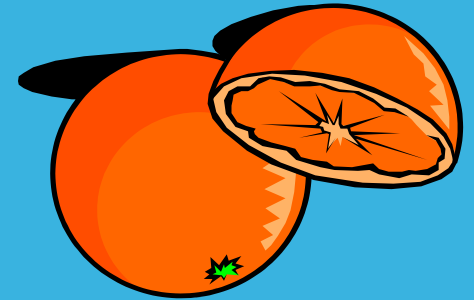
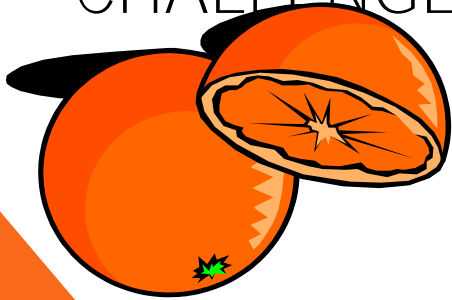


CITRUS PROTECTION AGENCY PRESERVING JAMAICA'S CITRUS GERMPLASM: CURRENT CHALLENGES AND OPPORTUNITIES.



BY
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AGENCY/CITRUS PROTECTION OFFICER- MICAF**

THE JAMAICA CITRUS INDUSTRY

- In 2009 the citrus industry in Jamaica :
- 22,000 acres of citrus grown (Currently about 12,000)
- 19,000 person employed
- Two processing factories
- 5000 small farmers 280 medium farmer 8 large farmer



THE JAMAICA CITRUS INDUSTRY

- Over 90% of production for locally consumption
- Less than five % exported
- Fresh fruit market largest consumer



THE JAMAICA CITRUS INDUSTRY

Annual production on a path of rapid decline from high in 1999 to low in 2014

1. Sweet orange	2,778,256	1,495,600
2. Grapefruit	44,594	12,282
3. Ortanique	212,084	67,711
4. Ugli	90,021	13,909
5. Total	4,576,600	1,589,502



Jamaica's Citrus Certification Programme

- The Citrus Protection Agency established in 1999
- To implement and enforced a mandatory citrus certification programme as established by the Citrus plant (Certification) regulation 1999 of the Plant Quarantine act



Certified Scion Trees

MANDATORY CITRUS CERTIFICATION

- The production of healthy, high- quality nursery trees, requires three different but closely related programmes to come together

