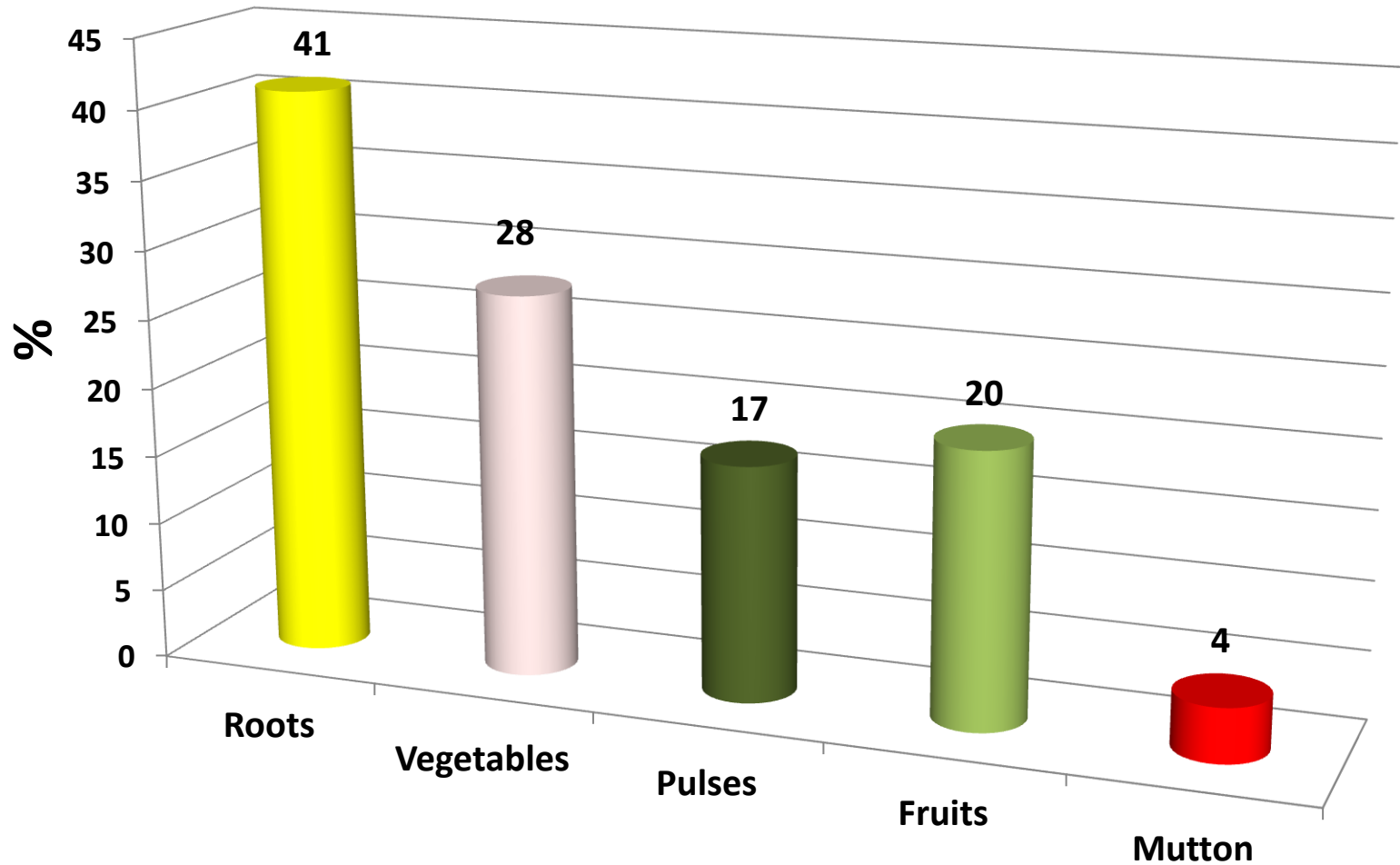
- Rice and beans, turkey wings, Noodles/ground meat
- Hot dogs
- Chicken soup with pumpkin and dumplings
- Cheese sandwich
- Sugar drink

