Development of Agroforestry Potential of Jamaica's Forest

Presented by Robert Tulloch

Land Management Officer

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About RADA

- The **Rural Agricultural Development Authority (RADA)** is a statutory body under the Ministry of Agriculture and Fisheries (MoAF).
- **RADA** was established under the Rural Agricultural Development Authority Act of 1990, replacing the Land Authorities Act & began its operation on August 1, 1990.
- **RADA** is *Jamaica's Chief Agricultural Extension and Rural Development Agency*.

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Mandate

- To enhance the development of farming through an effective, efficient & sustainable Extension Service.
- To supplement information to rural development agencies, thereby assisting to advance improvements in rural infrastructure.
- To provide the supplemental social services required for the improvement of the quality of life of farm families.
- To provide technical advice to farmers of any size.
- To provide a reliable agricultural marketing information service.
- To assist in the implementation of specified rural development projects.

Definition of Key Terms

01 **AGROFORESTRY**

the intentional integration of woody vegetation such as permanent trees with crops and or livestock

02 **LAND MANAGEMENT**

process of managing the use and development of land resources

03 **FRUIT TREE**

tree which bears edible fruit that is consumed or used by humans and some animals

04 **PERENNIAL**

lasting or existing for several years

05 **ECONOMIC BENEFIT**

what we can quantify in monetary terms

06 **FARMER FIELD SCHOOL (FFS)**

a group-based adult learning approach that teaches farmers how to experiment & solve problems independently.

- sometimes called “schools without walls”, in FFS, groups of farmers meet regularly with a facilitator, observe, talk, ask questions, & learn together.

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Introduction

- Fruit tree orchards have played an important role in both rural & urban communities for many years
  - providing a livelihood for farmers, fresh fruits for many households & opportunities for growth in the areas of agro- processing & export for the country at large.
- Such trees can provide a large yield of fruits year after year for decades, requiring little human input when compared to the growing, planting, weeding, watering & pest control involved in annual vegetables.

Introduction

- As deep-rooted, long-lived perennials,
  these trees will have time to adapt to local conditions & be more resilient.
- Most fruit trees will begin bearing in the 3rd year after planting,
  - however, these trees will reach maturity (full bearing) between years 8-10.
- Fruits trees planted today & those planted previously can live up to (or more than) 300 years.
  - Especially trees growing in their natural habitat.

GOJ/RADA's Thrust

- Since Yr 2000, ≈ 1 million fruit trees have been distributed to farmers island wide
  - including: ackee, avocado, breadfruit, mango, nutmeg, sour sop, sweet sop, lychee, guava, cashew, June plum, West Indian cherry & apples.
- This has resulted in the establishment of 2,500 Hectares of fruit trees to date.
  - However, setbacks such as the negative effects of drought, fire, stray animals, neglect by farmers & housing developments, have resulted in only 50 % of the established acreage currently exists.

GOJ/RADA's Thrust

- **Our thrust is towards achieving food security** despite the many environmentally & economic challenges.

- Jamaica's environment (as a tropical country) is conducive to the **production of a variety of fruits**.

- We are seeking to **promote long term development & sustainability of the fruit tree crop industry**
  - as an important source of income for farmers,
  - fresh fruits for the domestic market,
  - raw material for the agro-processing industry &
  - non-food products such as fodder, nutraceuticals & industrial products.

