



**MAKERERE UNIVERSITY**  
**COLLEGE OF AGRICULTURAL & ENVIRONMENTAL**  
**SCIENCES (CAES)**

**12<sup>TH</sup> PRINCIPAL'S QUARTELY REPORT**

**JANUARY-MARCH, 2017**

## **VISION**

To be a leading institution of academic excellence and innovations in Africa

## **MISSION**

To advance training, knowledge generation and service delivery in order to enhance agricultural development, sustainable natural resource utilization and environmental management.

## Abbreviations

<b>CAES</b>	College of Agricultural and Environmental Sciences
<b>DABE</b>	Department of Agricultural and Biosystems engineering
<b>DANRE</b>	Department of Natural Resource Economics
<b>DAP</b>	Department of Agricultural Production
<b>DEIS</b>	Department of Extension and Innovation Studies
<b>DEM</b>	Department of Environmental Management
<b>DEM</b>	Department of Environmental Management
<b>DFTHN</b>	Department of Food Technology and Human Nutrition
<b>DGGCS</b>	Department of Geography, Geo-informatics and Climatic Sciences
<b>DRGT</b>	Directorate of Research and Graduate Training
<b>FBT</b>	Department of Forestry, Biodiversity and Tourism
<b>FTBIC</b>	Food Technology and Business Incubation Centre
<b>MAK</b>	Makerere University
<b>MUARIK</b>	Makerere University Research Institute Kabanyolo
<b>MUBFS</b>	Makerere University Biological Field Station
<b>NBDB</b>	National Biodiversity Data Bank
<b>NEF</b>	Next Einstein Fellowship
<b>SAS</b>	School of Agricultural Sciences
<b>SFEGS</b>	School of Forestry, Environmental and Geographical Sciences
<b>SFTNB</b>	School of Food Technology, Nutrition and Bioengineering

# Foreword



This report provides an overview of the events that took place in the CAES in January-March 2017.

The report is structured along the thematic areas outlined in the Makerere University strategic plan 2008/09-2018/19 especially the core functions of Teaching and Learning, Research and innovations, Outreach and knowledge transfer partnerships.

Notable achievements in the period under review include the visit by the Minister of Agriculture Animal Industry and Fisheries Hon. Vincent Ssempijja who spend 12 hours in the college in quest for partnership to improve the agricultural sector.

The first centre for Waste Management in Uganda was also opened by the Swedish Ambassador to Uganda H.E. Per Lindgarde at MUARIK. The Centre is to be used to train farmers on how to sort, compose, make biogas and set up demonstration plots on how to use agricultural waste.

The college also received a four-man delegation from the Ibrahim Badamasi Babangida University (IBBU), Lapai-Niger State, Nigeria led by the institution's Vice Chancellor Prof. Muhammad M. Maiturare. The team extended a hand of collaboration to Makerere University.

Under Research and Innovations, the Department of Agricultural and Biosystems engineering in partnership with Perdue University in Indiana USA developed a solar-powered Irrigation pump as a cheap and reliable solution for small scale farmers that form the bulk of farmers in the world.

Our own MUARIK also started poultry and other animal feed production after it received a grant from the African Development Bank (AfDB).

Several outreach activities including the Annual CAES student's exhibition was opened by the State Minister for Animal Industry Hon. Joy Kabatsi.

The 2<sup>nd</sup> CAPSNAC research dissemination workshop was held in Mbale while a another research dissemination workshop on Teaching Agriculture in Uganda Secondary schools was held in Kampala. The training of prospective and active bee keepers was also conducted at MUARIK.

The college conducted the third students' entrepreneurship skills training under the "Solve the Equation East Africa" (SEE) Project. The training dubbed, "Applied

Entrepreneurship and Practical Business Management. CAES also hosted the 7th International Course on Climate Change Adaptation in Agriculture and Natural Resource Management to discuss strategies on how to curb the impacts of climate change.