### After

- String beans, carrots
- Tomatoes, cucumbers
- Sweet potato, pumpkin
- Melon, green banana
- Mutton



Number of children impacted by menu change	
Number of meals served daily (national level)	3,200 (17 schools)
Number of modified meals served daily (project level)	800 (4 test schools)
Number of children evaluated	188 (4 + 3 control)



### Improvements to lunch menu

- Watermelon, carrots, pumpkin, tomatoes, cucumber, string beans
- Better quality meat and more frequently

### Implications of menu change

- New menu costs 70% more (mainly due to better meat cuts rather than fruits and vegetables)
- Savings could be achieved by reducing sugar drink (29% of food budget )



### What is required?

- Develop feeding standards for the school lunch
- Ensure a Steady Supply of produce for the school meals
- Strengthen coordination between school feeding program and small holder farmers





Drip + mulching



Drip irrigation



Protected agriculture

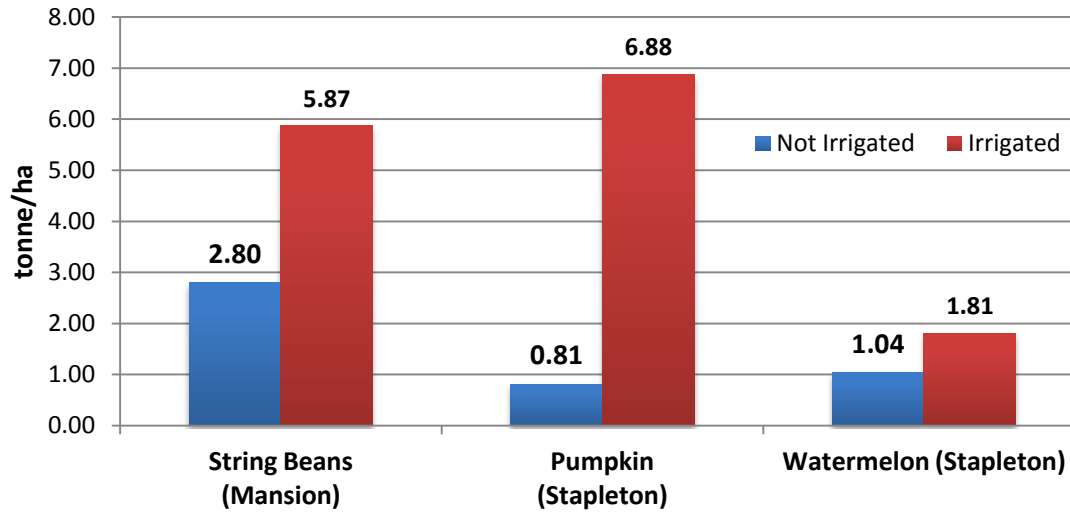


Mulatto grass conservation  
for small ruminants

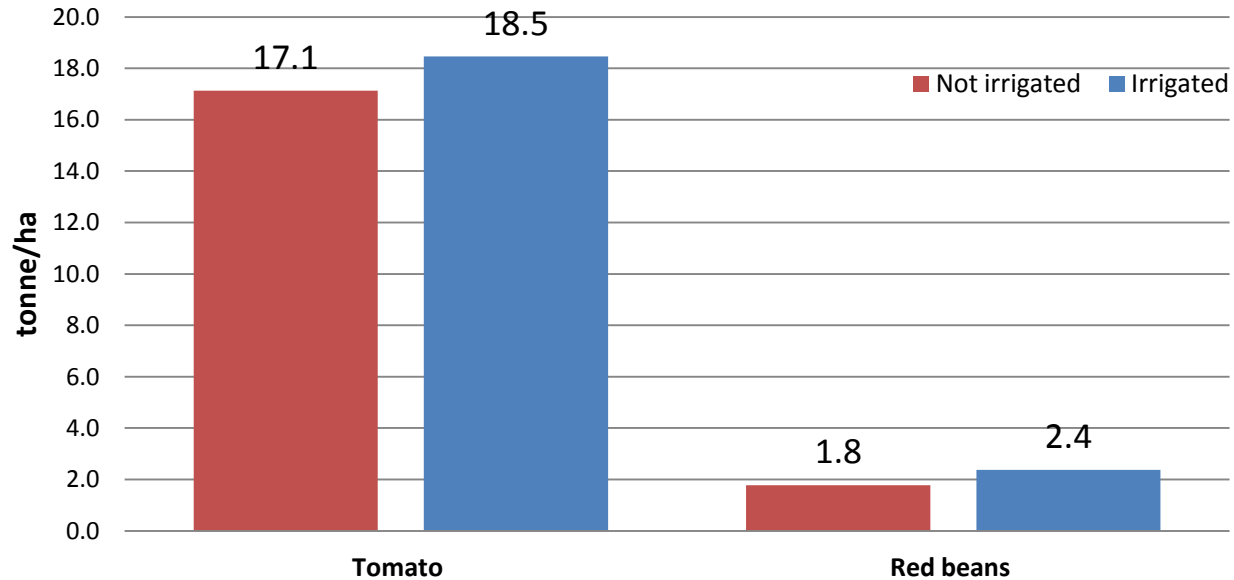


Post-harvest loss measurement  
(Penetrometer)