A Quarantine Programme

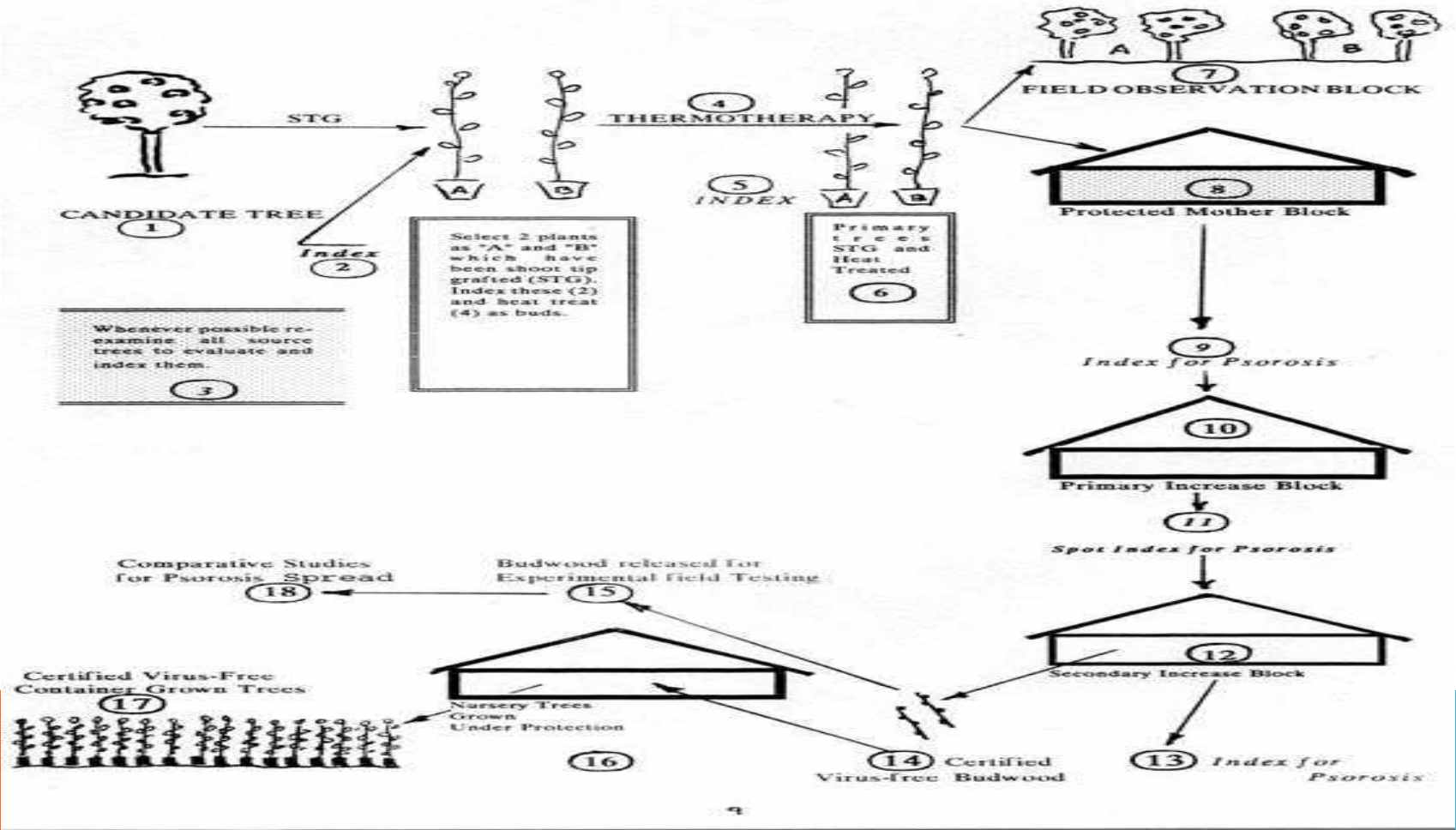
A Clean Stock Programme

A Certification Programme



TYPICAL CERTIFICATION PROGRAMME

Fig.3 PROPOSED CERTIFICATION SCHEME



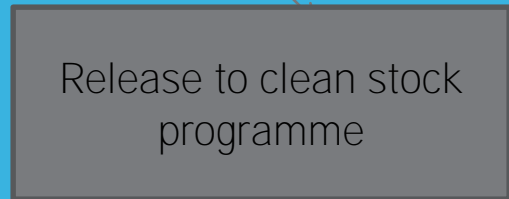
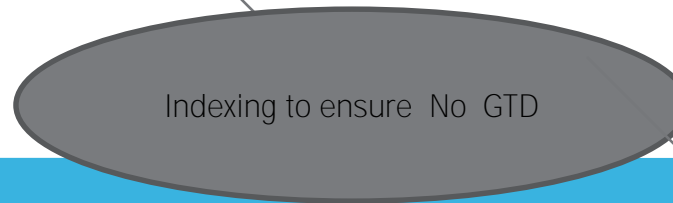
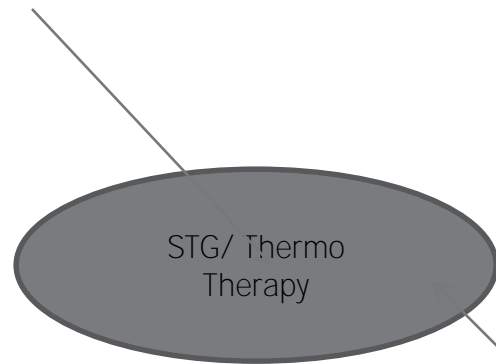
A QUARANTINE PROGRAMME

- A quarantine programme serves to ensure the safe introduction of selected horticultural germplasm needed by the industry
- Minimized the introduction of pest and disease