On human resources, our long serving Prof. Elly Sabiiti received the Golden Jubilee Medal for his dedicated service to Makerere University (for 40 years) during the NRM 31<sup>st</sup> Anniversary celebrations held in Masindi town.

Special gratitude goes to our staff for the hard work and cooperation inspite of challenges. Management also acknowledges support from our development partners that contributes greatly to the high profile of Makerere University. At the national level, we are grateful to the Government of Uganda for its commitment to finance and support the university through different initiatives.

I thank you.

**Prof. Bernard Bashaasha,**

**PRINCIPAL**

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# 1.0: INTRODUCTION

## 1.1: College of Agricultural & Environmental Sciences (CAES)

CAES is one of the ten colleges of Makerere University located within the Western part of Makerere University. Its main administrative center is in the Agriculture building located just opposite the University Main Library entrance. CAES has three Schools: School of Agricultural Sciences (SAS), the School of Forestry, Environmental and Geographical Sciences (SFEGS) and the School of Food Technology, Nutrition and Bioengineering (SFTNB).

The college has two institutes that handle research namely Makerere University Agricultural Research Institute Kabanyolo (MUARIK) and Makerere University Biology Field Station (MUBFS). The college has 14 centers serving as a base for knowledge transfer and partnerships. These are complemented by facilities located at Nyabyeya Forest College and Budongo Conservation Field Station that cater for Forestry students.

## 1.2: CAES Schools and departments

The School of Agricultural Sciences (SAS) is comprised of three Departments. The departments are: (i) Agricultural Production; (ii) Agribusiness and Natural Resource Economics; and (iii) Extension & Innovation Studies. These departments offer Undergraduate, Masters and PhD degrees in their respective disciplines.

The School of Forestry, Environmental and Geographical Sciences (SFEGS) is composed of three departments (i) the Department of Forestry, Biodiversity and Tourism; (ii) the Department of Environmental Management and (iii) the Department of Geography, Geo Informatics and Climatic Sciences.

The School of Food Technology, Nutrition and Bioengineering (SFTBN) comprises two departments. (i) the Department of Agricultural and Bio systems Engineering and (ii) the Department of Food Technology and Human Nutrition. The SFTNB hosts an e- learning center (Telematics receiving studio) fully furnished with equipment. The SFTNB also hosts the Food Technology and Business incubation Centre (FTBIC).

## 1.3: Research institutes

### 1.3.1: Makerere University Agricultural Research Institute Kabanyolo (MUARIK)

MUARIK is a public institution and an arm of Makerere University that interfaces with the National Agricultural research system (NARS). Seated on 650 hectares of land it is being managed as a multi-disciplinary facility for training, research, outreach and production under the CAES. It is located 19 kilometers North-West of Kampala off Gayaza Township on the Kampala-Zirobwe Road. The institute houses the center for Continuing Agricultural Education Centre (CAEC), the

undergraduate student hostel and facilities for over 30 graduate students under the regional programmes. The Tissue Culture, Animal Science and the Biotechnology laboratories are also located at MUARIK. Other facilities at MUARIK include CURAD, staff residences, poultry, dairy, and piggery units among others.

### ***1.3.2: The Makerere University Biological Field Station (MUBFS)***

MUBFS is located in Kibale National Park in Kibale district. It is mainly involved in research but it is increasingly hosting short international courses in Tropical Biology. Originally, most of the research at MUBFS was primatology but over the years, the research agenda has broadened to include ecological and behavioral research on taxonomy, and socio economic studies. There is adequate dormitory and guest house space for groups ranging between 10 and 60 and catering services. In collaboration with national institutions, the institute provides consultancy services to the government and other organizations in Uganda. Consultancy services include tailor made training in different fields of environment and natural resources, assessment and monitoring of environment and natural resources therein environmental impact assessments and audits, project monitoring and evaluation and facilitation.

