

# Transforming African Agricultural Universities for Africa's Growth and Development (TAGDev)

## Annual Report 2021/2022

### Background

The TAGDev Programme seeks to transform African agricultural universities and their graduates to better respond to developmental challenges through enhanced application of science, technology, business and innovation for rural agricultural transformation. Universities and their partners will promote inclusive opportunities in agriculture for an intellectually stimulating and economically sustainable career. The operationalisation of the TAGDev Programme has been through Universities and their partners engaging in “student-centred” teaching and learning that addresses employment market needs and especially the needs of the communities as well as the needs for students themselves to become knowledgeable and active citizens; and, action research that can contribute to improvements in educational and community outcomes and to economic growth.

The TAGDev Programme is based on a vision of education that combines acquisition of knowledge and skills with elements that enhance employability, innovation, entrepreneurship, socially responsible living, and creation of long-lasting social and cultural capital. The Programme widened its student catchment to directly or indirectly embrace students from all segments of the education value chain right from out-of-school youth all the way to the PhD level. This report is aligned to the objectives of the TAGDev Programme including:

- i. Pilot a new model of agricultural education at early adopter universities that connects tertiary agricultural education to rural communities, with an emphasis on smallholder farmers
- ii. Strengthen agribusiness/entrepreneurship at two universities and selected TVET institutions
- iii. Scale the new model for agricultural education to other agricultural universities and TVET institutions
- iv. Increase collaboration and mutual learning among institutions and agencies implementing and influencing innovative Tertiary Agricultural Education for rural transformation in Africa

### *New model of agricultural education piloted at early adopter universities*

#### *Course content digitized at Gulu University and Egerton University*

A total of nine courses were digitized as indicated in the table below:

| Gulu University                                   | Egerton University                 |
|---|------------------------------------|
| MSc. Agri-enterprise Development                  | MSc. Soil Science                  |
| MSc. Food Security and Community Nutrition        | MSc. Horticulture                  |
| MSc. Environment and Natural Resources Management | MSc. Agricultural Extension        |
| MSc. Animal Production and Marketing              | MSc. Agri-Enterprise Development   |
|   | MSc. Natural Resources Management. |

Apart from digitization of academic programmes, RUFORUM supported development of new academic programmes:

***New academic programmes developed***



MSc. Agribusiness & Value Chain Development and, Masters of Business Administration at Nugaal University in Somalia

Advanced Course in Entrepreneurship developed at Egerton University



Experiential learning has been adopted in all courses at the Faculty of agriculture AT Egerton University for instance, students undertaking horticulture are allocated plots of land right from the start. Field attachment is also currently a full course at Egerton University

***Academic staff and students retooled on delivery of on-line learning for undergraduate and graduate studies***



***Impact videos developed***

RUFORUM published videos documenting the impact of the TAGDev Programme, including [videos](#) reflecting individuals beginning to sow seeds of change to others; [individuals](#) exploiting their knowledge and skills to transform livelihood conditions; [impact](#) of the students enterprise scheme and, evidence of programme impact across different value chains in



[Uganda](#) and [Kenya](#).

***New generation of change agents trained***

During the year, a total of 134 students (73 BSc, 57 MSc and 4 PhD) completed studies. A total of 382 students were still undertaking studies by the end of the year. Given the



***Students that completed studies at Gulu University and Egerton University respectively***



focus of the programme on inculcating entrepreneurship and give-back ethos unto the students, lives of several disadvantaged peoples in communities have been transformed (See [story](#) of Nafula Marveen, [Mary Nganga](#), and [4-Pillar Give Back](#), students project at Egerton University). See profiles of some of the supported students:

- i. Grace Bekah: <https://www.youtube.com/watch?v=9Dq8L4MU5wY&t=8s>
- ii. Sheku Gbollie <https://www.youtube.com/watch?v=Lz56doQGJMI>
- iii. Joshua Oyiri [https://www.youtube.com/watch?v=qnpfOa8\\_Ijo](https://www.youtube.com/watch?v=qnpfOa8_Ijo)
- iv. Lloyd Chea <https://www.youtube.com/watch?v=tdg-abIWMWM>
- v. Edmund Nyuyki <https://www.youtube.com/watch?v=qsBJZAY4vKs>
- vi. Nobert Okelokoko <https://www.youtube.com/watch?v=InxPyGkXucQ>



*Some of the products generated by students ([Link](#))*



*4-Pillar give back Student initiative ([Link](#))*

To enable students relax from academic activities, team building events were regularly undertaken to enable them meet new people, make new friends and participate in team building games.