Fruit Tree (FT) Nursery Capacity in Jamaica

Government Fruit Tree Nurseries

- *Bodles Research Station,*
  - *Old Harbour, St. Catherine*
  - ☞ ***70,000 plants***
  - ☞ *Bodles currently has **13,000 FT** available*

- *Orange River Research Station,*
  - *Highgate St. Mary*
  - ☞ ***60,000 plants***

Fruit Tree Nursery Capacity in Jamaica

Private Nurseries Island wide ……1/2

Parish	No. of Nurseries	Capacity per annum	Notes
St. Thomas	3	200,000	-
Portland	2	100,000	-
St. Mary	1	140,000	-
St. James	1	20,000	Montpellier Agricultural Station
Westmoreland	1	5,000	-
St. Elizabeth	1	10,000	Sydney Pagon Agricultural High School (Formerly Elim Agricultural School)
St. Ann	1	10,000	-

Fruit Tree Nursery Capacity in Jamaica

Private Nurseries Island wide …..2/2

Parish	No. of Nurseries	Capacity per annum	Notes
Clarendon	4	400,000	Including citrus
Manchester	1	100,000	Citrus
St. Catherine	6	330,000	-
St. Andrew	6	200,000	Coffee/main crop
TOTAL	**27**	**1,515,000**	**-**

Fruit Trees Facts for Economic Benefit

- To produce:
  - a properly fed, healthy fruit tree,
  - ☞ minimum $300.00 / plant
- To prepare:
  - one acre of land,

  (dig holes, incorporate organic matter, plant & stake trees)

  ☞ minimum $150,000.00 / acre
- To care for these plants:
  - for the first year,

  ☞ minimum $40,000.00 / acre

Fruit Trees Facts for Economic Benefit

Sample minimum No. of trees to plant for Jamaica's economic benefit

Tree	Acres	Hectares
Ackee	3,000	1,200
Avocado	1,000	400
Mango	10,000	4,000
Sour sop	3,000	1,200
Jackfruit	500	200
Breadfruit	4,000	1,600
Pimento	500	200
Nutmeg	500	200
Total	**22,500**	**9,000**

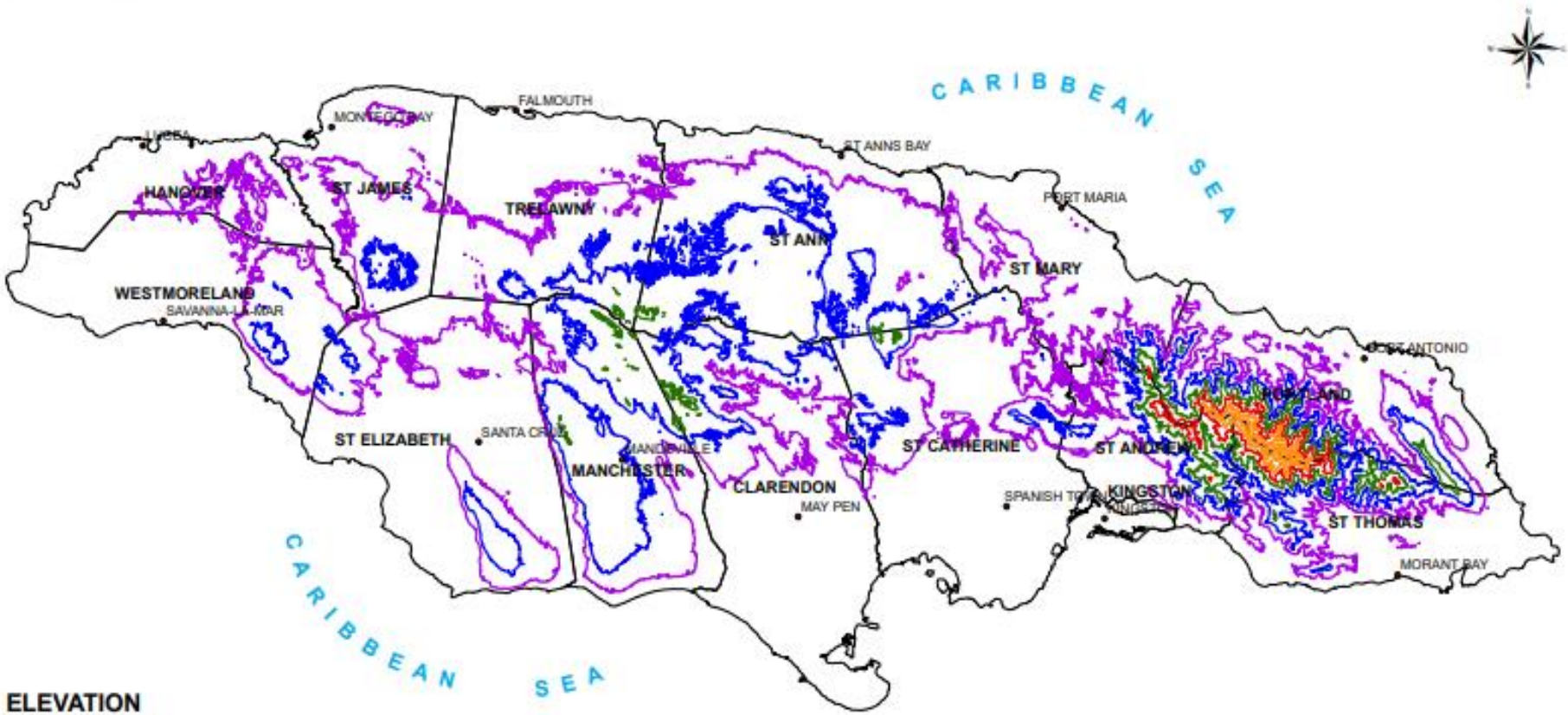
Ideal Elevation for Planting Fruit Trees