### **1.4: Research Centres**

Recognizing the importance of outreach, the college established a fully-fledged outreach facility called the Continuing Agricultural Education Centre (CAEC). Through CAEC, the College operates outreach programs for various stakeholders (farmers, policy makers, students etc). The presence of the CAEC therefore makes the College a key player in development-impact oriented training and research.

Other centres include the Plant Breeding, Biotechnology and Seed systems research center, the Remote Sensing and GIS Laboratory, the Molecular Biology Laboratory and the Water and Wetlands research Laboratory. Others are the National Biodiversity Data Bank (NDBD), the Food Technology and Business Incubation Center (FTBIC), the Makerere University Climate Change research and Innovations (MUCCRI), Centre for Waste Management, Centre for Mountain Resources and Disaster Management, Rangeland Resources Centre and the Agricultural Policy Analysis Centre. All these operate at different capacities.



## 2.0: TEACHING AND LEARNING

### .1: MAK SEE project Conducts Third Students' Training on Entrepreneurial skills



The college conducted the third students' entrepreneurship skills training under the “Solve the Equation East Africa” (SEE) Project. The training dubbed, “Applied Entrepreneurship and Practical Business Management”, was conducted at the School of Agricultural Sciences on 21st -23rd February, 2017.

The students were equipped with knowledge and skills in different aspects including Introduction to Entrepreneurship Business Plan Writing and Resource Mobilization; Establishment of Small and Medium Enterprises (SME), Value Chain Analysis, Strategic Marketing and Customer service. Other aspects of the training were Business Management, Economic Policy and Trade Instruments.

UK-based consultants Joyce Achampong and Emma Falk working for the project funders-MasterCard Foundation flew into the country on 3rd March, 2013 to assess the impact of the training for the past three years.

The Executive Director, Pivot Global Education Consulting Group Joyce Achampong said they were part of the Youth Economic Participation and Empowerment Program at Texas University contracted to evaluate the three year MasterCard Foundation programs.

Students were evaluated why they enrolled in the training program to get a better sense of how they enjoyed the program and see if the program was beneficial for recommendation and implementation in other universities. The students were also tasked to explain what motivated them to join the program, what skills they had gained and how they were applying the acquired skills in their day - today lives.

Over 20 students undertaking agricultural and related courses were later given certificates of Attendance on satisfactory performance in the assessment.

Makerere University Principal Investigator (PI) Prof. Felix Bareeba said that the consultants also wanted to evaluate the program

success not only for implementation in other universities but also assess the viability of the program for further funding and collaboration.

Besides evaluating the students, the consultants met the program Alumni who undertook the short courses and those who had not attended any entrepreneurship course.

The consultants also held a meeting with course instructors. The course instructors include Prof. Bareeba, Dr. Peter Walekhwa, Dr. William Ekere, Ms. Elizabeth Balirwa and Dr. Allan Komakech from the Department of Agribusiness and Natural Resource Economics and other college units.

The Makerere University Students' Entrepreneurship Club was on 7th March, 2015 launched at the School of Agricultural Sciences. The club is an initiative SEE project.

SEE is a collaborative project within the member universities in East Africa trying to change the mindset of University graduates from thinking about job seeking to job creation by imparting several skills including entrepreneurship.

Basing on the success projects in Rwanda, SEE philosophy of change is to conduct training for innovation entrepreneurship, supporting business skills, pilot innovative ideas, commercialise successive piloted ideas and follow up teams in the field.

The launch of the Makerere University Students'

Entrepreneurship Club and SEE project activities was spearheaded by the Project Coordinator for East Africa Mr. Paul Serumaga who is also a lecturer at the University of Rwanda. Mr. Serumaga is also a college Alumni who graduated with a BSc. Food Science and Technology in 2001. He is being assisted by Makerere University SEE project Co-ordinators Prof. Felix Bareeba.

The project is being implemented in four countries of Rwanda, Kenya, Tanzania and Uganda with plans to extend to Ethiopia, South Sudan and Burundi. The participating universities in the four East African countries are the University of Rwanda, University of Nairobi, Muhimbiri University and Makerere University.

