



INTERNATIONAL YEAR OF
PLANT HEALTH
2020

Tissue Culture



**Clean, healthy planting material provides for a great start to overall plant health.
CARDI forges Strategic Partnerships to increase access to clean, improved planting material in the region.**

Tissue culture (TC) is a specialized field of plant propagation, where a fragment of plant tissue is used to produce plants of similar characteristics. The plant tissue is maintained in a laboratory on a mixture of nutrients under sterile conditions. It remains one of the safest ways to produce and transport planting materials from one country to another.

Over the years, and through various strategic partnerships and projects, CARDI has contributed to:

- Establishing the 1) Orange Hill Agriculture Biotechnology Centre and 2) Perseverance weaning and hardening facility in St. Vincent and the Grenadines under the CFC-funded project, in partnership with the Government of the St Vincent and the Grenadines.
- Upgrading equipment of the TC laboratory at SRC, Jamaica under the EU-funded APP project. APP was funded under the 10th EDF and implemented by CARDI, IICA and CARICOM Secretariat
- Refurbishing and equipping the Seed Facility at Bodles Research Station, Jamaica; with funding from both the APP project and the CIF/PPCR project executed by IDB. Also under the PPCR project, the construction of weaning and hardening facilities needed for conditioning tissue-cultured plants before transplanting in the field. These facilities will operate in conjunction with the tissue culture laboratories in select countries including Jamaica, Belize and Antigua and Barbuda.

Planting materials (banana, cassava, sweet potato and yam varieties) are multiplied in these facilities. It is envisaged that the laboratories though operated in-country can be germplasm reservoirs for the region. To this end, CARDI has to date, signed a Memorandum of Understanding with the respective Ministries of Agriculture, regarding facilities at Bodles Agricultural Research Station and the Orange Hill Tissue Culture laboratory.

In addition to local varieties, new improved introduced varieties, that are pest and disease resistant, drought tolerant, higher yielding and have desired characteristics for value addition, have been imported from organizations such as CLAYUCA, CIAT, CIP, IITA, Bioversity International, CIRAD, FHIA, SPC and Taiwan through partnerships under various projects. Characteristics of some local and/or introduced accessions that are maintained in germplasm plots and/or in TC facilities include:

Characteristic**Commodity-accession(s)**

	Plantain/ Bluggoe	Sweet Potato	Banana	Cassava
High Starch content and/or value addition	Dwarf Macaboo for flour.	Black Vine for flour and fries. Chickenfoot and Hutland for kettle cooked chips.		Black Stick and Yellow Stick for kettle cooked chips.
High productivity				MCOL-22
Drought tolerance	FHIA21	Beauregard		
Tolerance to races 1 and 4 Fusarium wilt	FHIA21			
Resistance to Black Sigatoka Disease	FHIA-01, FHIA-03, FHIA-18, FHIA21			
Tolerance to Yellow Sigatoka Disease			FHIA-17, CIRAD- FLHORBAN 916	

APP: Agriculture Policy Programme; **CARICOM:** Caribbean Community and Common market; **CIAT:** The International Centre for Tropical Agriculture; **CIRAD:** Centre for International Cooperation in Agronomic Research for Development; **CIF:** Climate Investment Funds; **CIP:** International Potato Centre; **CFC:** Common Fund for Commodities; **CLAYUCA:** The Latin American and Caribbean Consortium for the support of Research and Development of Cassava; **EU:** European Union; **FAO:** Food and Agricultural Organization of the United Nations; **FHIA:** Fundación Hondureña de Investigación Agrícola; **IDB:** Inter-American Development Bank; **IICA:** Inter-American Institute for Cooperation on Agriculture; **IITA:** International Institute of Tropical Agriculture; **Jamaica;** **PPCR:** Pilot Programme for Climate Resilience; **SPC:** The Pacific Community; **SRC:** Scientific Research Council