Fruit Trees	0-1000 Feet (300 M)	1000-2000 Feet (300-700 M)	2000-3000 Feet (700-1000 M)	3000- 7000 Feet (1000-2000 M)
Apple	✓ -ideal	✓	✓	x
Ackee	✓	✓	✓	x
Avocado	✓	✓	✓	x
Almond	✓	✓	✓	✓
Guava	✓	✓	✓	✓
June plum	✓	✓	✓	x
Jackfruit	✓	✓	✓	x
Naseberry	✓	✓	x	x
Mango	✓	x	x	x
Soursop	✓	x	x	x
Sweetsop	✓	x	x	x
Pimento	x -not ideal	✓	✓	✓
Nutmeg	x	✓	✓	✓
Breadfruit	✓	✓	✓	x
Cherry	✓	✓	✓	x
Red Star Apple	✓	✓	✓	x
Star Fruit	✓	✓	✓	x

Scale 1:600,000

ELEVATION MAP

Jamaica



ELEVATION

- 1000 Feet
- 2000 Feet
- 3000 Feet
- 4000 Feet
- 5000 - 7000 Feet

Parish Boundary / Coastline

ALMD
Ministry of Industry, Commerce, Agriculture & Fisheries
Agricultural Land Management Division
191 Old Hope Road
Kingston 6

Date prepared: January 2020

People Land & Opportunity

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Agroforestry Developments

RADA's Agroforestry Developments

RADA has partnered with both governmental and NGO's in agroforestry projects.

Three Recent Examples:

1.

Project Title	Jamaica Water Fund FY20-JAMWF-RADA112019
Project Duration	February 2020 to June 2020 ||| Adjusted – to August 2020 (Covid)
Donor	Nature Conservancy
Parish/ Location	St. Andrew
Community	Mount Airy, Hermitage, Mount James, Mount Pleasant

RADA's Agroforestry Developments

Goal:

- train 30 farmers from 1 community in climate smart land husbandry &
- engage farmers for the establishment of 2 Ha of agroforestry on private farmer holdings.

- The project was valued at $2.9M & the farmers were given 823 fruit trees and 3,000 pineapple suckers.
- 28/46 farmers/beneficiaries were trained & certified on August 19, 2020

RADA's Agroforestry Developments

RADA has partnered with both governmental and NGO's in agroforestry projects.

Three Recent Examples:

2.