A QUARANTINE PROGRAMME

Exotic Material

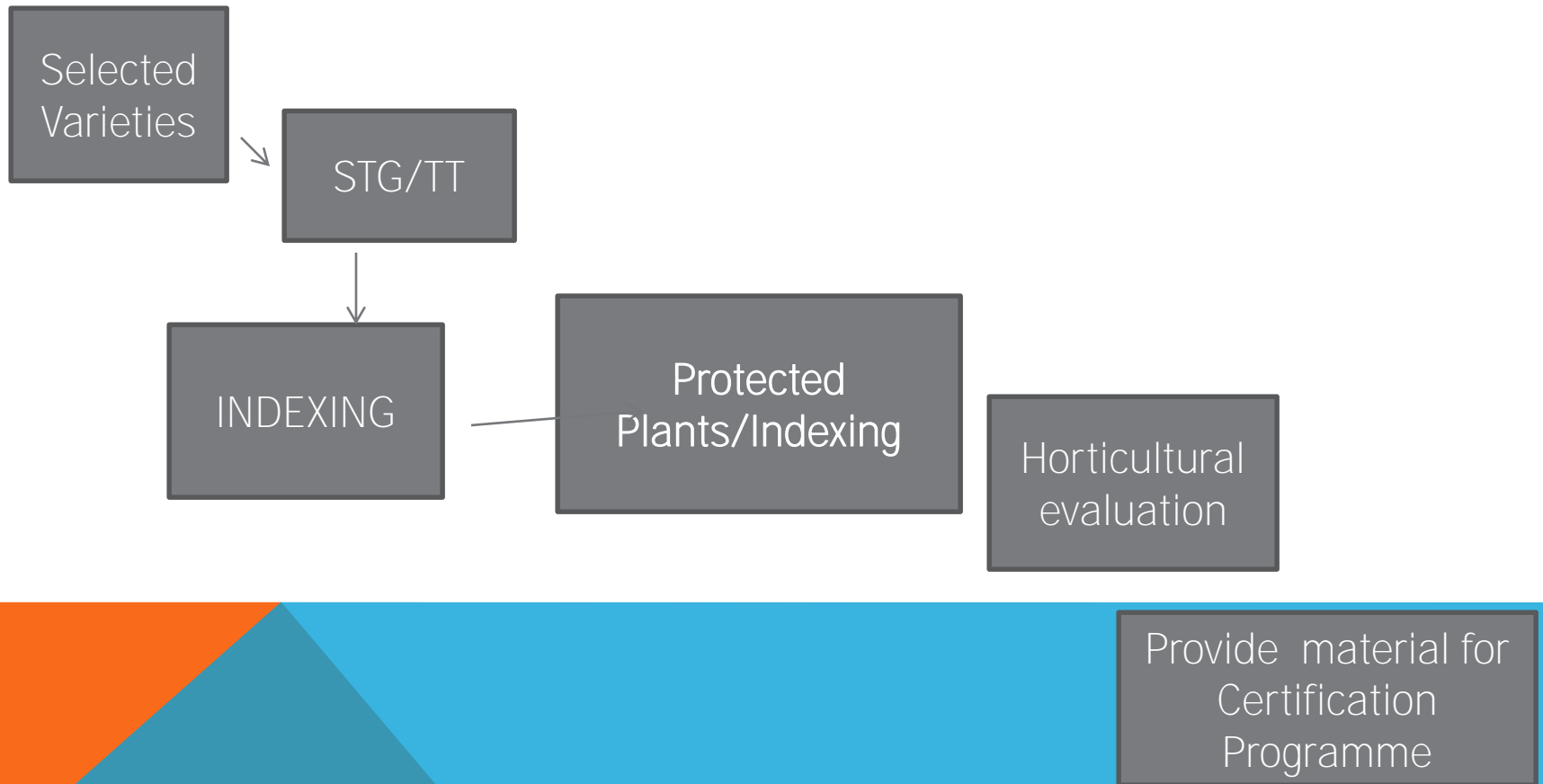


A CLEAN STOCK PROGRAMME

- A clean stock programme serves to identify, conduct testing and provide therapy to produce sources of pathogen- free propagating local stock.



