



Sustainable Strategies to
Enhance Sweet Potato Yields
and Minimise Losses to Pests and Diseases in
the Caribbean

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***STATUS OF PEST AND DISEASE
MANAGEMENT OF SWEET POTATO IN
THE CARIBBEAN***

Presented by

Dionne Clarke-Harris

Entomologist, CARDI



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Outline

- Introduction
- Challenges facing sweet potato industry development
- Initiatives to address the issue of pests
- Current status
- Moving forward



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Introduction

- Globally, Sweet potato (*Ipomoea batatas*) is among the most important food crops and the most popular root crop produced and consumed in developing countries
- A priority commodity for the Caribbean Community (CARICOM)
- A nontraditional crop which Governments of the region consider a vital component in the region's thrust in food and nutrition security



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Introduction

- Under the CARICOM Regional Transformation Programme for Agriculture, **CARDI** has lead responsibility for the development of the regional sweet potato industry.
- **CARDI** has spearheaded research and development efforts to enhance the sweet potato industry in the Caribbean through **a value chain approach**



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Challenges

Some constraints to sweet potato production:

- ▶ Improper matching of varieties with production areas
- ▶ Poor yields associated with poor agronomic practices
- ▶ Inconsistent quality
- ▶ High incidence of pests and diseases
- ▶ Inappropriate post harvest handling



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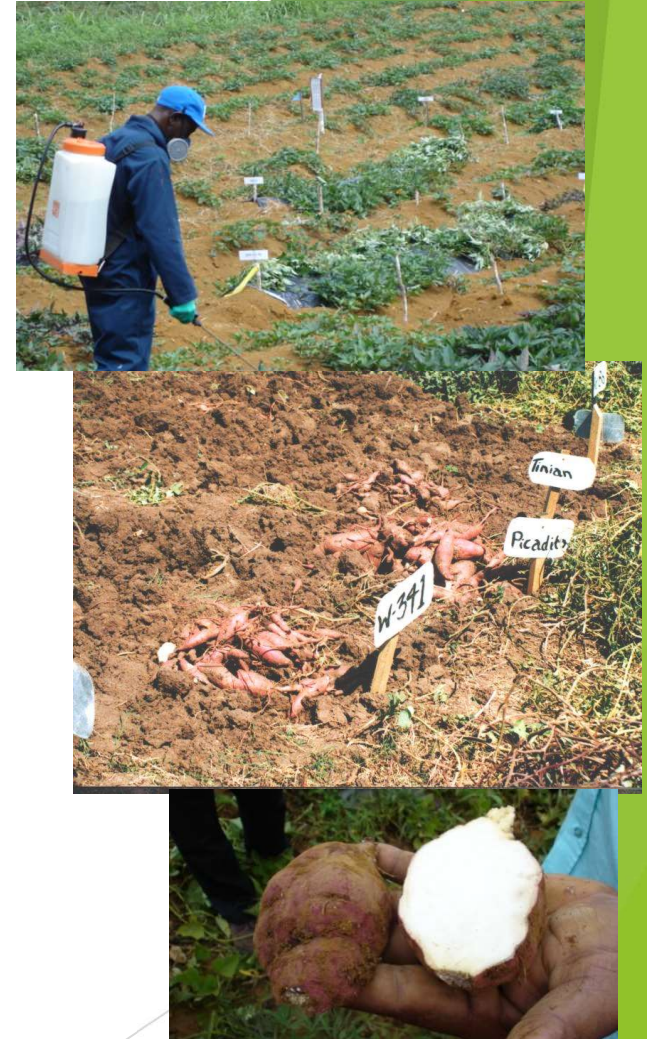
Interventions

- Through collaborative initiatives, actions along the value chain have included:
 - Characterisation of sweet potato varieties found in various countries for *production, productivity, climate resilience and value addition*
 - Multiplication and distribution of **disease-free planting material** to farmers
 - Development and transfer of **production technologies**
 - Identification and transfer of low resource and cost effective **post harvest techniques**
 - Development of **investment profiles**



