



Facing the Future with Hope

Adopting Climate Smart Agriculture in Kigezi Highlands and Beyond



The Faculty of Agriculture and Environmental Sciences is one of the nine faculties at Kabale University. Kabale University started as a community University in 2001 but was later taken up by the Government of Uganda in 2015. The Faculty of Agriculture and Environmental Sciences started in 2019 with only 63 students and two undergraduate programs, but today, the Faculty has six academic programs with 243 students. The courses offered include; MSc in Environment and Natural Resources, Bachelor of Science in Environmental Science, Bachelor of Agriculture and Land Use Management, Bachelor of Science in Agriculture, Bachelor of Agribusiness Management and Diploma in Environmental Science. In addition, four postgraduate programs have been approved by Kabale University for submission to the Uganda National Council of Higher Education (NCHE) for accreditation. These include; PhD in Environmental Sciences, PhD in Agricultural Sciences, MSc in Geospatial Sciences, and MSc in Agricultural Sciences. Working with the Centre for Rural Development, Kabale University has an active outreach program on agriculture and sustainable water and soil conservation in the Kigezi sub region.



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Kabale University is located in South Western Uganda, surrounded by Rwanda in the South and DR Congo to the West. This region is endowed with some of the highly endangered rare species of both flora and fauna in the world. This is where East Africa meets the West in terms of ecological climate. However, the region is plagued with challenges that outpace the solutions currently provided. These include; intensely and continuously cultivated steep landscapes with





little external inputs, high population densities, wetland degradation, decreasing household incomes, decreasing vegetation cover and persistent regional conflicts. There are significant signs of climate change related challenges that are ravaging the region.

Despite the challenges, Kabale University has embarked on a program in the Faculty of Agriculture and Environmental Sciences to solve the problems. This has been done mainly through development of curriculum that meet these challenges and create strong partnerships with local communities. The Faculty will continue to develop and implement tailored programs that equip students with skills and knowledge to overcome the problems through provision of tested and practical solutions to communities and related stakeholders problems along the various value chains. In the process of training students, both graduate and undergraduates, we expect them to be creative, use talents and knowledge acquired to solve these problems. In terms of community engagement, we believe that once strong and open partnerships and linkages are created with communities and various stakeholders along the value chains, these problems can be overcome. This will be achieved by ensuring that teaching, learning and research are developed with stakeholders. This will ensure that problems related to production along the value chain are studied and solutions tested and worked out together with related stakeholders to practically solve the identified problems.

Kabale University has already initiated a program with selected communities in Kigezi highlands to improve productivity, increase natural vegetation and animal population and household incomes in the region through Farmer Field Schools. However, some of the identified issues are tested at the university farm to minimize costs. The Farmer Field School approach has proven sustainable and acceptable to communities if well implemented. It captures key gender aspects, it is highly participatory and keeps the morale of participants very high. The University has taken the position of a facilitator rather than a position of an expert. The communities fully take the lead in the initiation and implementation of the program as implementation is done on farmers' fields. The university role is to continuously understand what works and investigate issues of sustainability, issues of social economics, agronomy and gender making it a continuous learning process. The lessons learnt, best practices and principles are being documented and will be scaled out to other parts of the country where applicable.

Currently, Kabale University works with the Centre for Rural Development (a local community based organization), which has developed a community program to ensure that agricultural activities carried out around Lake Bunyonyi communities are in such a way that the integrity of the lake is not compromised, while the communities experience increased productivity, nutrition and household income. This addresses the challenge raised by the President of Uganda that the leadership in Kigezi needs to work out solutions to keep Lake Bunyonyi unpolluted. Hence, a





number of research and development initiatives are being implemented and the results so far are encouraging. The program is built on proven methodologies and techniques developed and tested by credible organizations such as FAO and ICRAF which are leading centres of excellence. In such cases, mobilizing farmers through Farmer Field Schools approach allows farmers to identify their problems and be involved in Agroecosystem analysis (AESA). Furthermore, this approach is robust enough such that in cases where extension workers are nonexistent or not performing, farmers are able to make informed decisions and seek relevant help when and where needed.

There are a number of ongoing students/community programs including.

Making of yoghurt and sausages. This involves students from agriculture, medicine and economics. Students are expected to do research on key aspects that relate to their fields such as how to increase outputs, incomes and productivity along the value chain. For example, students' internship include working together with farmers and consumers to produce milk for yoghurt and meat sausages that consumers prefer. Communities involved in production are trained in key aspects to improve outputs and income along the value chain.

Mushroom growing. The impacts of climate change on productivity of most on farm enterprises is evident, and the need to initiate high value enterprises that take small space is critical. It is envisaged that increase in production per unit area will increase incomes significantly. So this program will challenge students to work with farmers to increase output and income.

Domestication of indigenous species. We realize that over 80% of the rural population still depend on indigenous medicine. The forested areas previously used by the local communities are now fully protected with little or no access. Here, the students have initiated a domestication programs where over 200 shrubs and herbs are being tested. This builds on previous work done by ICRAF that identified a number of species; Indigenous knowledge is a cornerstone in this program. Students are expected to work with communities to identify species for pesticide use, medicine, food, fodder and go further to develop ways to ensure sustainability of production and identify active ingredients as part of their MSc and PhD research.

***Solanum tuberosum* (Potatoes) production.** Research has revealed a deficit of over 90% in *Solanum tuberosum* potato production in Uganda. Yet some potatoes are still being exported to South Sudan, Kenya as well as Rwanda. Due to shortage and quality needed by some markets, some hotels in Uganda have resorted to importing *Solanum tuberosum* potatoes of specific qualities. Kigezi highlands is well suited for growing potatoes with such qualities and attributes. This will be done through research in breeding, protection and developing business along the value chain. Students will be involved at various levels and work along the value chain with the





farmer field schools, marketeers and consumers. The University is working to collaborate with Rwanda and DR Congo in potatoes and other R&D activities.

At Kabale University Faculty of Agriculture and Environmental Sciences the curriculum is designed such that the final year students agro-based courses are dedicated for projects tailored to solve specific problems/challenges along the value chains. The goal here is to ensure that a student/a group of students work together to solve a particular problem and provide practical solutions.

About the Author

Dr. Bamwerinde Mwetonde Wilson is an Associate Professor and Dean of Faculty of Agriculture and Environmental Science, Kabale University in Uganda. He has previously worked with International Center for Research in Agroforestry (ICRAF) and the Food and Agriculture Organization (FAO) of the United Nations. He holds a PhD in Agroforestry/Natural Resource Economics, an MSc in Environment Management and BSc. Forestry, all from Makerere University in Uganda.

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