2012/2013 Crop yield at St.Kitts project sites



2012 Crop yield at Black Bush Polder (Guyana) project site







# CIFSRF CARICOM Food Security Project

Achievement: Increased crop availability  
and diversity



Bora



Melons



Cucumbers



Tomatoes



Watermelon



Red beans



Pumpkin



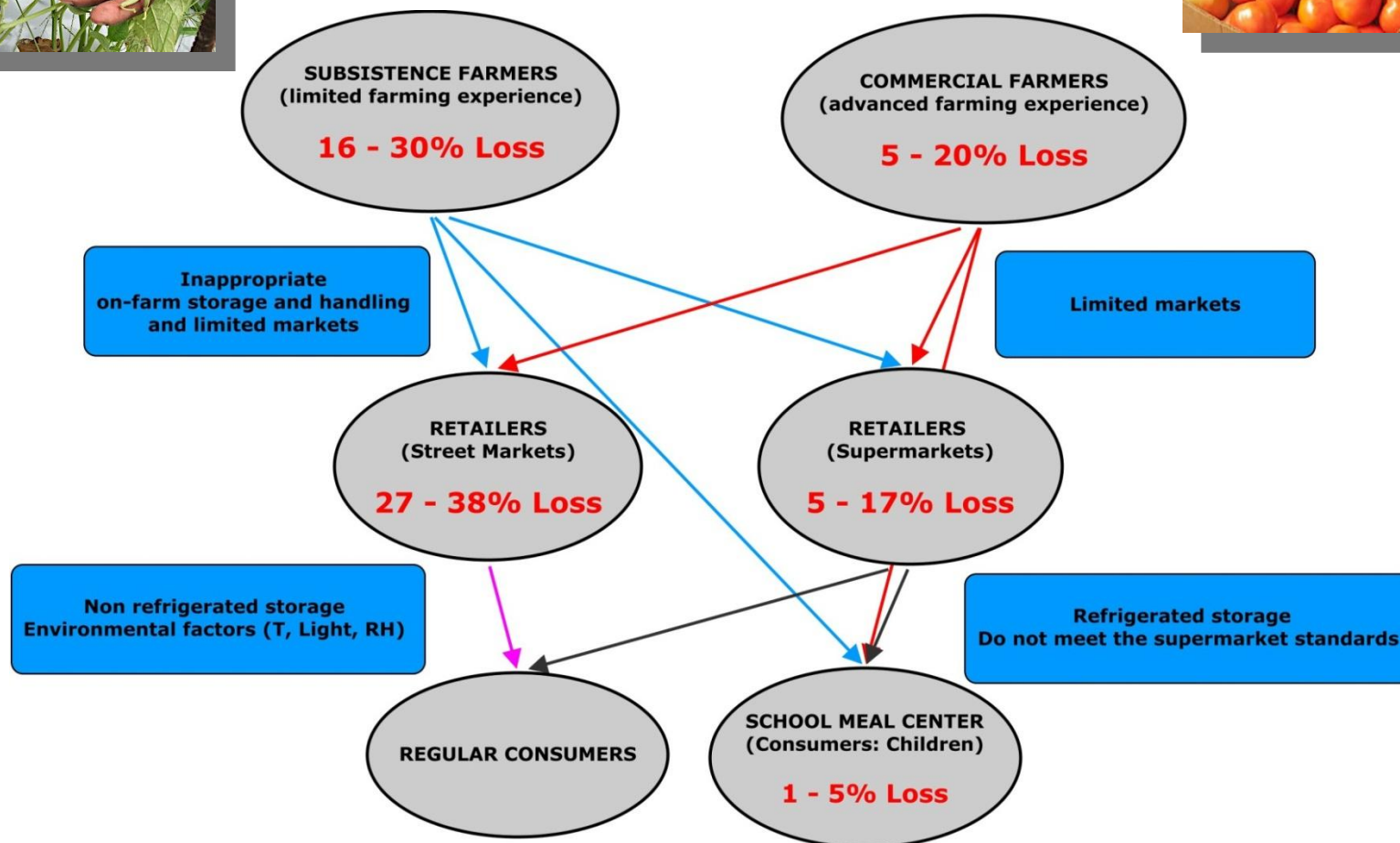
Cabbage



String beans



Eggplant



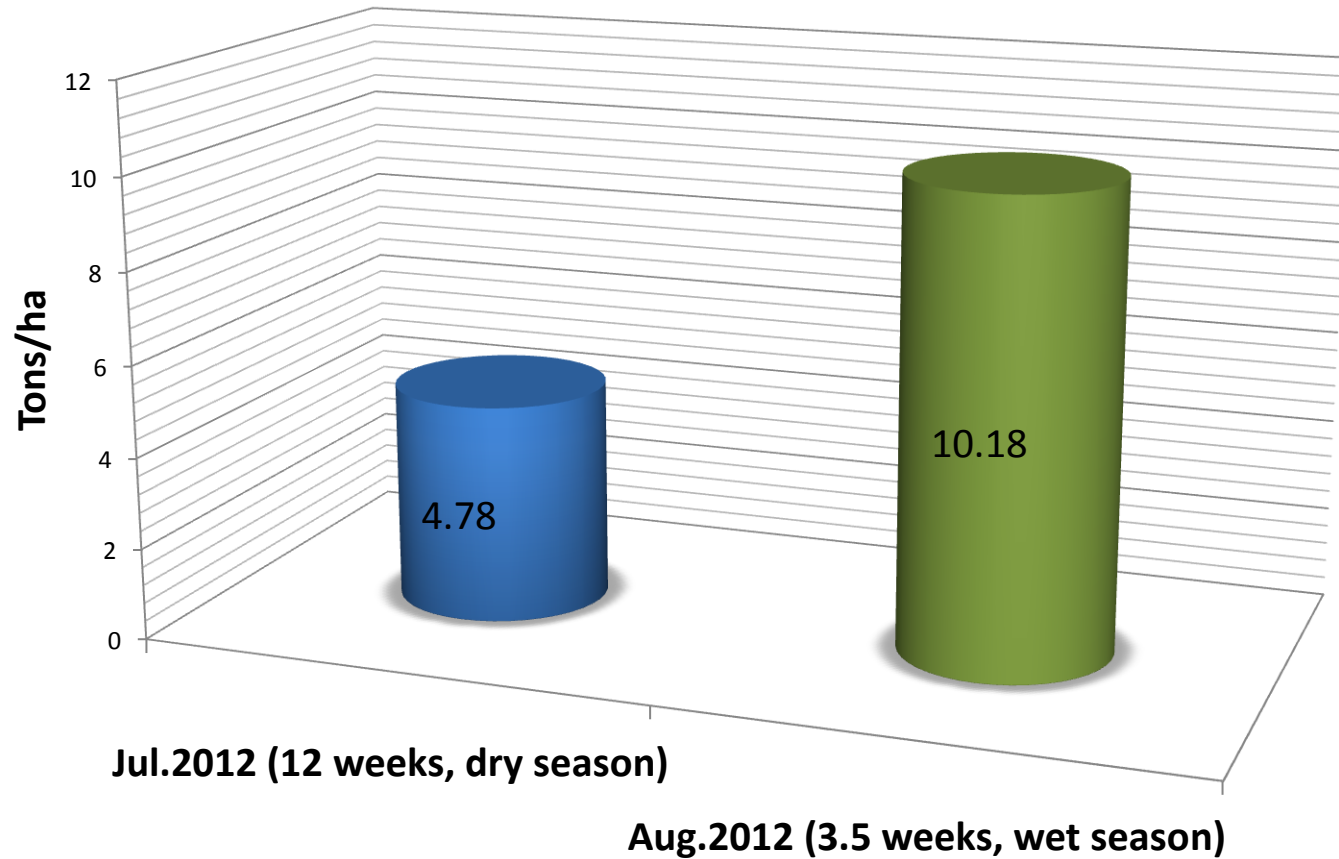
## **Drought tolerant Mulato grass and sorghum for small ruminants**



