

## CFF-UNMC DTP studentship

**Project title:** Genetic and trait characterisation of farmer and genebank sources of bambara groundnut for the development of drought tolerant lines in sub-Saharan Africa and Southeast Asia

### Project background:

Bambara groundnut has a lot of potential to contribute to food security and poverty alleviation in the face of unpredictable and extreme climate patterns. This is partly due to its resilience traits, such as its drought tolerance and ability to grow in harsh marginal soils.

There is a need to further improve its tolerance to drought while adapting it to different agro-environments, including those that experience intermittently high rainfall. This will establish lines adaptable to environments that face unpredictable water shortages, for both now and future climate changes. These are also regions whose farmers are most insecure in terms of food and income.

Bambara groundnut is also favoured for its nutritional properties, such as its low fat content and amino acid profile. However, consumers often cite its high cooking times as a reason not to purchase more of it. Hence, as well as furthering its beneficial traits – fundamentally, drought tolerance – part of the project will aim to reduce its negative time: primarily, poor cookability.

This PhD project is ultimately aimed at increasing the uptake of bambara groundnut on a global scale, in current and future areas of cultivation and consumption. It is one of seven (and growing) components that comprise a multi-site field trial system across West Africa, Eastern Africa, Southern Africa and Southeast Asia.

### Project aims:

To breed bambara groundnut lines for improved drought tolerance and cookability, which are adapted to local environments, leading to more stable yields of bambara groundnut under dry conditions with shorter cooking times. The specific objectives are:

- i) Test and evaluate core and 'local' germplasm for crop performance and productivity.
- ii) Identify 25-30 lines with improved quantitative values for drought tolerance and cookability.
- iii) Investigate the physiological mechanisms underlying drought tolerance and cookability.
- iv) Determine the molecular genetic factors involved in drought tolerance and cookability.

### **Scholarship details:**

The studentship will cover a fully funded, three year PhD at the University of Nottingham Malaysia Campus (UNMC) and Crops For the Future (CFF).

This studentship is partially funded by the International Treaty for Plant Genetic Resources for Food and agriculture – Benefit Sharing Fund, which covers subsistence (USD 8450 per annum for three years), consumables and equipment.

A fee scholarship is provided by UNMC for registration of the student. The project will be mostly based at the CFF Field Research Centre in Malaysia.

### **Supervisors:**

Prof Festo Massawe, School of Biosciences, UNMC ([festo.massawe@nottingham.edu.my](mailto:festo.massawe@nottingham.edu.my))

Dr Sean Mayes, School of Biosciences, UoN / BamYIELD, CFF ([sean.mayes@cffresearch.org](mailto:sean.mayes@cffresearch.org))

Dr Aryo Feldman, BamYIELD, CFF ([aryo.feldman@cffresearch.org](mailto:aryo.feldman@cffresearch.org))

### **Application requirements:**

First class or upper second class honours degree (or equivalent) or MSc in an agricultural, biological or other relevant science.

Applicants whose native language is not English (and whose undergraduate degree was not taught in English) must fulfil UNMC's English language requirements.

Applicant must be ready to start the three-year studentship before the 1<sup>st</sup> of February 2017.

Application deadline is 21 October 2016.

Interested applicants should send detailed CV and copy of BSc and/or MSc certificate and transcript to [maysoun.mustafa@cffresearch.org](mailto:maysoun.mustafa@cffresearch.org)