Interventions

- Introduction of high yielding cultivars
- Studies/analyses including:
 - Agronomic studies in varying agroecological zones
 - Evaluation of Integrated Pest Management (IPM) and post-harvest management tactics
 - Biochemical analyses of various varieties/accessions
 - Standardization of the multiple varieties/accessions in the region through morphological studies



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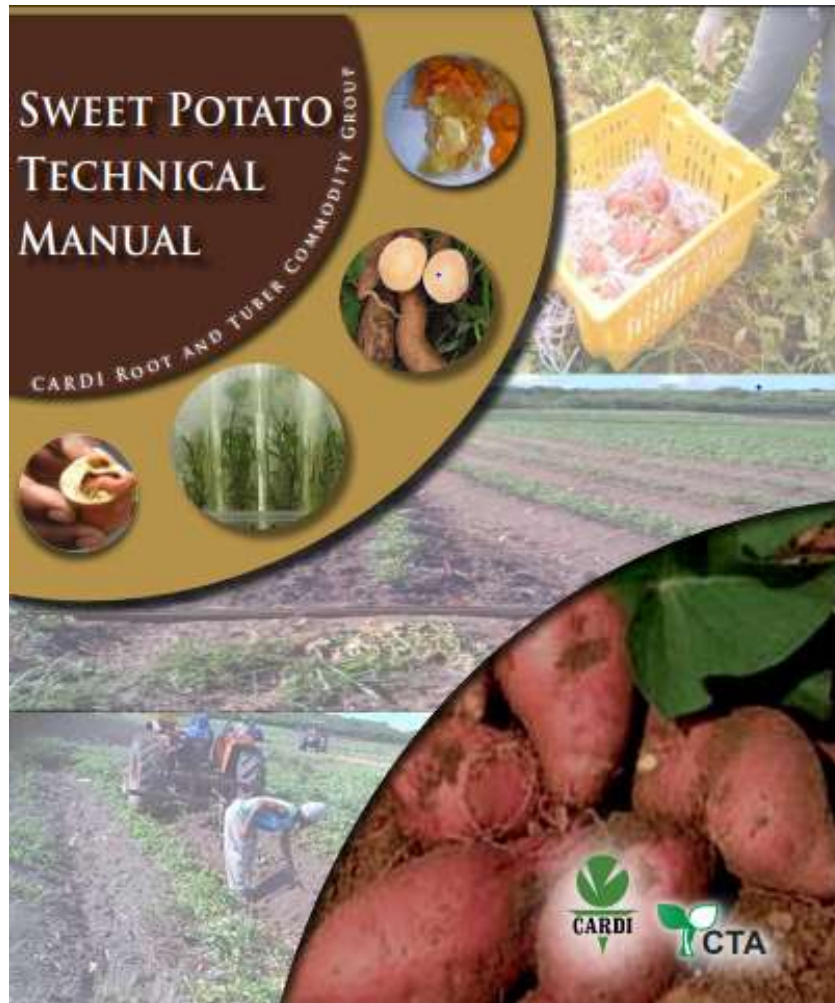
Interventions

- ▶ Capacity building among stakeholders of sweet potato in:
 - ▶ Integrated Pest Management (IPM)
 - ▶ Good Agricultural Practices and post-harvest management
 - ▶ Crop modelling
 - ▶ Professional development in the areas of weed management and virology *through graduate studies, workshops and short courses*



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Interventions



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Key Initiatives- Integrated Pest Management Collaborative Research Support Program (IPMCRSP)

- ▶ The global project, was managed by Virginia Tech and hosted in the Caribbean by CARDI. Funding: United States Agency for International Development (USAID)
- ▶ To develop IPM packages for the Caribbean and regionalise the the IPM technologies developed
- ▶ Collaboration was fostered among local, regional and some 13 US organizations/institutions resulting in complementary research efforts and exchange
- ▶ *Evaluation of IPM Technology for sweet potato*
- ▶ *Screening of multiple pest resistant sweet potato lines for resistance to major pests*
- ▶ *Evaluation of biorationals as safer alternatives*
- ▶ *Dissemination of IPM technology*