A CLEAN STOCK PROGRAMME

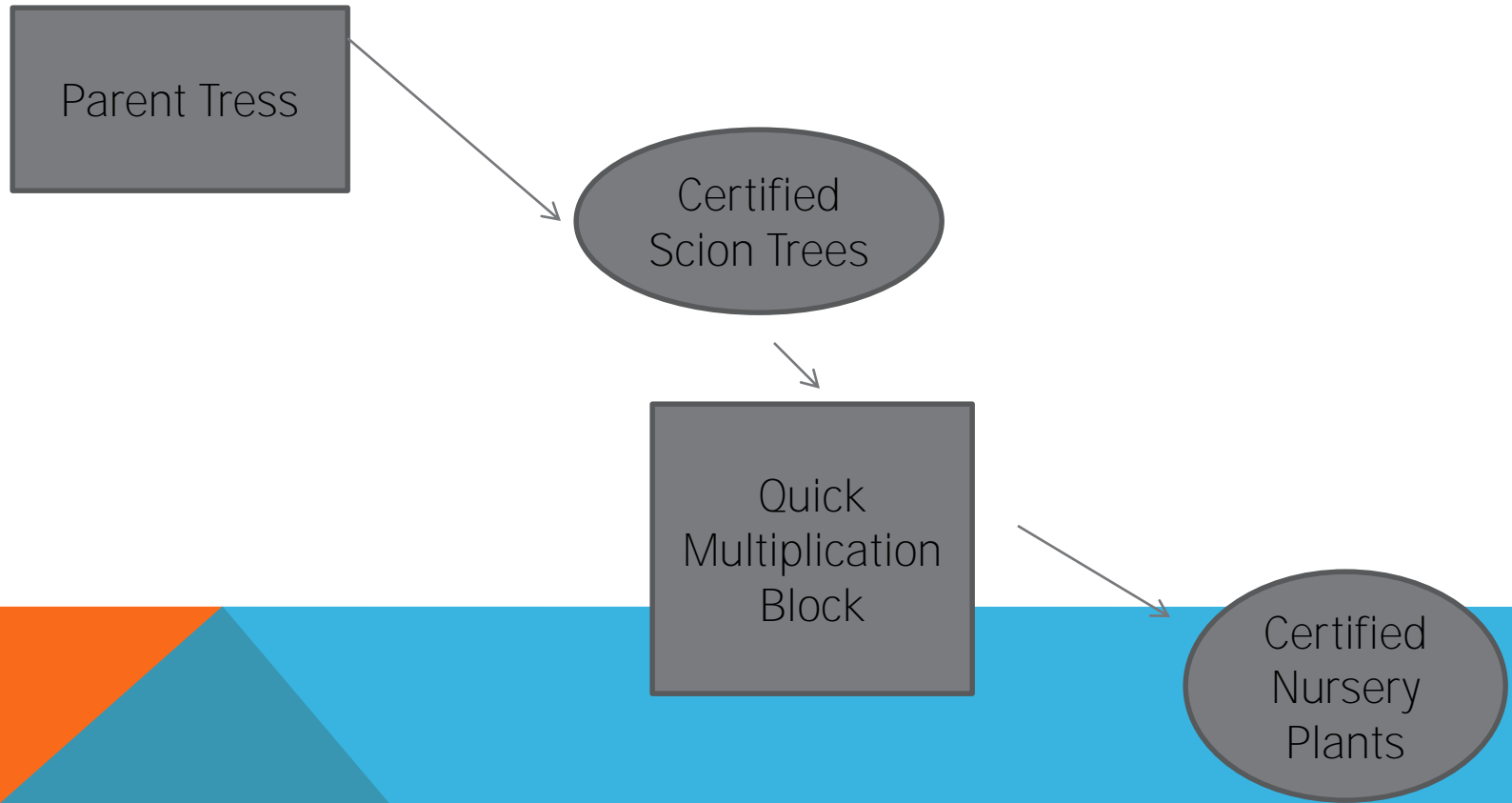


A CERTIFICATION PROGRAMME

- Certification Programme serves to ensure the development and maintenance of virus-free propagating materials for commercial use.
- Healthy plants recovered in the first two programme provide starting material for the certification programme.