The major project funder is Master Card in the United States. The preliminary stage of the project (2014-2016) had a budget of \$ 350, 000 and \$ 21,000,000 for the next eight years for follow up activities.

The project structure involves a training component, curriculum development and linkages with banks to give start up loans to students. Other activities include mentoring activities which are paid for by the project for all students who would have started a business and outreach programs to different people within their localities who would have already started businesses.

Under this project, CAES Students are to be trained and supported to

commercialise ideas and linked to banks to get loans. The students' Club acquired an assortment of equipment for ice cream making, computers and TV screens to show successful entrepreneurs.

## **2.2: The 7th International Course on Climate Change Adaptation in Agriculture and Natural Resource Management held**



CAES hosted the 7th International Course on Climate Change Adaptation in Agriculture and Natural Resource Management to discuss strategies on how to curb the impacts of climate change. The two weeks training was held at Esella Country Hotel in Kampala starting 30th January -10th February 2017.

This annual course was developed in an innovative partnership between Wageningen University and Research centre (Wageningen UR Centre for Development Innovation, Alterra and PRI), the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and the International

Union for Conservation of Nature (IUCN).

The course is funded by NUFFIC, a Dutch Organization coordinated by Dr. Florence Kyazze from the Department of Extension and Innovation Studies, Makerere University and Dr. Arrend Jan Van Bodegory from Wageningen University of the Netherlands. Makerere University is given three scholarships for students to study free of charge annually.

The course is aimed at equipping participants with full understanding of climate change adaptation concepts and to effectively and meaningfully contribute to the debate on climate change adaptation.

This year (2017), the training attracted 34 international students from Latin America, East Africa, West Africa and Asia. Participating students came from Kenya, Tanzania, Ethiopia, Nigeria and Zimbabwe. Other students were from Colombia, Bangladesh and Vietnam among others.

The Course components include oral presentations from different resource persons punctuated by visits to successful Ugandan farmers adapting to climate change.

On 3rd February 2017, participants made a field visit on Hajji Abubakar Yiga's field in Kasalu village, Nindye parish, Nkozi Sub County in Mpigi district. Hajji Yiga has been a model farmer for the past five years.

Despite the hottest weather recorded in 2016, he has adapted through soil and water conservation technologies.

While touring students and teaching them the agronomic practices on his farm, Mr. Yiga explained that he bought 6 acres of land, dug a well of about 20 ft deep, bought a generator worth shs. 3 million and a pump of shs. 1.25 million Mainly to grow crops during the dry season.

Mr. Yiga grows a variety of crops like yams, sweet potatoes and vegetables among others. The seeds were supplied by government through Operation Wealth Creation Program that supports farmers to graduate from subsistence to commercial farming to improve livelihoods.

Mr. Yiga however decried the high capital required for spraying, buying manure and fuel before harvesting since he has no alternative source of income. He also said pumping and irrigating water to every plant in all

the six acres was tedious and hoped to get a sprinkler irrigation system to reduce on the labour.

The Netherlands course Coordinator; Dr. Arrend Jan Van Bodegory reported that 2016 was the hottest year of the century followed by 2015 with projected temperature rise of up to 2.7 degrees. It's uncertain what 2017 holds for the farmer hence the need to raise awareness on the changing climate, mitigation and adaption measures.

Dr. Arrend described Hajji Yiga, the model farmer as innovative and resilient, commending his strategy of producing during the dry season as a niche to capture the market when there is scarcity and high demand with bigger returns.

He observed that in the five years, Mr. Yiga had made changes in the farming systems implying that he was well prepared to face the consequences of climate change.

