Crops for the Future Research Centre: Beyond Food Security
CFFRC Timeline 2011

14 June  CFFRC is established as a Company Limited by Guarantee and without Share Capital. The Guarantors are the Government of Malaysia and the University of Nottingham.

27 June  Launch of CFFRC by YAB Dato’ Sri Mohd Najib Bin Tun Haji Abdul Razak, Prime Minister of Malaysia.

27-30 June  CFFRC co-organises  Second International Symposium on Underutilised Plant Species: Crops for the Future Beyond Food Security which attracts 300 delegates from over 45 countries.

1 July  CFFRC and the Economic Planning Unit, Government of Malaysia , co-host the High Value Agriculture (HVA) Symposium on Regional Food Security and Diversification, Royale Chulan, Kuala Lumpur.

2 August  First Meeting of CFFRC Board of Directors confirms the appointment of Dato’ Zainal Abidin bin Haji Ahmad as Chairman and appoints Professor Sayed Azam-Ali as Chief Executive Officer of CFFRC.


31 October  CFFRC moves to temporary accommodation at University of Nottingham Malaysia Campus (UNMC), near Kuala Lumpur, Malaysia

15 November  CFFRC appoints Mr Haikal Abdul Rahman as Chief Operating Officer and key support staff.

17 November  Third CFFRC Research Strategy Stakeholder Dialogue, held as a webinar at UNMC to facilitate participation of international stakeholders.

30 November-6 December  CFFRC Research field site review by expert group. CFFRC Research Strategy document completed

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All information is correct and accurate at the time of printing.
Crops For the Future Research Centre: Beyond Food Security

Based near Kuala Lumpur, Malaysia, Crops for the Future Research Centre (CFFRC) is the first-of-its-kind global centre with the mandate for research and development on underutilised plants for food and non-food uses. CFFRC operates as the research arm of the global Crops for the Future (CFF) entity hosted in Malaysia by Bioversity International and University of Nottingham Malaysia Campus (UNMC).

CFFRC is a unique public-private partnership between a national government and an international research-led university. Incorporated under the Malaysia Companies Act, CFFRC is guaranteed by the Government of Malaysia and the University of Nottingham but is an independent entity that can drive innovative methods of research within the wider objectives of CFF and its stakeholders. CFFRC is governed by a Board of Directors that includes representatives of both guarantors, CFF and an Independent Chair.

Together with CFF and local, national and international partners and collaborators, CFFRC will conduct research that contributes to:

- Improved local food and non-food crops with nutritional and/or market potential.
- Establishing a high profile world research centre accessible to local scientists and institutions.
- Promoting academic research, curricula and learning materials on underutilised crops.

As the first global research centre dedicated to underutilised crops, CFFRC will have access to a vast reservoir of indigenous and underutilised plant species and related knowledge systems, many of which can contribute to food and nutritional security, income generation and bridging the urban-rural divide both in terms of knowledge and development. In addition to the institutional and academic resources of CFF, Bioversity International and the University of Nottingham, CFFRC will leverage on the infrastructure and human resources of national, regional and global partners to support joint research and development on underutilised crops.

Through a programme of integrated activities, CFFRC will carry out fundamental and applied research, scoping and policy studies and develop marketable outputs that provide improved opportunities and products for growers, consumers and wider stakeholders, especially in developing regions of the world.

By leveraging on CFFRC links with the University of Nottingham and other leading higher education institutions in Malaysia and beyond, graduate students will have opportunities for PhD and Masters-level research on underutilised crops. Collaborations with other universities and research agencies will allow further exchange and strengthening of research capacities.
The Issues

Throughout the world, agricultural production increasingly relies on a narrow range of crops. The global agricultural economy is based on little over 100 plant species and in many countries far fewer. Food systems across the world are becoming more and more uniform with less diversity on the table. This trend involves risks to the production, distribution and availability of food and non-food products, illustrated by the sudden food price hikes in 2008 and associated social unrest in many countries. At the same time, there is a vast range of potentially important but currently underutilised plant species that remain largely unexplored, unimproved or unused beyond their local communities.