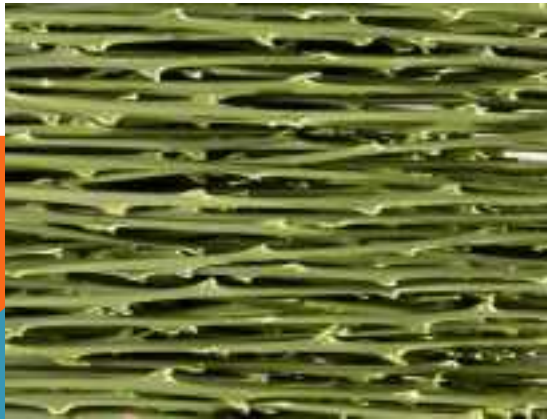


A CERTIFICATION PROGRAMME



GERMPLASM

- Germplasm are living genetic resources such as seeds or tissues that are maintained for the purpose of animal and plant breeding, preservation, and other research uses.
- In citrus we are concern mainly with:
 - Seeds
 - Budwood



SCREENHOUSE FOR PARENT TREES/ FOUNDATION SOURCE



PARENT TREES

- Maintain by the Ministry of Agriculture
- Kept in Aphid proof screen house
- Bio-indexed every four years
- Buds used to established certified scion trees



STATUS OF CITRUS GERMPLASM PRESERVATION AT BODLES FACILITY

- Current collection consist of 47 imported cultivars obtain from 4 importations in 1997, 2000, 2001, 2012
 - 47 imported Germplasm material
 - 8 rootstocks
 - 6 indicator plants
 - 33 commercial cultivars
- Seven local cultivars

CITRUS GERMPLASM AT BODLES FACILITY

- Valencia-
 - Cutter
 - Olinda
 - Frost
- Grapefruits
 - Frost marsh
 - Rio red
 - Star ruby
 - Oroblanco
- Sweet oranges-
 - Hamlin
 - Pineapple,
 - Marrs early
 - Ambersweet
 - Joppa sweet
 - Salustinia
 - Parson brown
 - Pera sweet
 - Madam vinus

CITRUS GERMPLASM AT BODLES FACILITY

- limes-
 - Bearss (Persian)
 - Mexican (West Indian, local)
 - Yuzu
 - Australian finger
- Navels-
 - Washington
 - Newhall
 - Gillette
 - Cara cara
 - Navelate
- Mandarin-
 - Clementine
 - Dancy
 - Fortune
 - Page

CITRUS GERMPLASM AT BODLES FACILITY

- Lemon-
 - Villafranca
 - Volk
 - Rough lemon
- Tangelo-
 - Ugli (Jamaican Tangelo)
- Calamondin
- Kumquat - Mewa
- Ortanique

CITRUS GERMPLASM AT BODLES FACILITY

- Root Stock-
 - Cleopatra Mandarin
 - Gou Tou
 - Swingle Citrumello
 - Troyer Citrange
 - Carrizo Citrange
 - Benton Citrange
 - C-35 Citrange
- Indicator Plants-
 - Parson Special Mandarin
 - Clemelin 11-20

STATUS OF CITRUS GERMPLASM PRESERVATION AT BODLES FACILITY

Important local cultivars currently being sanitized to be included in local collection using Shoot Tip Grafting:

- Tangerine
- Ortanique
- West Indian lime
- Sweet seeded Grapefruit (Silver Cluster)
- Jamaican tangelo
- Local Valencia
- Surprise navel

CITRUS GERMPLASM OF MAJOR IMPORTANCE

Other cultivars of importance which are being collected for preservation and sanitization includes:

- Hog shaddocks- popular rootstock
- Seville sweet
- Sweet lime
- Temple - Tangelo
- King fruit - Mandarin
- Oneika - Mandarin
- Rhodjam - Tangor (developed by Rhoden)
- Local mandarin
- Denham sweet
- Sour orange

CITRUS GERMPLASM OF MAJOR IMPORTANCE Cont'd

Other cultivars of importance which are being collected includes:

- Rangpur lime- Rootstock
- Citrus Macrophylla- Rootstock
- Smooth Flat Seville- Rootstock

OUR CONTRIBUTION TO WORLD CITRUS

Despite our small size, Jamaica has contributed at least three important cultivars to world citrus:

- Ortanique (Tambor, Mandora, Topaz, Australique)
- Jamaican tangelo (Ugli, unique)
- Temple

OUR CONTRIBUTION TO WORLD CITRUS



Jamaica

— the cradle of some exquisite citrus varieties

By Colin Weil and Percy Miller

... why Jamaica, which produces less than 0.3 percent of the total world's citrus production, should be the home where at least four important citrus varieties — Ortanique, UGGL, Tropic orange and grapefruit — originated is difficult to explain.