## 3.0: RESEARCH AND INNOVATIONS

### 3.1: Makerere University develops a Solar - powered Irrigation Pump



The Department of Agricultural and Biosystems engineering in partnership with Perdue University in Indiana USA developed a solar-powered Irrigation pump as a cheap and reliable solution for small scale farmers that form the bulk of farmers in the world. The entire system can be assembled at a cost of shs. 6.5million.

The irrigation pump was demonstrated and launched on Thursday 5th January, 2017 by the Prime Minister of the Republic of Uganda the Rt. Hon. Dr. Ruhakana Rugunda at his office near Parliament of Uganda. The function was attended by officials from Uganda Prisons, Operation Wealth Creation and the Chancellor Makerere University Prof. Ezra Suruma among others.

The Solar Power project at Makerere University was led by Prof. Noble Banadda as the Principal Investigator (PI) together with Dr. Michael Kigunddu and Dr. Ahamed Zziwa, all from the Department of Agricultural and Bio-systems engineering, School of Food Technology, Nutrition and Bio-engineering, College of Agricultural and Environmental Sciences.

The system is composed of a solar panel, battery, pump and tubes which can efficiently work on surface water although adjustment can be made on the size of the panel and water pump to utilize underground water.

Horizontally, the system is able to get water within 100 and 8-10meters above the ground. The machine is rust-free, portable and therefore mobile. The system pumps an average of 450 litres of water per hour.

The solar powered irrigation pump was tested and found efficient in IOWA and Indiana at a total cost about \$ 185,000 US Dollars over one year period. The cost includes tuition and stipend of two graduate students that were involved in modelling and designing the system. These funds according to Prof. Banadda were an offer by an individual American.

Available pumps on the Ugandan market require diesel or petrol to run but this is a special pump designed for solar to be able to pump water at no cost. The system components include the solar panel and a solar pump. On



a cloudy day, the system is able to pump water with a battery alone for 2-3 hours. One can also pump using solar energy. The solar system can

also be used for lighting.

A computer simulation was made to measure the capacity needed to pump water at a distance of at least 100 meters from the water source and the results were 8 – 10 meters above the ground. Therefore a farmer with 10 acres can do well with this kind of system which also eases irrigation.

While launching the prototype, the Prime Minister Dr. Ruhakana Rugunda tasked Makerere University dons to look at how the system can be quickly commercialized by either assembling or manufacturing the whole system here in Uganda as part of the innovation for the public use.

Dr. Rugunda observed that with increasing population and eroded soils, Uganda must have more scientific methods of agriculture adding government was ready to provide funds for massive production of the system.

### 3.2: CAES in Regional Research on Fish Feeding, Breeding, Marketing and Fish Effluent Water Quality Control Technologies to commercialize Fish farming in Uganda



A new collaborative research program dubbed, “The Aqua Fish Innovation Lab”, revealed that fish farming is a profitable venture but is constrained by feeds, best feeding and breeding practices leading to inconsistent supply to consumers.

The study that started in 2009 and ending 2018, is a collaborative research program being conducted in Europe, Africa, Asia, United States of America and Latin America. The Aqua Fish Innovation Lab program is funded by the USAID Feed the Future project.

The research is being conducted by Makerere University in collaboration with Oregon State University (OSU), Auburn University, North Carolina State University of the United States of America (USA), Moi University, Kenyatta National University of Science and Technology of Kenya and institutes like NaFIRRI, ILRI among others.

Speaking during the annual regional planning meeting and field visit to a section of fish farmers in Uganda early January 2017, the Aqua Fish Regional

Director Dr. Hillary S.Egna who is also Head Aquaculture Department Oregon State University USA said, the program is part of the 24 research programmes that look at a variety of aspects around nutrition, poverty and development.

Dr. Egna said the objective has been to use the best aquaculture practices available to help innovate the fish industries, educate people and ensure long term training in Aquaculture to reduce poverty, create income and employment opportunities.

Key project achievements are; the development of a cell phone technology in Kenya, Ghana and now in Uganda, feed technologies that are more efficient and better for the environment and the farmer, and the utilization of local inputs like insects and food.