*Students' team building seminar at Gulu University*

Monthly meetings were similarly held and focused on guidance and mentorship, routine tracking and progress of project performance, academic and social progress



### *Support for studies, welfare and psychosocial wellbeing*

To enable students progress normally whilst undertaking studies, psychosocial support was provided through individual and group counselling sessions. Key areas included time

management and career choices; transformative leadership; abuse of psychoactive substances; and, psycho-education.



*Heath*



*Mentorship support*



*International travel facilitation*



*Wifi*

***Students attached to communities and mentorship for Cohort II, III undergraduate and Cohort II, III and IV Masters***

During the year, a total of 256 students at Egerton University (112) and Gulu University (144) were supported undertake field attachment in various farms in Western, Eastern, Rift Valley and Central regions of Kenya and various farming communities in Uganda.



*Student experiential learning in Mauche, Njoro sub-county*

***Emerging lessons from supported students documented***

During the year, documentation of lessons was undertaken through articles in peer-reviewed journals, student storylines and extended abstracts. Amongst the several storylines published included:

- i. Robine Okello: [A Life Changing Journey: From Training to Practice](#)
- ii. Marius Affonfere: [From dream to Reality: My Academic Journey with RUFORUM support](#)
- iii. Redempter Mbula Mutinda: [I Owe My Career Journey and Progression to Ruforum](#)
- iv. Kidega Kenneth: [How RUFORUM Transformed My Life](#)
- v. Aaron Ekipetot Nanok: [Staying True to my Call: My Progressive Career Journey as a RUFORUM Alumnus](#)
- vi. Napoleon Kjunju: [From public tax collection to scientific data collection](#)
- vii. Ahmed Abi Abdi Warsame: [If you can DREAM it, you can DO it](#)
- viii. Irene Bayiyana: [My Academic Journey](#)
- ix. Joseph Aluong Kut: [I plan to supply high graded tomatoes and onions in South Sudan](#)
- x. Nelson Papi Kolliesuah: [I started a consultancy to train university students on data management](#)
- xi. Egede Jonah Ode: [I installed a cassava grinding machine in the community](#)
- xii. Joshua Ayiri Bayahkebe: [Mastercard Foundation has been generous to me; it's time to give back](#)
- xiii. Sarah Achieng: [My dream is to build a career in commercial agriculture](#)
- xiv. Jovia Kadoma: [Selling shoes and clothes has provided additional income for my family](#)
- xv. Norah Akiyai: [I opened a shop to sell agricultural inputs](#)
- xvi. Joseph Kawooya: [JK Agri-enterprise farm is here to help farmers](#)
- xvii. Aryao Jane Mildred: [Rearing animals is a good enterprise](#)
- xviii. Kasolina Anyango: [With agri-business, I can now earn more money](#)



### ***CARP+ projects monitored by RUFORUM Secretariat staff and Technical Committee***

Field monitoring was undertaken virtually through the Zoom Video Conferencing platform and physical visits. The visits established that at the universities:

- i. Teaching infrastructure was upgraded including construction of TAGDev hostels; and, ICT skills of administrators were enhanced to cope up with the COVID 19 lockdown period, as well as support for internet bundles for online learning which helped update Staff and students with the technological trends.
- ii. RECAP projects have imparted critical thinking and marketing skills unto the students, enabled the enterprise create jobs and enabled them mentor other students that have established similar businesses including welding.
- iii. The Kenya Climate Smart Agriculture Project hosted at Kenya Agricultural and Livestock Research Organization (KALRO) emerged as a result of the Cassava CARP project at Egerton university. The project aims at increasing agricultural productivity and enhancing resilience /copying mechanisms to climate change risks in the targeted smallholder farming and pastoral communities in Kenya, and in the event of an Eligible Crisis or Emergency, to provide immediate and effective response.
- iv. At University of Abomey Calavi, a description of the six value chains of baobab pulp and leaves was developed. The value chains included refined pulp powder; baobab nectar; pulp syrup; pulp pastilles; fresh baobab leaves; and, baobab leaves powder