With global population continuing to grow, from today’s 7 billion to a projected 9 billion in 2050, new approaches to agricultural development are urgently needed. Continued research on the major world crops remains an important avenue to improved world food security. However, it is increasingly recognised that future-oriented agriculture requires high quality research and development and an integrated approach to underpin agricultural development, innovation and diversification. This includes focussed research on underutilised crops and their products. Major crops and commodities have dedicated research communities and organisations – many within the framework of the Consultative Group for International Agricultural Research (CGIAR). Until now, there has not been a dedicated research organisation for the large and diverse group of underutilised crops. CFFRC aims to fill this gap.

“Establishing Crops for the Future Research Centre [...] is the need of the hour.”

Prof. MS Swaminathan, World Food Prize Laureate and Chair, MS Swaminathan Research Foundation

In addition to the challenges of food security, opportunities exist to investigate locally available non-food crops for their potential in technical uses, development of local industries and income generation for rural communities.
CFFRC Objective

To establish a world leading centre for research excellence in underutilised crops that contributes to agricultural development and better lives.

CFFRC Outcomes

A range of agricultural products and innovations that will contribute to agricultural diversification, sustainable nutrition and health as well as income generation and the development of new markets, especially in the rural sector.

CFFRC Research Priorities

CFFRC will co-ordinate and contribute to Research and Development on underutilised crops in three interrelated priority areas of specific importance to agricultural diversification. These key research areas will be underpinned by cross-cutting systems, including an innovative knowledge platform on underutilised crops and gap analysis tools to help identify researchable issues.

Research Priorities:

- Sustainable Nutrition
- High Value Agriculture
- Knowledge Systems

Spanning across the research priorities are four themes that cover crop development from genetic improvement through evaluation to marketable products:

- Economic and marketing potential – building value chains.
- Nutritional, processing and end-user values.
- Physiology, agronomy and agro-ecological potential.
- Biotechnology, breeding and seed systems.
**CFFRC Research Priorities**

1. **Sustainable Nutrition**

Lifestyle-related non-communicable diseases, like diabetes and cardio-vascular diseases, are now the world’s most significant cause of mortality. But still, hundreds of millions of people are suffering from deficiencies in essential vitamins and micronutrients because they have no access to adequately nutritious food. Malnutrition, whether caused by lack of access to quality food or by oversupply and unhealthy lifestyles, is a major global concern spanning both developed and developing countries. As well as expanding the range of crop products available to consumers, **Sustainable Nutrition** will develop diverse opportunities for value addition and the development and application of novel technologies across the value chain.

CFFRC will contribute to **Sustainable Nutrition** through research that enhances community nutrition and health by diversifying the range of crops grown and agricultural products derived from them. CFFRC will identify sustainable nutrition and health benefits of underutilised crops through research projects that enhance nutritional security and help overcome nutrient malnutrition arising from factors such as scarcity, behaviour, cultural and economic disadvantages or inadequate knowledge.

2. **High Value Agriculture**

This priority involves moving agricultural systems ‘up the value chain’ through innovation and diversification of novel agricultural products, the development of new and niche markets and the integration of supply and demand systems.

CFFRC will contribute to **High Value Agriculture** through research on the development and marketing of novel or alternative crop products and sustainable value chains.

3. **Knowledge Systems**

Lack of access to integrated knowledge is a major limitation to the development of underutilised crops. CFFRC will develop **Knowledge Systems** that include the use of digital information tools to empower stakeholders in the documentation of knowledge related to underutilised crops.

A key component of the CFFRC **Knowledge Systems** strategy is the development and early launch of a Global Web-based platform ‘**CropBase**’. This is a multilevel, interactive platform that will cover the entire research chain and provide knowledge on selected crops through an open access database.
CFFRC will propose and manage integrated projects across the research themes and priorities that utilise and expand on existing capacities in national and international partner institutions. Where appropriate, CFFRC will collaborate with partners from the public and private sectors.

Through stakeholder consultations and novel gap analysis tools, CFFRC will identify research projects and researchable questions related to underutilised crops.

CFFRC will select a series of representative ‘exemplar’ crops, to understand the constraints which limit their increased uptake. By focussed research on specific limiting factors, CFFRC will demonstrate how these constraints can be overcome both on the particular exemplar crop and on similar underutilised species. Examples of successful strategies will be applied to other underutilised crops to maximise the impact and efficacy of CFFRC research.