Other project achievements include work on gender and nutrition, trying to offer opportunities for a number of people not traditionally involved in aquaculture like selling fish among others.

Later, the team visited Majoline Fish Farm in Kiwanga, Seeta in Mukono district, IG Invest Uganda Cage Fish Farm and factory on River Nile in Busana- Buikwe district and Jinja Fish Farmers Association in Jinja. Other sites include NaFFIRI Kajjansi Station where they reviewed lung fish reproduction and nutrition research.

Professor, International Agriculture Joseph J. Molnar from the College of Agriculture, Department of Agricultural Economics and Rural Sociology Auburn University, USA said that the project was able to discover how the reproductive system of the lung fish works, how to feed them and the kinds of feed that can make them quickly become market size species.

The Principal Investigator, Makerere University Associate Professor Theodora Hyuha said the other project has been looking at marketing and economics of fish production focusing on women in aquaculture, processing groups, marketing and trading of fish adding that studies have been conducted by the university on economics of aquaculture to find out whether fish farming is profitable. She also said that the project was also working on capacity building and had enrolled graduate students.

The Farm Manager Majoline Fish Farm Ltd Martin Ssentongo said the farm is engaged in rearing and breeding of mainly tilapia and catfish adding that the farm sells 1kg of tilapia or cat fish at UGX. 12000 per kilogram and produces about 180kg every week for retailers. The farm has 12 ponds and 2 breeding ponds for tilapia.

Ronald Kimaliyo, the Farm Manager IG Invest Uganda Ltd specializing in Cage fish farming at Busana, Buikwe on River Nile said they have managed to produce over 140 tonnes of fish monthly.

He however noted that the major challenge of fish farming includes poor feed quality, insecurity from neighbours, thieves and predators like

snakes, frogs and birds that penetrate the cages.



## 4.0: INFRASTRUCTURE DEVELOPMENT/EQUIPMENT ACQUIRED

### 4.1: The first Centre of Excellence in Waste Management in Uganda Launched



The CAES officially opened the first Centre of Excellence in Waste Management in Uganda at the Makerere University Agricultural Research Institute Kabanyolo. The Centre is to be used to train farmers on how to sort, compose, make biogas and set up demonstration plots on how to use agricultural waste.

It was established with support from Sida, the African Union, European Union, Government of Uganda through Bank of Uganda and Makerere University. Incubators will help in culturing samples under controlled temperatures.

The centre was launched by the Swedish Ambassador to Uganda H.E. Per Lindgarde as Chief Guest on Friday 17th February 2017 under the theme, “Investing in Waste for a Green Future”.

The function was also graced by the Vice Chancellor Makerere University Prof. John Ddumba SSentamu and Vice Chancellor Bishop Stuart University and the Secretary for Research at the Swedish Embassy Dr. Gity Behravan. Others were the Director DGRT Prof. Mukadasi Buyinza, and Dr. David Owinyi among others.

The initiative was championed by Prof. Elly N Sabiti with support from the Swedish International Development Aid (Sida) and other funders including Bank of Uganda, Makerere University, African Union and European Union.

The main objective is to become a centre of innovative research and technology development utilizing bio waste in enhancing sustainable agricultural production and a healthy environment.

Specifically the centre will optimize and promote compositing of biodegradable waste for improved agricultural production; Develop livestock feed protocols based on market crop waste; Develop bio gas technologies for use by small scale households; offer training, knowledge sharing and advisory services in waste management and create linkages with the private sector in technology development.

It will also promote the adoption and diffusion of viable waste utilization

technologies and products through use of incubation facilities; promotion of regional, international research collaborations and linkages and

creation of community awareness and training.

## 5.0: RESOURCE MOBILISATION AND COLLABORATIVE EFFORTS

### 5.1: MUARIK starts poultry and animal feeds production



Makerere University Agricultural Research Institute Kabanyolo (MUARIK) started poultry and other animal feed production after it received a grant from the African Development Bank (AfDB).