Project Title	Integrated Management of the Yallahs/Hope Watershed Management Unit - Agro-Forestry Services Contract No GRT/FM-14607-JA-IDB-YH-07
Donor	Inter-American Development Bank (IDB)/ National Environment & Planning Agency (NEPA)
Project Duration	September 2018 – October 2019
Parish/Location	St. Thomas, St. Andrew

RADA's Agroforestry Developments

Component 3 "Implementing sustainable livelihoods, agriculture and forestry in watershed communities – Agroforestry,"

Goal:

- *to induce 241 Hectares (Ha) agroforestry to improve the conservation & management of biodiversity & the provision of ecosystem services in*
- *Yallahs River & Hope River Watershed Management Units in targeted communities of St. Thomas & St. Andrew.*

- *A total of 273.66 Ha of fruit trees, were planted which benefited 486 farmers. (The project officially closed - December 31, 2019)*
- *Planted 122.05 Ha in St. Thomas & 151.61 Ha in St. Andrew.*
- *Distributed 1,922 fifty pound bags of fortified organic matter*
- *Planted 76,833 assorted fruit trees in the project communities.*
- *Project financing of US $514,444.70 provided by the project sponsor directly to RADA's Capital Account*

RADA's Agroforestry Developments

RADA has partnered with both governmental and NGO's in agroforestry projects.

Three Recent Examples:

3.

Project Title	Accelerating the Uptake of Climate-smart Agriculture in Jamaica Project N°: 1-1-02-201-8 (N+D)
Donor	Technical Centre for Agricultural and Rural Co-operation ACP-EU (CTA is financed by the European Union)
Project Duration	May 2018 – Feb 2020
Parish/Location	St. Thomas, St Mary and Portland

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Agroforestry Developments

Promoting Climate Smart innovations to safeguard the environment & protect livelihood.

Land Management Unit

- RADA's Land Management Unit assist farmers in managing their land & make use of their land resources using the Farmer Field School (FFS) Methodology.

Land Management Practices

- Agronomic Methods

reduce pollution, improve soil fertility & enhance biodiversity

- Intercropping
- Vegetative Barriers
- Mulching
- Cover Cropping

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Agroforestry Developments

Promoting Climate Smart innovations to safeguard the environment & protect livelihood.

Soil Fertility Methods

- Composting
- Crop Rotation
- Green Manure
- Inorganic Fertilizer (correctly applied)

Structural Methods

- Stone Barriers
- Bamboo Barriers
- Trash Barriers
- Check dams
- Contour Cultivation

Agroforestry Developments

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Farmer Field School Methodology

Benefits

- FFS technique - effective as it recognizes & revitalizes farmers' traditional knowledge & increases their innovativeness.
- FFS enables farmers to learn & exchange knowledge, improving their capacity to manage land in a sustainable way.
- It also promotes community development & builds trust amongst community members.

Procedures

- FFS approach is based on learning by doing, rather than telling.
- FFS facilitator helps by asking questions & builds on their experience & observations (does not lecture the farmers).
- Farmers are encouraged to make their own discoveries & draw own conclusions.

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Agroforestry /FFS Training Session Highlights

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Challenges

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Mitigation Avenues

Tangible **small grants support for willing farmers with legal land tenure**, on a per acre basis

Support for intercropping of fruit tree orchards;

Greater involvement of women & youth in afro-forestry

Irrigation/On-Farm Water Management

Major risk to fruit tree crop establishment

Provide **technical support to farmers through RADA** (budgeting concerns)

Mitigation Avenues

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In collaboration with the AIC:

Expansion of Fruit Tree Crop Agro Parks Island wide

Encourage crop zoning e.g., breadfruit & jackfruit for the parishes of St. Mary, Portland, St. Thomas, Hanover & Westmoreland.

Assist RADA to construct Parish Shade Houses

(to hold Plants for distribution after land preparation has concluded)

Fund RADA's Fruit Tree Crop Project
(Proposal complete & funding needed)

Support the Development of **Farming as a Business Curriculum** &/Training Manual for Fruit Tree Crop


THANK
YOU