

CROPS FOR THE FUTURE RESEARCH CENTRE

PROGRAMME CONCEPT NOTE

BIOMASSPLUS

Expanding on the 1Malaysia Biomass Alternative Strategy (1MBAS)

Problem Statements

- Over-dependence on fossil fuels from rapidly depleting resources is a global issue.
- Malaysia recently launched 1MBAS to support development of renewable energy from biomass sources to reduce national reliance on fossil fuel for economic growth.
- Most biomass in Malaysia is derived from agricultural wastes, over 90% of which comes from the monoculture of oil palm.
- Underutilised species could provide abundant, sustainable, ecosystem resilient and cost effective sources of biomass for renewable energy in association with that from oil palm.

Objectives

- To develop new underutilised crop options that provide complementary and sustainable sources of biomass for renewable energy to that from oil palm.
- To provide economically viable and resilient options for energy-derived well-being and income generation of small farmers and rural communities.
- To optimise agricultural productivity per unit area of plantation by efficient use of natural resources (light, soil and land space, moisture, biodiversity) through species diversification.
- To improve the environmental resilience of the oil palm production system to meet the requirements of the Roundtable on Sustainable Palm Oil (RSPO) and similar initiatives especially in the area of biodiversity, habitat conservation and reduced pesticide use and carbon footprint.
- To provide a methodological framework for sustainable expansion and management of oil palm diversification for ecosystem and economic resilience.

Outcome

Commercially viable underutilised biomass species in association with oil palm underpinned by scientific understanding of canopy scale processes operating in diversified vegetation systems.

Programme Concept

- Use the CFFRC Field Centre as a multiple level case-study of candidate underutilised species within an existing oil palm plantation, simultaneous and subsequent to replanting of oil palm and under varying canopy combinations ranging from monoculture to complex intercroppings.
- Provide a systematic, long-term (5-7 years), multidisciplinary (molecular to marketing), multilevel (soil to atmosphere), and multi-location (partner sites) transition study from monoculture to potential poly-culture 'biomass plantations of the future.'
- Use remote sensing, mathematical biology and modelling approaches to predict optimal and ecosystem resilient management systems for biomass plantations of the future.

Potential CFFRC partners

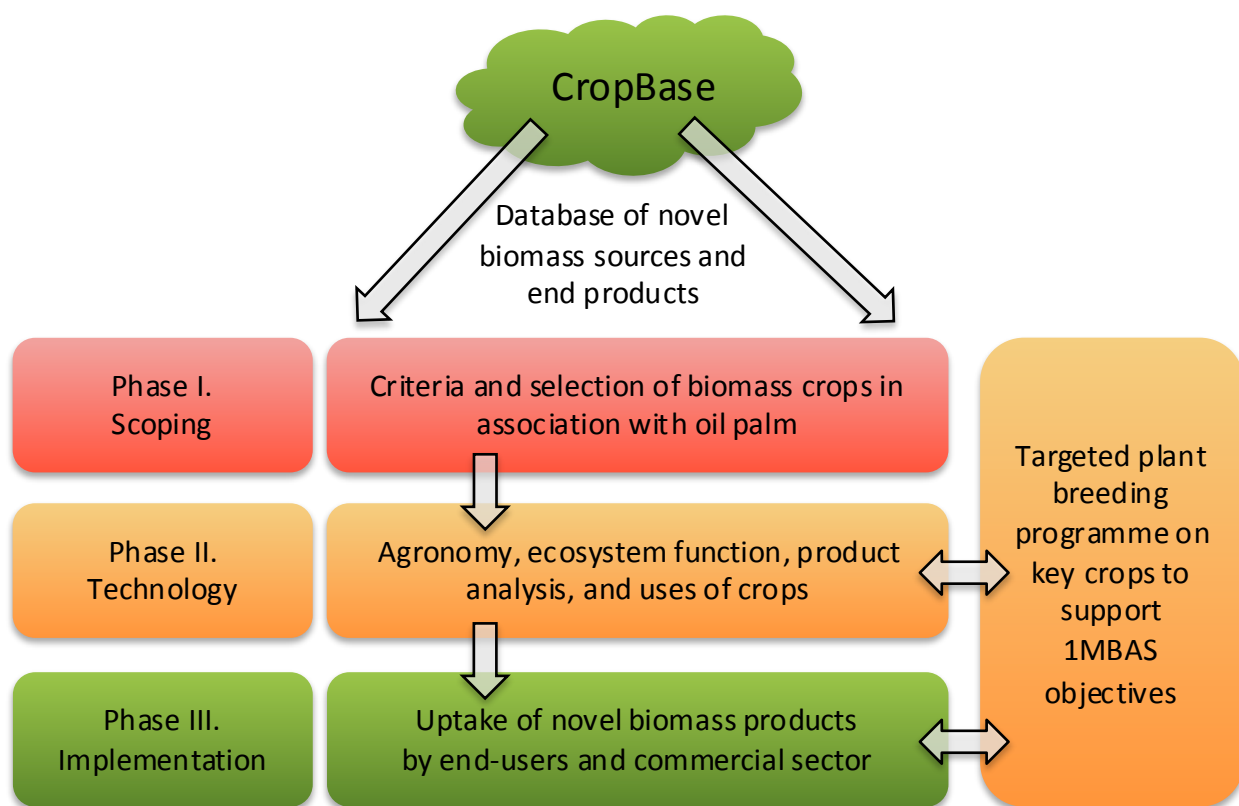
University of Nottingham, Malaysian Palm Oil Board (MPOB), private plantation groups, rural community organisations.

Programme Activities

BiomassPlus links CFFRC with partners in Malaysia and beyond. Initial programme opportunities will focus on objective selection of candidate species, the development, experimental use and analysis of the CFFRC field site as a base for intensive study and extrapolation to other locations and environments.

Research will span agronomic, ecophysiological and environmental studies at the canopy and field scale, processing and energy values of plant products, economic and operational analysis of the chain from production to end use and the integration of selected species within the oilpalm production system.

The programme will incorporate data into the CFFRC CropBase web-based platform.



CFFRC`250PLUS' Postgraduate Research Studentship Opportunities

Research studentships (PhD and MRes) are available through the CFFRC250PLUS Scholarship Scheme. Prospective supervisors should consult the Guide for Applicants, available at:

<http://www.nottingham.edu.my/CFFRC/documents/CFFRC250studentGuide.pdf>, and submit a

Studentship Application Proposal, available at:

<http://www.nottingham.edu.my/CFFRC/documents/CFFRC250studentApplication.pdf>.

For this call, completed applications for CFFRC250 Studentships should be submitted by **FRIDAY 1 JUNE 2012** to; Applications@cffresearch.org.