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Key Initiatives- Increased Production of Root and Tuber Crops in the Caribbean through the introduction of improved marketing and production technologies

- ▶ The project, was executed by CARDI. Funding: Common Fund for Commodities (CFC) and European Union (EU).
- ▶ To support the development of a commercially viable and sustainable regional root and tuber crop industry that facilitates the improvement of livelihoods and overall food security/sovereignty
- ▶ Component 1: Planting material
- ▶ Component 2: Production Technologies and Practices
- ▶ Component 3: Fresh and value added product development
- ▶ Component 4: Group/cluster development
- ▶ Component 5: Technology transfer



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Key Initiatives- Increased Production of Root and Tuber Crops in the Caribbean through the introduction of improved marketing and production technologies

- ▶ Component 1. Planting material
 - ▶ Establishment/refurbishment of plant propagation facilities (tissue culture labs, hardening and multiplication facilities)
 - ▶ Conservation of germplasm (market acceptable varieties)
 - ▶ Training of key personnel in conservation and mass propagation
- ▶ Component 2: Production Technologies and Practices *including*
 - ▶ High yielding varieties
 - ▶ IPM strategies
 - ▶ Nutrient and water management techniques
 - ▶ Soil fertility



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Key Initiatives- Increased Production of Root and Tuber Crops in the Caribbean through the introduction of improved marketing and production technologies

- ▶ Component 5: Technology Transfer
 - ▶ Training sessions in Integrated Crop Management practices
 - ▶ Demonstration plots on farms and on stations
 - ▶ Information/ training on product development and utilization



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Key Initiatives

- ▶ Under **Intra- ACP Agriculture Policy Programme (APP)** which was executed in the Caribbean by the Inter-American Institute for Cooperation of Agriculture (IICA). Funding from the European Union (EU). Component 2 of the project was implemented by CARDI.
- ▶ *To Increase productivity and production of roots and tubers from validated/ demonstrated and economic technologies*
- ▶ Demonstration plots were established and training was provided to farmers with special thrust to engage youth and women.
- ▶ Training sessions on Integrated Pest Management (IPM)
 - ▶ Pest identification (economically important pests of sweet potato)
 - ▶ Biological, cultural and chemical methods of managing these major pests
 - ▶ Field scouting for pests
 - ▶ Construction and use of Sweet potato weevil pheromone traps



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Current Status

- CDB/FAO study of 2019 highlighted major challenges to the agri-sector sector, namely
 - Weak market linkages,
 - Underdeveloped value chains
 - Low agricultural productivity
- Despite the foregoing initiatives, major gaps remain and the identified **challenges persist in the sweet potato industry**
- Technology adoption and adaptation are below expectation, which speaks to the **need for improved information dissemination methods**, aided by modern ICTs, *especially given declining resources in traditional extension services*



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Current Status

- Under an FAO global project for the '*Identification of a strategy and related framework for promotion of alternatives to carbofuran and carbosulfan,*' a survey (n=1572) 28% of farmers (AB, DOM, JAM, SVG, SKN,TT) indicated that sweet potato was their most important crop
- Only 21.3% of respondents had received IPM training (most commonly diamond back moth, cabbage and sweet potato weevil) although many had heard of IPM.
- 39%-72 %, by country, saved planting material from their best plants to replant their root and tuber crops



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Next steps

CARDI is implementing the **CDB Regional Sweet Potato Value Chain Enhancement and Technology Transfer** -Antigua and Barbuda, Barbados, Guyana and Saint Vincent and the Grenadines (USD 810,000)

- ▶ Component 1: Sweet Potato Value Chain Analysis, Market Assessment and Business Case Study/Investment Profiles. -to develop recommendations for strengthening the Regional sweet potato value chain, improve market linkages and highlight opportunities for investments
- ▶ Component 2: Market-Preferred Sweet Potato Varieties Research-to improve the availability of market preferred and climate-resilient sweet potato varieties/genotypes and enhance production and processing
- ▶ Component 3: Technology Transfer/Adoption -to improve the availability and accessibility of information on sweet potato production, processing and consumption by farmers and value chain actors in BMCs





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