The Potato CARP at Makerere University launched its value addition and processing facility in Southwestern Uganda-Kabale under the 'Muhingi Factory'. The CARP project has developed five Technologies, Innovations and Management Practices including:



Potato seed production and storage technologies at farmer level; Potato intensification technologies and practices; chilled and frozen potato strips used in processing of French fries; potato flour; and, assorted cookies and waffles.



### ***Outcomes from Gulu and Egerton University CARP+ Projects documented***

To demonstrate outcomes emerging from the different CARP projects, several publications were developed and amongst these included;

1. RUFORUM Egerton University Seed Potato CARP+ Project:  
<https://www.youtube.com/watch?v=SeUx30wYUdM>
2. Gulu university Rice CARP  
<https://www.youtube.com/watch?v=mFtRi3adZl0&t=153s>

By the end of the rice CARP+ project, fifty-eight (58) farmers had been trained on the production of quality declared seeds for local seed business, and two (02) farmer groups got connected and involved in cross-border trade to large scale buyers of rice from South Sudan and Kenya.

#### ***Selected storylines from farmers engaged under the Rice CARP+ at Gulu University***

##### ***Storyline from farmer engaged under Rice CARP+***

"My income from farming gradually increased to an extent that I became able to pay school fees for all my children with the eldest son being a S.4 candidate at the time of this report (**Atim Jennifer**).

##### ***Storyline from farmer engaged under Rice CARP+***

Before I joined the group, I was a renowned farmer of soybean in Paicho sub-county. In 2017, I grew and harvested 13 bags of soybean and earned one million, two hundred thousand shillings (Ugx 1,200,000). From the same crop I got eight hundred thousand shillings (Ugx 800,000) after producing and selling nine bags in 2018. Later in 2019, I joined this farmer group in rice production, attended the trainings and cultivated one acre of rice, which gave me eight bags each weighing ninety kilograms and I earned two million four hundred thousand shillings (Ugx 2,400,000).



Local Seed Businesses (LSBs) led by farmers under the Rice CARP have attained market concentration and presence, they have earned UGX 62, 520,000 (US\$17,600).

### ***Agribusiness/entrepreneurship at Gulu and Egerton Universities and selected TVET institutions strengthened***

#### ***Field Monitoring visit undertaken to Baraka Agricultural College in Kenya***



Baraka Agricultural College is currently known as a producer for seed potato and is registered with National Potato Council of Kenya as well as Kenya Plant Health Inspectorate Service (KEPHIS). The College developed a curriculum on enhancing farm enterprises including bee keeping, dairy management, vegetable production and potato, as well as a short course on sustainable agriculture for Youth to support entrepreneurship

training in TVET institutions

#### ***Innovation and career fairs for linkage with industry and entrepreneur***

At Egerton University, a total of 298 students were supported undertake



*Students attending a session with community in Mauche, Njoro subcounty*

academic trips/field visits. The students visited different farms/organizations. Additional 403 students were associated beneficiaries as a result of studying on the same programmes that the TAGDev supported students are enrolled. This brings to total, 685 Egerton University students supported undertake

experiential learning during the year. At [Gulu University](#), 123 students were supported undertake academic trips/field visits, and additional 28 trained at Uganda Industrial research institute (UIRI) incubation facilities.