### Area covered %

- mulato grass
- dry material and weeds
- bare soil





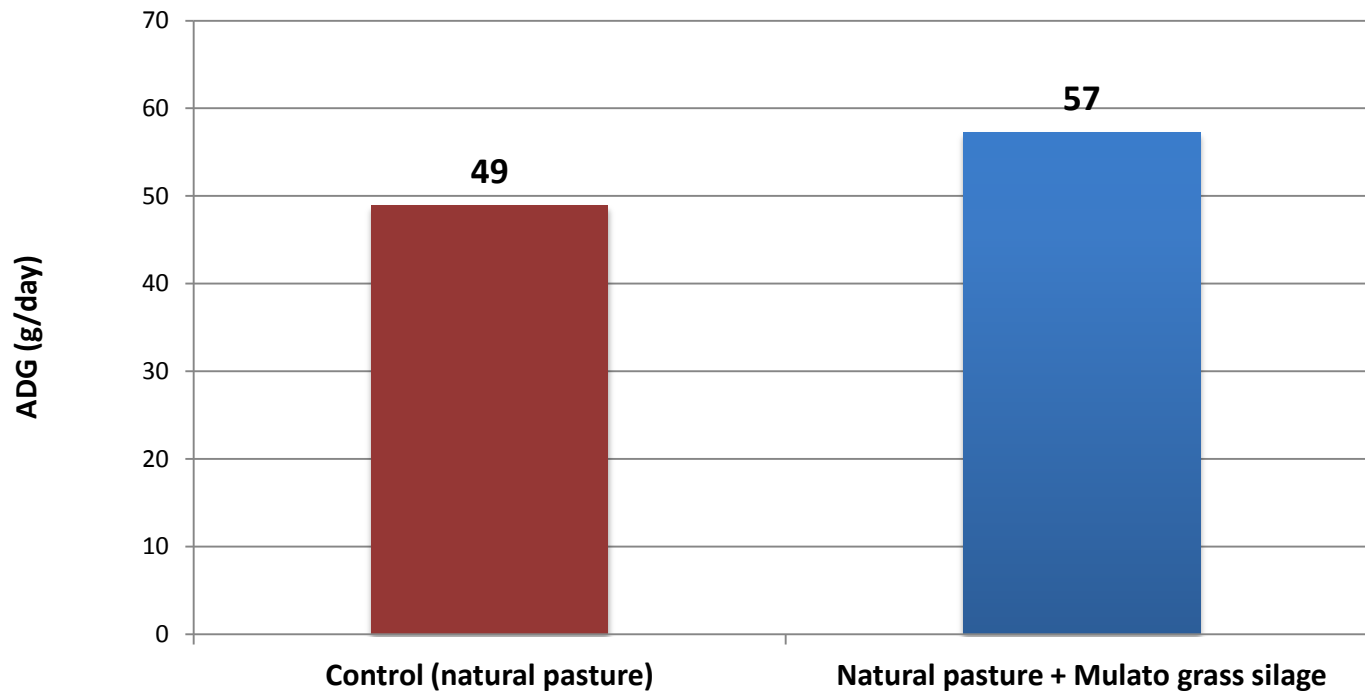
# CIFSRF CARICOM Food Security Project

## Silage production for small ruminants



## Small ruminant performance with Mulato grass silage on farms in St. Kitts

Daily gain (96 d after weaning) of sheep supplemented with Mulato grass silage in St. Kitts.





