MUST-IUC Project 2
Call for PhD Candidates

Project Title: Climate Variability and Banana Bunchy Top Virus (BBTV) Disease in Southwestern Uganda

Project Background

This PhD position is framed in the context of the sub-project entitled 'Mechanisms for climate change adaptation for sustainable food production'. This sub-project is among the six sub-projects under the project entitled 'University as a Facilitator of Community-based Sustainable Solutions to Demographic Challenges in Southwestern Uganda' (UCoBs). This is a 10-year (2022- 2032) collaborative project between Mbarara University of Science and Technology (MUST) and Vrije Universiteit Brussel (Belgium) funded by the Flemish Interuniversity Council (VLIR UOS). The sub-project focuses on mitigating climate change impacts and declining soil fertility, crop pest, and disease management, improving food production, and land management practices in fragile ecosystems.

PhD Focus

This PhD position focuses on understanding the influence of climate variability/change on insurgence and prevalence of viral diseases in varying banana production systems among smallholder farmers in Southwestern Agroecological zones of Uganda. Banana is one of the staple food crops grown in the tropics and subtropics, supporting the livelihood of over 400 million people globally in the form of food or income. However, the production of banana is currently threatened by climate-driven changes such as drought, pests, and disease insurgencies (Dassou et al., 2021). BBTV has become a threat to banana production in sub-Saharan Africa, where it contributes to a reduction of 70-90% in bunch production in the affected areas (Kumar et al., 2015). For instance, the East Africa region faces a new threat of banana bunchy top virus (BBTV) disease which was first detected in Uganda in areas bordering DRC where the disease is endemic i.e Arua and Kasese (Ocimati et al., 2021). The Southwestern agroecological zones are highly vulnerable to a serious epidemic if preventive and/or control actions are not taken. Given the importance attached to banana as a food and an income crop, it is of paramount importance to understand the extent to which climate variability/change has altered disease episodes, evolution, farmer mitigation/coping practices & the disease variations among banana cultivars in the main agroecological zones of Southwestern Uganda.

The PhD candidate is expected to 1) determine bunchy top virus disease epidemiology and ecology in relation to climate variability, 2) document the impact of BBTV, and farmer coping strategies, 3) characterize the genomes and pathotypes of the banana bunchy top virus isolated from the southwestern part of Uganda and 4) determine the genetic by environment (G X E) interactive effect on the banana bunchy top virus (BBTV) virulence on the different banana cultivars.

The PhD applicant's Profile

a) Must hold at least a second-class upper BSc degree, MSc degree in Biological Sciences, Molecular Biology, Agronomy, Agro-ecology, Natural Resources Ecology, or any related scientific discipline. Previous research experience in plant disease epidemiology and plant pathology in relation to crop productivity is an added advantage;

b) Having experience in quantitative analytical techniques, plant pathology, molecular biology and statistics is an advantage;
c) Must be highly **motivated** to undertake academic research in an international context;
d) Must be **hard-working** and able to manage a project independently, taking initiative and meeting deadlines;
e) Must be able to develop a detailed **concept note** (pre-proposal) and demonstrate his/her ability to finish it and produce a fully researchable and competitive proposal;
f) Must be ready to bring creativity, uncovering hidden issues that will benefit the project, science and local livelihood in general;
g) Must be frank and willing to respect agreements; believe in project confidentiality and proper data handling and processing;
h) Must be willing to contribute to the administrative management of the project;
i) Must demonstrate academic **leadership** and willingness to **supervise MSc students**;
j) Must demonstrate good interpersonal skills to interact with other project partners and stakeholders;
k) Must be willing to develop his/her research at Mbarara University of Science and Technology in collaboration with an international partner and continue to contribute to the teaching and research mission of MUST beyond the project's lifetime.
l) Must also be willing to undertake several long stays at the partner institution in Flanders.
m) Preference will be given to candidates who are already members of staff (or collaborators) of Mbarara University of Science and Technology. Still, Ugandan candidates outside these institutions are welcome to apply.
n) **Female** candidates are strongly encouraged to apply.

The Scholarship Offer

The selected PhD candidate will benefit from 16-20 months of funding for research stays in a Flemish University. The full PhD funding is conditional on the successful defense of a PhD proposal and obtaining sufficient course credits at MUST and during the first 5-month stay in Belgium. The MUST-IUC sub-project-2 will support the research activities and fieldwork. The selected candidate will be part of an interdisciplinary and international research project and will contribute to addressing development-relevant issues in collaboration with Ugandan stakeholders. The scholarship funding will be compliant with the official scholarship schemes of VLIR UOS. The PhD candidate will be supervised by a team of Flemish and Ugandan professors and defend his/her thesis at Mbarara University of Science and Technology. The PhD candidate will interact with other PhD students from Uganda and Belgium.

Application Procedure

The application should include:

i. A concept (not more than 5 pages) is mandatory. The Concept note must include a title for the proposed study, a brief background highlighting key literature, research problem, main research question(s)/objectives, methodology, and a list of key references.
ii. A CV (2 pages)
iii. Copies of academic degree documents and transcript of records.
iv. A statement of motivation – why you think you are the best candidate for the PhD position (1 page).
v. The applications should be addressed (and submitted) to Prof. Grace Kagoro (kgraceug2002@must.ac.ug), Prof. Matthieu Kervyn (makervyn@vub.ac.be) and Prof. Hervé Vanderschuren (herve.vanderschuren@kuleuven.be), CC Dr. Justine Nakintu (jnakintu@must.ac.ug) and Dr. Rapheal Wangalwa (wangarapha@must.ac.ug)
vi. All applications should be submitted by **20th July 2024, 5:00 pm.**

Interviews

The selection process will involve two stages a pre-selection phase between 22 and 25th July 2024. Pre-selected candidates will be contacted for an interview between 5th and 9th August 2024. The successful candidate should be ready to start on his/her PhD studies by September 2024.