#### ***Internship and apprenticeship to increase skills, competence and competitiveness for transitions in accordance with the transition's strategy***

Under the Innovations, Products to Market Field Attachment Programme (IPM-



*Biscuits made from baobab fruit pulp at BICOP enterprises*

FAPA), 20 students were supported to advance their experiential learning by accelerating their enterprises outside the university campuses. Students were further placed at Central Agricultural Research Institute (CARI) in Liberia, National

Institute of Agriculture in Benin, International Centre of Insect Physiology and Ecology (ICIPE) and the Food and Agriculture Organization of the United Nations in Rome, Italy. Three TAGDev students; Dimo Caleb and Emily Draru

and Susan Moletsane were supported for internship in different organizations including Masinde Muliro University of Science and Technology, National Agricultural Research Organization Uganda and Moletsane at Ministry of Agriculture, Marketing and Food Security, Lesotho respectively.

***Agricultural business/entrepreneurship incubator program piloted at Gulu and Egerton Universities***

Under the RECAP, 784 students have been supported to-date under and generated 112 businesses employing 346 persons. Business survival stands at 65% across RECAPs since inception in 2018.

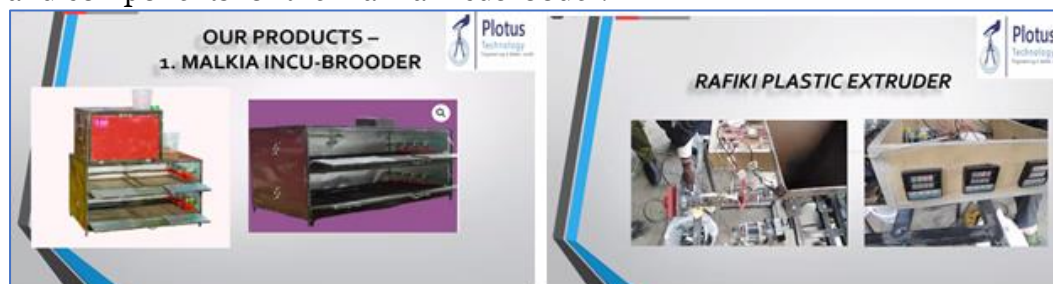


*Agri-Engage summer school on agri-entrepreneurship and community engagement*

Under the AgriEngage project, a scale-out of the TAGDev Programme, [workshops](#) were held to equip graduate students with knowledge and skills on strategic and design thinking, systemic innovation, business modeling and communication and other

Plotus Technology continued [partnered](#) with Njoro Polytechnic in training youths in the TVET institution. Apart from the incu-brooders, Plotus Technology developed a brand-new product called the CBC tool kit, and are providing consulting services to the Kenya Forest Service as part of a program to assist people who have been evacuated from the Mau Forest with chicken production. The enterprise has further been contracted by AGRISCALE project to supply affordable bioethanol cooking stoves made from locally available materials.

The enterprise acquired new machines; CNC machine for 3D printing on aluminum, electric furnace for recycling aluminum and an extruder for plastic. These machines are enabling them to mass-produce their products such as the CBC toolkit, the vegetable cutter and components for the malkia incubrooder.



**Selected innovations from Plotus Technology Enterprise**





*Incubatees with their mentor*

[Daucus limited](#) developed a Tangawizi (ginger)-flavored herbal coffee, traded as Nacafen and works with a local women's group in the marketing of the product. Following the receipt of IPM-FAPA grant from RUFORUM, the enterprise launched a new product, which we called Nacafen, a coffee substitute processed from the roasted, ground Bambara groundnut (*Vigna subterranea*), a member of the family Fabaceae that

grows widely in West Africa and in the East African countries of Tanzania and Burundi. Each month, the enterprise makes approximately KES 20,000 (US\$181) from the business, mainly targeting health-conscious people.

Dolcester Company have acquired the Kenya Bureau of Standards (KEBs) certificate for their products: roasted peanuts, peanut butter, and peanut cookies.

Desktop Lunches and [Comrade Dairy & Food Enterprise](#) have constructed their premises outside the University Campus and will be officially opened on 2<sup>nd</sup> July 2022. Desktop Lunches was further contracted by Farming Systems Kenta to run the hotel with Farming Systems Kenya



Selected enterprises from the AGLEAD RECAP responded to RUFORUM's FAPA and awarded a grant of US\$ 5,000 each.