Water sampling



Water sampling



Training and field measurements



Soil sampling



Laboratory analysis

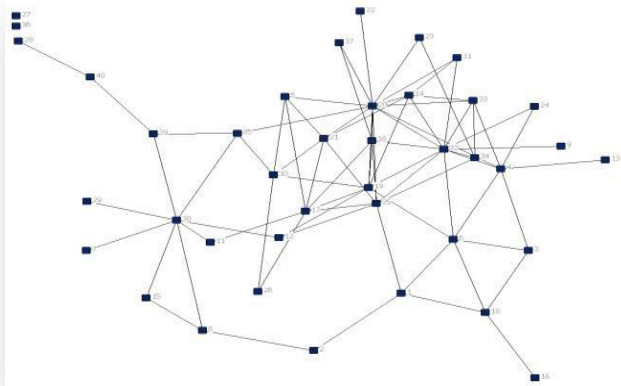


Food Safety training

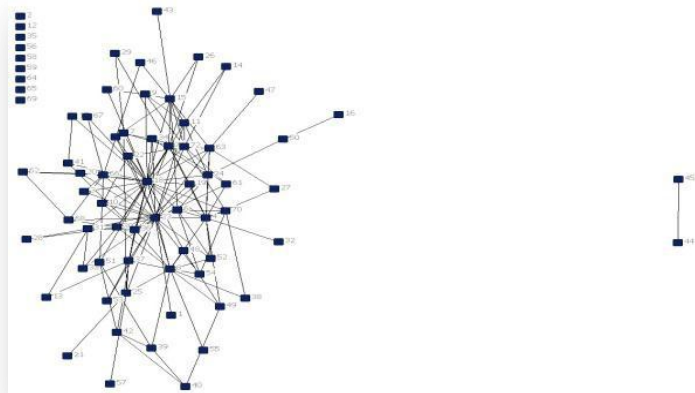


Analysis of social network to understand social capital  
and knowledge flows among farming communities.

### Black Bay



### Marquis



- Strong evidence of **social learning** among farming communities
- Differences in “**relationship ties**” linked to innovation and change

- CIFSRF CARICOM project: first regional **Integrated, multi-sectoral, multidisciplinary** food security project linking agriculture to nutrition and health outcomes to combat obesity;
- Provides a new body of **integrated scientific findings** to address the binding constraints outlined in the Jagdeo initiative and the concerns of the Caribbean Commission on Health and Development regarding CNCD's;
- Lays the ground work for “scale up initiatives” to utilize **school feeding** programs as “**vehicles for change**” for improving community nutrition & health, improving income & livelihoods of **small holder farmers**, and stimulating rural development
- The Project could serve as a useful model for “partnership building” to address issues of CARICOM Food and Nutrition security

- **School feeding** programs are underutilized vehicles for reversing the obesity trends in CARICOM while providing market opportunity for **small holder farmers**
- Findings from the Project could serve as a useful **farm to fork model** for regional application in CARICOM

## Acknowledgements

Funding for this project was provided by The Canadian International Food Security Research Fund (CIFSRF) is a program of Canada's International Development Research Centre (IDRC) undertaken with the financial support of the Government of Canada provided through Foreign Affairs, Trade and Development Canada (DFATD).

Dr. Isabella Granderson and I wish to acknowledge the Project Partners, researchers, students, research assistants and field staff for their support and contribution to the research conducted under the CIFSRF CARICOM Project. We also express, on behalf of the Project Team, deep appreciation to our IDRC Officers, Drs. Renaud De Plaen and Susan Robertson, for their unwavering support and encouragement during the conduct of the project.

Special appreciation is expressed to Patrick Cortbaoui, Raffaella Carvalho and Sylvia Borucki for their assistance and dedication during the preparation of the presentation.

# CIFSRF CARICOM Food Security Project



**THANK YOU**

