



**COCOA RESEARCH CENTRE**  
**ANNUAL RESEARCH AND**  
**DEVELOPMENT SYMPOSIUM**

Cocoa Research Centre  
The University of the West Indies, St. Augustine Campus

# Research and Innovations to Support Development of the Cocoa Sector

**Wednesday 27<sup>th</sup> July 2022**  
**Thursday 28<sup>th</sup> July 2022**  
**10:00 AM**  
**Zoom webinar**



## Day One: Post Harvest Quality Management

- 1 The role of the Cocoa Research Centre in supporting research and development: Quality  
*Pathmanathan Umaharan*
  - 2 Evaluation of germplasm enhanced for black pod resistance to identify genotypes combining multiple favourable traits.  
*Frances L. Bekele, Gillian G. Bidaisee and Junior J. Bholá*
  - 3 A sense of place - unravelling flavour diversity of cacao (*Theobroma cacao* L.) fermentations across Trinidad.  
*Naailah Ali, Darin Sukha, David Gopaulchan, Vickeisha Lall, Krystal Daniel, Lincoln McDonald, David Salt and Pathmanathan Umaharan*
  - 4 Pulp moisture content as a critical determinant of fermentation dynamics and bean quality in *Theobroma cacao* L.  
*Darin Sukha, Naailah Ali, Vickeisha Lall, Krystal Daniel, Lincoln McDonald, Larry Abraham, Shania Yip Ying, Vinosh Jadoo and Pathmanathan Umaharan*
- Q&A
- 5 The effect of foliar applications of zinc and manganese on cadmium uptake in *Theobroma cacao* L.  
*Gideon Ramtahal, Pathmanathan Umaharan, Chelsea Roberts, Leshawn Gopee, Anaika Fernanadez and Dreavon Edwards*
  - 6 Exploring the challenges, kinetics and potential solutions to optimise quality in post-harvest drying of fine or flavour cocoa (*Theobroma cacao* L.) in Trinidad and Tobago.  
*Priscilla Sahadeo, Ricardo Clarke, Xsitaaz Chadee, Darin Sukha and Pathmanathan Umaharan*
  - 7 New era, new relationships: Market exchange in a deregulated industry.  
*Amrita Saha*

Q&A

Day One closing remarks

## Day Two: Genetics and Breeding

- 1 The role of the Cocoa Research Centre in supporting research and development: Genetic Resources.  
*Pathmanathan Umaharan*
- 2 SNP Genetic Diversity in the International Cocoa Genebank Trinidad.  
*Lambert A. Motilal, Amrita Mahabir, David Gopaulchan, Rena K. Kalloo, Michel Boccara, Antoinette Sankar, Saila Ramkissoon, Anna Toussaint, Sedique Graham, Nirvahn Maharaj, Grafton Dick, Kadine David, and Pathmanathan Umaharan.*
- 3 Revitalising the International Cocoa Genebank Trinidad to support breeding and development.  
*Annelle Holder-John, Errol Davis and Timal Jugmohan*

### Q&A

- 4 Estimating carbon footprint of cocoa estates using remote sensing techniques and soil analysis.  
*Marvin Lewis, Sabrina Sankar, Patrick Hosein and Pathmanathan Umaharan*
- 5 Genetic variation in high light responses of six Trinitario genotypes of *Theobroma cacao* L.  
*Vernessa Lewis, Aidan Farrell, Pathmanathan Umaharan and Adrian Lennon*
- 6 Developing a repeatable screening method for breeding black pod resistance in *Theobroma cacao* L.  
*Romina Umaharan, Lambert Motilal, Kadine David, Nirvahn Maharaj, Caleb Lewis, Josiah Henry, Shania Yip Ying, Vindra Singh, Marissa Moses and Pathmanathan Umaharan*

### Q&A

Summary and conclusions  
*Pathmanathan Umaharan*

## ABOUT COCOA RESEARCH CENTRE

Cocoa Research Centre (CRC) of The University of the West Indies is a research and development Centre within The University of the West Indies (UWI), St. Augustine campus in Trinidad and Tobago. The Centre has a triple mandate to (a) support conservation of cocoa genetic resources, (b) research to improve productivity and quality and to overcome constraints to cocoa production and (c) to support development through a variety of outreach activities. A Cocoa Research Scheme was established in 1930 as part of the predecessor institution to The University of the West Indies, the Imperial College of Tropical Agriculture, which has over time morphed into the Cocoa Research Centre. It has continued its research and development mandate unabatedly over the past 90 years; and is regarded as one of the oldest cocoa research institutions, worldwide. CRC is the custodian of The International Cocoa Genebank Trinidad (ICGT), consisting of 2300 cocoa varieties maintained in a 100-acre estate in Centeno. This is recognised as the largest and most diverse cocoa collection in the world. The genebank offers a range of germplasm services including distribution of primary genetic material, enhanced material and a global DNA fingerprinting service. In research, CRC is recognised for its early work that led to the development of cocoa varieties tolerant to black pod and witches' broom diseases. Its present work on fermentation and drying, cocoa quality standards, cocoa flavour characterisation, branding and traceability as well as its work on genome wide association studies to develop molecular markers, climate resilience and mitigation of cadmium contamination of cocoa is well known. CRC also works with global chocolate companies, industry organisations such as industry organisation such as the International Cocoa Organisation (ICCO), World Cocoa Foundation (WCF) and European Cocoa Industry Associations such as ECA, CAOBISCO. CRC also supports work in Latin America directly or through NGOs such as Technoserve and Lutheran World Relief. CRC has set up the International Fine Cocoa Innovation Centre (IFCIC) as a coordinated outreach mechanism to support the fine/flavour sector in the LAC region through a range of training products, technology products and support services. The physical hub will consist of a model cocoa orchard, a modern cocoa postharvest facility, a flexible cocoa processing facility, as well as technology and business incubators to provide support SME development. CRC also offers introductory and advanced chocolate making training host of technology services, apprenticeship training and start-up support.

This event is sponsored by



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