

# Engaging students and national fellows as future champions of orange-fleshed sweetpotato (OFSP) value chain development in SSA

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Two doctoral candidates using Food and Nutrition Evaluation Laboratory (FANEL) facilities graduated and six master students are working on their thesis research. This year noted significant increases in demand for carotenoid and proximate analysis at FANEL with samples being analyzed of orange-fleshed sweetpotato and other biofortified crops. FANEL seeks to expand its outreach according to a business model for its service delivery.



Scaling up  
**Sweetpotato**  
through Agriculture  
and Nutrition



Reaching 10 million  
African households by 2020



**Fig. 1** Ms Joyce Musyoka is a Master's degree candidate Food Safety and Quality at University of Nairobi working on OFSP Puree "Challenge Test" aimed at developing safe shelf-stable OFSP puree

## » What is the problem?

The development of biofortified OFSP as an effective food- based strategy to alleviate vitamin A deficiency, food insecurity and poverty depends on the availability of skilled professionals in African countries. Nutrition-sensitive agriculture approaches with biofortified OFSP are part of many multi-sectoral approaches now advocated and promoted by major donors and governments in Africa. USAID'S 2014-2025 Multi-Sectoral Nutrition Strategy is aligned with the 2025 World Health Assembly nutrition targets. The multi-sectoral approach addresses both direct and underlying causes of malnutrition, which biofortification can help address. Many skilled nutrition, global health and agriculture professionals in academia, government departments and private sector are calling for more collection of relevant data and food and nutrition analysis to assure effective programming and policy formulation. Food composition analysis plays an integral part in the

progress towards achieving food security as it helps us identify which nutrients a given food item is or is not providing.

Typical capacity building efforts in food and nutrition include formal training and individual development. These are long-term, requiring lasting mentorship, coaching and leadership development, including individual commitment to continued self-development. However, it is time to improve the model to include the development of knowledge and skills of an individual within their organization or institutional arrangements. The new model requires institutional buy-in and support from organizations, governments and donors in agriculture and health.

## » What do we want to achieve?

The Food and Nutrition Evaluation Laboratory (FANEL) was established in 2014 within the Nutrition and Food Safety Platform of the

## Partners

- University of Nairobi Food Science and Nutrition Department
- BecA Hub/ILRI



**Fig. 2** Ms. Cecilia Wanjuu is a Master's degree candidate Food Safety and Quality at University of Nairobi working on OFSP Puree bread proximate analysis and shelf-life study.



**Fig. 3** Mr. Derick Malavi is a Master's degree candidate Food Safety and Quality at University of Nairobi working on food microbiology analysis of environmental sampling samples from a Organi Limited a purée processing factory in Homa Bay, Kenya.

Biosciences for east and central Africa with its hub at the International Livestock Research Institute (the BecA-ILRI Hub). The BecA-ILRI Hub was formed with the mission of mobilizing biosciences for Africa's development, by providing a center of excellence in agricultural biosciences. This enables research, capacity building and product incubation, conducted by scientists in Africa and for Africa, and empowers African institutions to harness innovations for regional impacts in improved agricultural productivity, income, and food and nutritional security. FANEL is now a regional capability in high quality food chemistry and nutritional analysis critical to the development of OFSP products for nutritional improvement in SSA. FANEL's capacity building initiative is aimed at training a cadre of food and nutrition professionals empowered with basic sciences, knowledge and analytical skills to use food and nutrition data on OFSP in program design, learning and policy formulation. FANEL actively seeks collaborations with academic institutions in the region and identifies areas of cooperation and resources available to meet training and research needs.

#### ► **Where and with whom are we working?**

FANEL works with International Potato Center-led sub-Saharan Africa sweetpotato-oriented projects, HarvestPlus and the Root, Tuber and Banana program. FANEL also coordinates with BecA Africa Biosciences Challenge Fellowship (ABCF) capacity building staff to identify fellows qualifying for support.

#### ► **How are making it happen?**

Under BecA, several graduate students from local universities in Kenya (University of Nairobi, JKUAT) were attached to FANEL to conduct their PhD and Master's degree thesis projects in Food Technology, Food Safety, Food Product Development, Food Analysis and Nutrition. Other African PhD students come from South Sudan (Makerere University) and Eritrea. African PhD students in the USA, and American PhD students with a strong interest in development utilized FANEL facilities and consulted with CIP

food scientists and technicians for their PhD related studies. Funding for the students come through CIP-led projects and the ABCF BecA fellowships and the USDA. FANEL scientists provide mentorship and an environment conducive for learning. Students and fellows also have the opportunities to present their work to CIP scientists and staff through lunchbox seminar series and also participating in CIP supported regional conferences such as Africa Potato Association (APA) meetings, SPHI meetings and Community of Practices (CoP) meetings on Markets, Processing and Utilization of OFSP.

#### ► **What have we achieved so far?**

During year 3, FANEL conducted 2,302 beta-carotene analyses; 594 total viable counts of microbes and other tests. FANEL has been very productive and is an active player in the BecA platform. Two PhD candidates using the FANEL facilities have graduated and six master students (Figs 1, 2 & 3) are currently working on their theses. One faculty member with BecA is currently working at FANEL on their project. Significant progress was made in OFSP, Root, Tuber and Banana (RTB) and other biofortification food composition activities.

#### ► **What's next?**

FANEL is hosting a regional food safety one week workshop in October 2017 with BecA support. FANEL is inviting senior research scientists from West Africa and Southern Africa and partnering with the Southern Africa Network for Biosciences<sup>1</sup> (SANBio) group in Pretoria on joint training activities. The food scientist at FANEL co-host's the SPHI community of practice technical group for Markets, Processing and Utilization. Future priorities include increased investment in FANEL infrastructure and human resource development. FANEL's goal is to become a reference laboratory in sub-Saharan Africa with its services delivered on a business model.

<sup>1</sup> SANBio is a shared biosciences research, development and innovation platform for working collaboratively to address some of Southern Africa's key biosciences issues in health, nutrition and health-related intervention areas such as agriculture and environment.

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