MUARIK is the arm of the University that interfaces with the National Agricultural Research System (NARS). It is located 21km North of Kampala along Gayaza road. Makerere University Agricultural Research institute, Kabanyolo farm was established in 1953, and upgraded to a fully fledged research institute in 1992 under the College of Agricultural and Environmental Sciences (CAES)

The Farm Manager MUARIK, Mr. Julius Ahangana said feed production was an initiative under the CAES which commenced after the renovation of the Feed Mill and recruitment of a feed mill manager with technical competence in mixtures and formulations to see the project through.

The poultry and other animal Feed production started in November 2016 and had its first bag of feeds produce in January 2017.

“The escalating prices of feeds on the outside market were so alarming and the quality of feeds was not the desired one; fortunately this inspired us to start our own feed mill to feed the livestock on the farm and sell to the neighbouring community.” Mr. Ahangana said adding that the feeds on the outside market were so adulterated yet the farm had the ability to process its own.

“Serious selling of poultry and dairy feeds started in February 2017 with MUARIK being the first customers of this feed mill given the fact that it has many sections which depend on each other for example it has the crop production unit that produces maize, sells it to the feed mill where it's processed and sold to the poultry unit.” Mr. Ahangana said.

Some of the ingredients used to make the feeds include maize bran, sunflower, cotton seedcake, egg shells, fish, wheat bran, rice bran and premixes like the broiler starter premix, calf premix, dairy premix and chicks starter premix which are mixed to come up with these feeds.

The Feed Mill produces all types of feeds depending on the order. The farm gives out samples to customers to prove the quality of the feeds.

Production and utilisation of the feeds on the university poultry unit has raised egg production up to 80% .

As the feeds increase, there are plans to open an outlet downtown in Kisenyi or Container Village in town. Those interested in obtaining the feeds of a 70 kg bags can access them on the farm at different prices depending on types as follows:

- Dairy meal at 126,000
- Chick and dark mash at 126,000
- Sow and Wien at 96,000
- Pig creep meal at 98,000
- Calf early wiener at 126,000

The feed mill also processes human food like posho among others and being training and learning institution, it's mandated to train students. The farm target market are MUARIK, neighbours from Gayaza and Nangabo Sub County.

**5.2: Minister of Agriculture spends 12 hours benchmarking Makerere University potential for collaboration to improve the agricultural sector.**



On Friday 10<sup>th</sup> February, 2017, the Hon. Minister of Agriculture, Animal Industry and Fisheries (MAAIF) and Kalungu East Member of Parliament

Hon. Vincent Ssempijja and his team paid their first official visit to Makerere University College of Agricultural Sciences (CAES). The visit was initiated by the ministry.

The Minister was particularly interested in visiting the Makerere University Agricultural Research Institute Kabanyolo (MUARIK) and the Department of Food Technology and Human Nutrition in the School of Food Technology, Nutrition and Bioengineering.

The objectives of the visit were to:

1. Visit the facilities to get updated on training and learning infrastructure;
2. Get acquainted with Research and Projects undertaken;
3. Know challenges and emerging concerns affecting the college and;
4. Exchange views/proposals to strengthen collaboration with MAAIF.

Hon. Vincent Ssempijja and his team spent a whole day at Makerere University from 8.00 am to 8.30 pm. He started at 8.00 am with a courtesy call on the Vice Chancellor Makerere University and later proceeded to MUARIK immediately and toured various facilities. The minister also shared breakfast with staff at Kabanyolo. He later held a meeting with staff at the Continuing Agricultural Education Centre (CAEC) after which they had lunch together.

At 3:30 pm the Minister, his team and Makerere staff left MUARIK and headed for his second part of the visit at the Food Technology and Business Incubation Centre (FTBIC) in the School of Food Technology, Nutrition

and Bio Engineering. The team arrived at the FTBIC at 4pm. The Minister was conducted through the processing lines and later held the second discussion with staff and crowned the day with a cocktail. The Hon. Minister left at 8:30pm.