The [Efarmu Company](#) app is gaining popularity among dairy smallholder farmers. There are 162 new users of the App resulting to a total of 422 farmers who are benefitting from the services offered. The enterprise established a six-acre farm for hass Avocadoes with intention to engage in the export market. They are also currently offering consultancy services to farmers and promoting farmers' participation in the lucrative export market. These consultancy services are offered as part of their corporate social responsibility to develop the communities in which they operate. The main challenge they are facing is on delayed payment of subscription fees.



Under Adoaicerit community development farmers group, as part of implementing the project: Enhanced capacity of smallholder farmers in postharvest handling and marketing, a total of 391 farmers (199 male, 192 female) were trained in group dynamics; governance training and setting of governance structures; business planning and business plan development; participatory enterprise selection and prioritization; and, wine and juice production. The key challenge has been illiteracy among some group members where they were not able to note down anything and High expectations for quick returns by members.



Other achievements related to entrepreneurship included establishment of a production technology and ideation center established at the Faculty of Agriculture and environment of Gulu University, to be linked to the business incubation center at the University. Further, a community Agrotechnology demonstration center for the Faculty of Agriculture and Environment, Gulu University was established, an initiative co-facilitated with other projects in the faculty and AVSI. The aim is to promote the *learn as you earn* initiative for youth involved in Agriculture within the region.

### See additional storylines

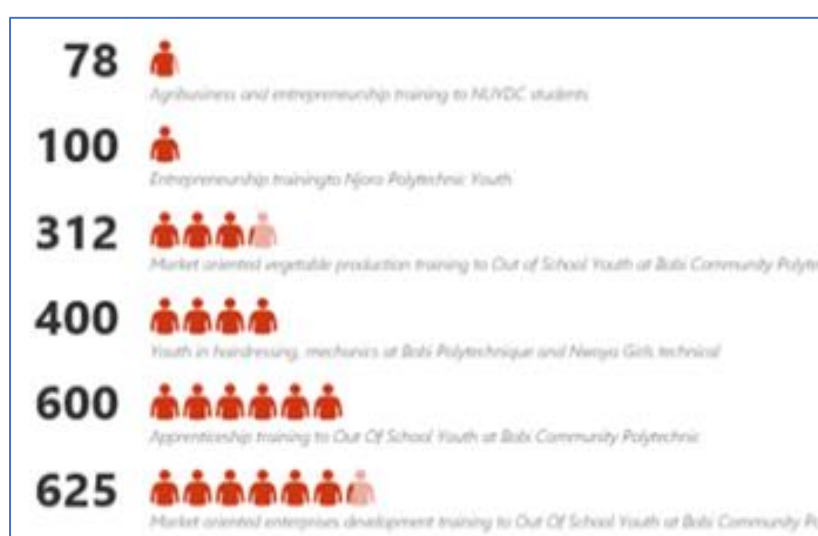
1. Gulu University RECAP: <https://www.youtube.com/watch?v=fyjDn23wb1E>
2. Entrepreneurship story - Gulu university <https://www.youtube.com/watch?v=K4ZbGe9owmI&t=117s>
3. Gabriel Kwendo - TAGDev scholar enterprises <https://www.youtube.com/watch?v=ykfeDGC-Ikk>
4. Juliet Ochama - TAGDev Scholar. <https://www.youtube.com/watch?v=zPYk5Z9ismA>
5. TAGDev Student Enterprises Overview <https://www.youtube.com/watch?v=cknFY11o48Y>

### Short courses in agribusiness/entrepreneurship for TVET trainers in Kenya and Uganda

To strengthen the entrepreneurial acumen and skills in TVET institutions, Baraka Agricultural College in partnership with Egerton University trained 40 persons to become Community Based Agricultural Advisors (CBAAAs). Another 24 trainers underwent a Training of Trainers and subsequently supported to register their centers for Competence Based Assessments (CBA) under Directorate of Industrial Training (DIT).