... one of the more reasoned and plausible explanations pointed to the range of climatic conditions associated with the mountainous nature of the island, interacting with the genetic makeup of the various citrus species.

... Ortanique is a tangerine — a natural cross between sweet orange and tangerine — and was first discovered growing in the Manchester Hills of Jamaica in the early 1900s. C. P. ... is credited for carrying out the early selections of the fruit and also named the fruit — a contraction of orange, tangerine and unique. The Ortanique does well in hot, dry weather on shallow, well-drained, bauxitic soils in the mountains, between 1,500 and 2,000 feet elevation. This unique has not performed well in Florida. Ortanique is the registered trademark of the ...

... and other European explorers of the 15th and 16th centuries. Instead, the grapefruit is believed by many experts to have originated in the West Indies as a spontaneous "sport" of the pomelo. Others believe that the grapefruit might be a natural accidental cross between pomello and sweet orange. Whatever the botanical origin, it is widely accepted that the grapefruit is of West Indian origin — more than likely Jamaican, but maybe Barbados. Today, unique varieties of the grapefruit in Jamaica are the Silver Cluster and Sweet Seeded Grapefruit used in a popular commercial brand of carbonated grapefruit beverage.

CURRENT CITRUS PRODUCTION IN JAMAICA

Currently the acreage under citrus in Jamaica is approximately 22,000 acres with sweet oranges, grapefruit and Ortanique accounting for 19,230, 660, and 1,600 acres, respectively. Citrus farms of more than 100 acres account for 33 percent of the total acreage, while holdings of less than 25 acres account for 67 percent.



OUR CONTRIBUTION TO WORLD CITRUS - ORTANIQUE

- Natural cross found in 1920, in Manchester
- Ortanique a tangor(orange x tangerine)
- Best qualities grown in Jamaica
- Grown all over the world and sold with several names
- Trade name owned by CGA



OUR CONTRIBUTION TO WORLD CITRUS - TEMPLE

- Chance hybrid found in 1896
- Temple is a tangor (orange x tangerine)
- Grown in Florida due to there productivity (650,000 boxes) crop year 04/05
- Cannot be found in Jamaica



OUR CONTRIBUTION TO WORLD CITRUS - UGLI

- Found in Jamaica
1914 in Brown
Town, St. Ann
- Ugli a tangelo (Grapefruit x tangerine)
- One of the most expensive citrus
- Very popular in EU and Canada
- Not very popular in Jamaica



MAJOR CHALLENGES TO GERMPLASM PRESERVATION

- Lack of adequate greenhouse space at Bodles
- Lack of suitable land area for establishing an infield germplasm collection
- Lack of funds to do testing and genetic fingerprinting
- Inadequate staff at the Agency
- Poorly maintained infrastructure



MAJOR CHALLENGES IN THE INDUSTRY

- Pest
 - CTV
 - HLB/ Greening
- Aging farmers
- Low input and low technology
- Praedial Larceny
- Competition from imported concentrate
- Lack of extension support



PROCESSING FACILITIES AND MARKETS

Current trends:

- One of the two processing facility closed in 2016
- In 2012 importation of citrus concentrate valued at USD \$ 3.5 M
 - Equates to 269,231 gallons (@USD \$ 13/gal.)
 - Equates to 5,983 drums (@ 53 US gals/drum)
 - This is in comparison to 2009 when Jamaica had an oversupply of citrus concentrate.
- Citrus exports are now substantially reduced:
From approx. 300,000 Field Boxes in 2009
To approx. **195,000 Field Boxes in 2016**

OPPORTUNITY IN THE INDUSTRY- FINGER LIME

- Finger Lime
- Call the caviar of lime
- Small plants suitable for backyard and can be grown in pots
- High density planting can be done
- Fruits can be sold to the hotel industry
- Research needed to see how well it performs in Jamaica



OPPORTUNITY IN THE INDUSTRY

- Cara cara is a pigmented navel
- Ideal for our climate, needs heat and not coldness for colour development
- Clementine are easy to peel and can be given to children to encourage healthy eating



OTHER OPPORTUNITY IN THE INDUSTRY

- Demand for Tangerine
 - Demand for Jamaican grown Ortanique in Canada
 - Demand for Limes and Lemons in the hotel industry
 - Demand for new citrus cultivars to meet our taste
- 

QUESTION

QUESTION?

THANK YOU