“We have identified a number of constraints that affect particular crops, but what we haven’t got is the capacity to deal with them appropriately [...] in that regard I am very excited by the launch and establishment of the Crops for the Future Research Centre.”

Dr Michael Hermann, Global Coordinator, Crops For the Future
**An innovative Knowledge Platform: CropBase**

*CropBase* is a single-entry tool that links existing and new knowledge that, together, can be used to identify the potential supply and demand characteristics of particular underutilised crops under contrasting environments. By identifying knowledge gaps, *CropBase* will provide CFFRC researchers with important information to prioritise where to focus their research efforts.

*CropBase* will also serve the greater online community by collecting, evaluating, and disseminating applicable information to each sub-community: *CropFinder, CropMapper, CropBreeder, CropGrower, and CropUser*. Relevant information between sub-communities will be shared across these boundaries in technical or non-technical language depending on the direction of information transfer between the sub-communities.

CropBase is built from open-source social networking and wiki projects.
CFFRC Structure and Network

CFFRC is headed by a Chief Executive Officer and has a small management team that includes a Chief Operating Officer and Theme Leaders who will co-ordinate activities across the research priorities. CFFRC’s CEO and senior researchers are individuals with a proven international track record of high-quality scientific research on underutilised crops and sustainable agriculture. A Board of Directors, that includes the two guarantors, the Global Co-ordinator of CFF and an independent Chair, provides strategic oversight of CFFRC’s operations. An Advisory Committee of international experts will contribute independent technical expertise related to CFFRC’s research priorities.

“I believe that this new research centre will complement the work and effort of existing research centres in Malaysia.”
Datuk Dr Abd Shukor bin Abd. Rahman, Director General, Malaysian Agricultural Research and Development Institute

To attract a critical mass of research staff and postgraduate researchers, the full spectrum of collaboration arrangements will be explored. These include opportunities for joint appointments, co-supervisory arrangements with partner institutions, secondments, short-term internships and hosting of visiting scientists.

CFFRC will build on its existing strong links with CFF, University of Nottingham, Bioversity International, MARDI and others. It will also explore opportunities for new links with national and international partners across the public and private sectors.

Networking across CFFRC research themes and partner organisations (example)

Theme Leader
Post-doctoral Fellows
Graduate students

- CFFRC staff
- CFFRC-partner organisation shared appointment
- Staff of partner organisation/visiting fellow etc. (co-supervised by their parent organisation and CFFRC)
CFFRC’s Environment

Complementing CFFRC’s research agenda is its commitment to ‘green’ infrastructure – its iconic buildings, research labs and the surrounding Botanical Garden at CFFRC’s site near Kuala Lumpur, Malaysia. Using smart concepts and recycled materials, wherever possible, for construction and operations, CFFRC will minimise its carbon footprint.

Adjacent to its headquarters, CFFRC is also developing a 48 hectare research field site that will contribute to an international network of research activities on underutilised crops. The site provides immediate access for research on a range of underutilised crops and opportunities for transition and diversification research studies on the surrounding oil palm plantation.
Notes

1 The term ‘underutilised plants’ or crops is used as broad reference to alternative options that have so far not received significant research or development attention.

2 CFF’s Goal is ‘enhanced use of neglected and underutilised species that contributes to improved incomes and nutrition of the poor, and more sustainable and diversified agriculture.’

CFFRC Board of Directors

Chairman: Dato’ Zainal Abidin Haji Ahmad

Members: Dato’ Mohd. Hashim Abdullah, Secretary General, Ministry of Agriculture and Agro-based Industry (MoA)

Datuk Dr. Abdul Shukor Abdul Rahman, Director General, Malaysian Agricultural Research and Development Institute (MARDI)

Professor Dr Ghizan Saleh, Faculty of Agriculture, Universiti Putra Malaysia, Ministry of Higher Education (MOHE)

Professor David Greenaway, Vice-Chancellor University of Nottingham, United Kingdom

Professor Ian Pashby, CEO/Provost, University of Nottingham Malaysia Campus

Dr Michael Hermann, Global Coordinator, Crops for the Future (CFF), Malaysia

Professor Sayed Azam-Ali, Chief Executive Officer, Crops for the Future Research Centre (ex-officio)