### Roll out agri-business and skills based focused short-term based trainings in TVET institutions

During the year, a total of 2115 persons including Out of School Youth and TVET students were trained in various thematic areas including agribusiness and entrepreneurship, market oriented vegetable production and personal care services



## *New model for agricultural education scaled out to other agricultural universities and TVET institutions*

### *Entrepreneurship retooling of academic and non-academic staff in RUFORUM member Universities*

During the year, through a partnership with FAO and TRIPESA a training and mentorship sessions in entrepreneurship were held. Further, in collaboration with HAMK University (Finland) Principals and Deans other University academics were trained on Problem-Based Learning.

### *Acceleration of incubated student enterprises from the incubation-hubs*

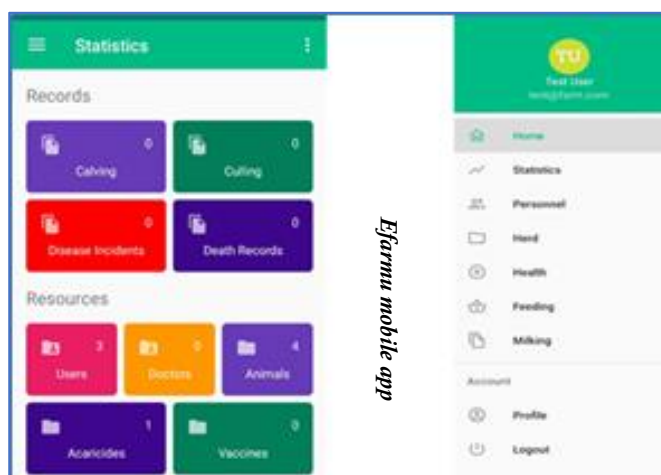
A total of 43 students were supported undertake the Innovations, Products to Market Field Attachment Programme (IPM-FAPA) to advance their experiential learning. A monitoring field visit to 16 student enterprises in Uganda and Kenya indicated growth of monthly total revenue to US\$ 11,019 with a total assets value of US\$242,793 over a period of six months and have now created a total of 116 direct jobs cumulatively. Below are some of the products generated under IPM FAPA



*Biscuits made from baobab fruit pulp at BICOF enterprises*



*Farmer training in using the Efarmu app*



*Efarmu mobile app*

Through funding from IPM-FAPA, [Efarmu](#) has been able to:

- Expand the platform platform to include an advertising platform where input dealers can advertise their products to the community of farmers at an extra cost.
- Update the software based on the feedback and recommendations from clients



## *Field monitoring of the Entrepreneurship Challenge Projects*

**Table 1: No. of jobs created and employees under the various RECAP Projects**

| RECAP Projects                 | Country  | No. of Enterprises | Enterprise members | Employees  | Total No. involved |
|--------------------------------|----------|--------------------|--------------------|------------|--------------------|
| University of Abomey Calavi    | Benin    | 14                 | 75                 | 22         | 97                 |
| Bishop Stuart University       | Uganda   | 43                 | 84                 | 94         | 178                |
| Egerton University             | Kenya    | 20                 | 51                 | 118        | 169                |
| Gulu University                | Uganda   | 37                 | 119                | 43         | 162                |
| Uganda Christian University    | Uganda   | 3                  | 36                 | 29         | 65                 |
| Catholic University of Bukavu  | DR Congo | 8                  | 45                 | 74         | 119                |
| Muni University                | Uganda   | 9                  | 32                 | 5          | 37                 |
| Ndejje University              | Uganda   | 10                 | 74                 | 12         | 86                 |
| StartUP Villa                  | Ghana    | 20                 | 40                 | 55         | 95                 |
| University of Burundi          | Burundi  | 11                 | 64                 | 47         | 111                |
| South Eastern Kenya University | Kenya    | 7                  | 17                 | 8          | 25                 |
| Haramaya University            | Ethiopia | 9                  | 50                 | 0          | 50                 |
| University of eSwatini         | Eswatin  | 4                  | 20                 | 5          | 25                 |
| <b>Total</b>                   |          | <b>195</b>         | <b>707</b>         | <b>512</b> | <b>1219</b>        |

### *Other achievements*

- i. 20 students received nurturing support to undertake graduate studies. These 20 are academic staff members from five universities within Somalia including; Nugaal University, Ilays University, Adan University, Amud University, Horn International University, and Burco University.



