



Coconut research in Vanuatu

1962 to 2019

Main results and future actions

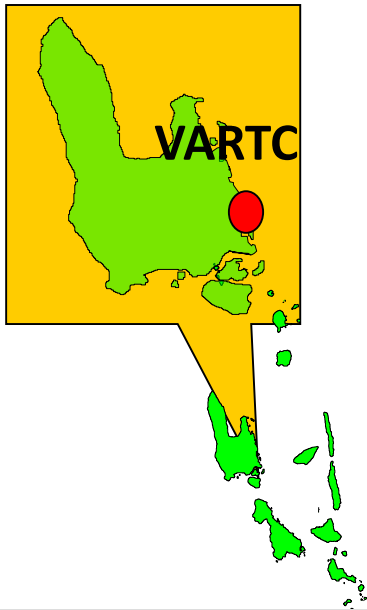
Vanuatu Agricultural Research and Technical Center



1962 - Creation of a **coconut research station** managed by **IRHO** on Santo Island

1994 – Establishment of **Vanuatu Agricultural Research and Technical Center** under the management of **CIRAD**

2002 – **VARTC** handover to **Vanuatu Government**



500 ha of land of which **210 ha** are occupied by coconut plantations (collections, seed gardens and trials plots).



Main activities and results

1. Establishment of a large coconut gene bank

- By introduction of exotic varieties from Africa, Asia, America and Pacific and collection of local coconuts in Vanuatu



- 14 exotic Tall varieties
- 13 exotic Dwarf varieties
- 25 Vanuatu Tall populations
- 3 Vanuatu Dwarf varieties

➤ **VARTC gene bank is the most diversified in the Pacific Region and still a precious asset for coconut breeding**

Main activities and results

2. Discovery and control of Coconut Foliar Decay disease



- Viral disease, endemic in Vanuatu
- **Full tolerance of local coconuts to CFDV and susceptibility of exotic varieties and most of their hybrids**
- Identification of the insect vector (*Myndus taffini*) and its biological cycle
- “Control” of the disease : isolation from *burao* (*Myndus* breeding site) and use of tolerant cultivars

➤ Major constraint

- **no exotic Dwarf or Tall well adapted to Vanuatu**
- **each new planting material had to been tested for tolerance to CFDV**

Main activities and results

3. Genetic improvement of planting material for Vanuatu



- Mass selection in local Tall populations
- Creation and assessment of 60 different hybrids by hand pollination
- Establishment of comparative trials and tests for tolerance to CFDV

- **Successful selection of :**
- **one population of Improved Vanuatu Tall**
 - **one hybrid Vanuatu Tall x Rennell Island Tall**
- both high-yielders and tolerant to CFDV**

Improved Vanuatu Tall



80 nuts/palm
209 g copra/ palm

2.8 t copra/ha/year

Hybrid Vanuatu Tall x Rennell Island Tall



120 nuts/palm
218 g copra/palm

3.7t /ha/year.



Main activities and results

4. Establishment of seed gardens at VARTC

- Production of selected varieties seed nuts resistant/tolerant to CFDV and suitable to plant in the whole country

Potential of production of the seed gardens

IMPROVED VANUATU TALL : 355 000 seednuts/year
(280,000 ready to plant seedlings/ 1800 ha)

HYBRID VTTx RENNELL TALL : 7000 nuts/year
(5,250 ready-to-plant seedlings/ 36 ha)

Main activities and results

5. Production and dissemination of Improved coconuts

- In line with the Vanuatu National Coconut Strategy, VARTC provided Improved coconut seednuts to DARD for dissemination to farmers.



	2016	2017	2018	2019
Improved VTT seednuts	92,584	100,858		120,000
Hybrid seednuts				

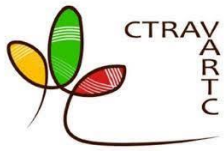
Main activities and results

6. Search of suitable varieties with excellent sugar content and resistant to CFDV for the coconut water market

- Selection of a Vanuatu Yellow Dwarf collected in farmer field



NEXT STEP: Improvement by crossing with Brazilian Green Dwarf and Kiribati Green Dwarf



Ongoing projects proposals

- The renovation of the building and purchase of equipment's are funded by CIDP in 2019, coordinated by South Pacific Community.

To establishing a processing unit for the production of :

- White copra
- Virgin Coconut oil ,
- Coconut water,
- Coconut Milk,
- Charcoal.

White Copra

- Preliminary Activity

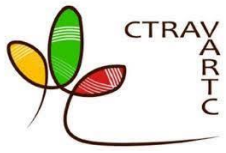


- Good Quality/price

Virgin Coconut Oil



- Production of VCO using simple methods (Decantation and Fermentation)



Coconut Water & Coconut Milk



- Bottling of coconut Milk (Average : 10 fruit = 1 Litre)

Coconut Water

- Identifying Coconut Varieties for collecting Coconut Juice
- Bottling of Coconut Water



Charcoal

- Production of Coconut Charcoal





Challenges for way forward.

- Capacity building (Lack technical skill)
- Financial resources (equipment and materials)
- Local partnership (Other Government ministries and NGO)
- Major Pests & Disease Management (CRB & CFDV)
- Increasing diversity of a Perennial crop –Establish an Embryoculture and In vitro culture to facilitate export embryos of exotic varieties and import new varieties.

Partners

- Vanuatu Government MALFFB (DARD,DOL,Biosecurity,
- Ministry of Trades (DOI,DOT)
- SPC (CIDP) provide trainings to VARTC staffs and funded the Processing Unit
- French Embassy
- CIRAD provides assistant on data base management, lab equipment's, Technical advice
- NGO's funded training for farmers

Thankiu tumas blong Lesin!