*Products developed by an incubate from Mbarara University of science and technology (Scale-out)*

## **Collaboration and mutual learning enhanced among institutions and agencies implementing and influencing innovative Tertiary Agricultural Education for rural transformation in Africa**

RECAP Field monitoring visits established that;

1. RECAP Project at Bishop Sturt University generated revenue of UGX 19.9 Million with a profit of UGX 7.1 Millions
2. Certification by Uganda National Bureau of Standards had not yet been secured by some universities due to limited production space. Projects were however to utilize some of the grants received by the students to establish minimum standards.
  - a. Uganda National Bureau of Standards sensitized the teams on what is required to obtain certification
2. Under the RECAP project at Egerton University, repayment of US \$ 30,000 by the students was realized, a fulfillment of the aspirations of the RECAP of ensuring continuous benefits to several student cycles



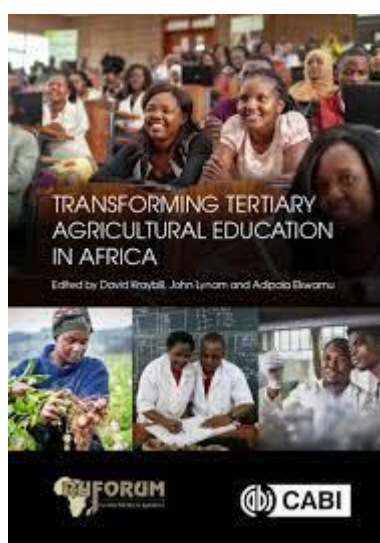
3. At Gulu University, several student enterprises including Sanal foods, Nana fruits salads and Nector enterprises transformed into companies while the rest are at different stages of formalization

### *Documentation of lessons throughout the life of the Project including one Video documentary*

Go Trolley was engaged to Video document success stories at both Gulu and Egerton Universities. Selected videos include:

- |   |            |               |                |
|---|------------|---------------|----------------|
| 1. Gulu   | University | Rice          | CARP           |
| <a href="https://www.youtube.com/watch?v=mFtRi3adZl0&amp;t=153s">https://www.youtube.com/watch?v=mFtRi3adZl0&amp;t=153s</a> |            |               |                |
| 2. University   | of         | Nairobi       | Cassava        |
| <a href="https://www.youtube.com/watch?v=OohVVAGZgbo">https://www.youtube.com/watch?v=OohVVAGZgbo</a>                       |            |               |                |
| 3. Gulu   | University | Institutional | Transformation |
| <a href="https://www.youtube.com/watch?v=KsV9u4Sl73A">https://www.youtube.com/watch?v=KsV9u4Sl73A</a>                       |            |               |                |
| 4. Gulu   | university | Rice          | CARP           |
| <a href="https://www.youtube.com/watch?v=mFtRi3adZl0&amp;t=153s">https://www.youtube.com/watch?v=mFtRi3adZl0&amp;t=153s</a> |            |               |                |
| 5. RUFORUM  |            | CARP          | Overview       |
| <a href="https://www.youtube.com/watch?v=jK8nu48PalE&amp;t=27s">https://www.youtube.com/watch?v=jK8nu48PalE&amp;t=27s</a>   |            |               |                |

### **Advance understanding of developments in tertiary agriculture education in Africa, in collaboration with the World Bank and other partners through joint publications**



The TAE book was published by CABI and launched on the 5<sup>th</sup> December, 2021 during the Triennial Conference in Benin.

### **Key lessons**

1. Several university professors still struggle to develop online content, facilitate online learning, and conduct online assessments. This process has been jump-started by COVID-19; to continue it will take additional effort.
2. Regular University Management Board debriefings assist in removing obstacles to programme implementation. These kinds of interactions led to appeals from Egerton University, which in turn prompted management modifications in procedures that frequently slowed the advancement of graduate students.

3. Community engagement has been crucial to students' transitions; majority of students were welcomed back to the same institutions where they completed their internships for official employment.