In both meetings at MUARIK and the School of Food Technology, Nutrition and Bio engineering, it was agreed that:

1. All college activities are guided by the need to ensure food security, increasing farmer incomes and exports/import substitution;
2. Irrigation is demonstrated at MUARIK as a matter of urgency;
3. The Biotechnology laboratory focuses on the 12 agro ecological zones and 12 priority commodities in the Agricultural Sector Strategic Plan (ASSP);
4. The tissue culture lab claims up local cassava varieties from Cassava Brown Streak;
5. All college research to target farmer and community needs;
6. A joint committee is formed to push forward the above points and agenda and other important areas of mutual interest including value addition, MAAIF support to student internships, CAES engagement with extension services and others.

### 5.3: IBBU Nigeria Delegation Pays Courtesy Call, Courts Mak



A delegation from the Ibrahim Badamasi Babangida University (IBBU), Lapai-Niger State, Nigeria on 2nd March 2017 paid a courtesy call on the Vice Chancellor and extended a hand of collaboration to Makerere University.

The four-man delegation from IBBU was led by the institution's Vice Chancellor Prof. Muhammad M. Maiturare and received by the acting Vice Chancellor and Principal College of Humanities and Social Sciences (CHUSS)-Prof. Edward Kirumira, as well as the Principal College of Agricultural and Environmental Sciences (CAES)-Prof. Bernard Bashaasha.

The delegation's visit to Makerere University was facilitated by the Ugandan High Commissioner to Nigeria-H.E. Nelson Ochege who also accompanied the team. H.E. Ochege thanked the Office of the Vice Chancellor for receiving the delegation on short notice and shared that the visit was based on IBBU's intention to promote organic agriculture in Nigeria as well as other countries where Nigeria has diplomatic missions.

"I have already informed the Ministry of Foreign Affairs as well as the Ministry of Agriculture, Animal Industry and

Fisheries and other Ministries about IBBU's intentions. The delegation has also just returned from Iganga where they intend to start a pilot project" shared the High Commissioner.

In his remarks, Prof. Maiturare thanked H.E. Nelson Ochege for making the contact with Makerere and the acting Vice Chancellor for granting his delegation audience. He shared that although IBBU was state-owned University founded on 12 years ago, it is actively involved in cutting edge research in agriculture and other disciplines. He congratulated Makerere upon the recently concluded 67th Graduation and noted that the almost 15,000 graduands surpassed IBBU's entire student population!

He commended the institution for maintaining her number three position in Africa and noted that it was a pleasure for IBBU to interface with Makerere in terms of research as well as the foreseeable staff and student exchanges. "We therefore extend a hand of collaboration to Makerere University and look forward to a mutually beneficial relationship.

Prof. Edward Kirumira warmly welcomed Prof. Maiturare and the IBBU delegation to Makerere University and shared the Vice Chancellor-Prof. John Ddumba-Ssentamu's apologies for not being able to personally meet the team. "The Vice

Chancellor is currently away on official duty," he added.

He commended the High Commissioner and the Ministry of Foreign Affairs for facilitating the visit, observing that this would foster Internationalization of the collaboration. "This initiative by the Ministry of Foreign affairs will create ownership of the collaboration and make it easy to bring other Government agencies on board. We look forward to a strong tripartite collaboration" added Prof. Kirumira.

The acting Vice Chancellor further encouraged the IBBU delegation to take advantage of the research already conducted by the Iganga-Mayuge Health and Demographic Surveillance Site (IMHDSS) "a lot of research has been conducted at the household level, which findings will provide a lot of useful information to your pilot project" concluded Prof. Kirumira.

The delegation is slated to visit the College of Agricultural and Environmental Sciences (CAES) and interface with administrators and researchers. They also expressed interest in interfacing with the leadership of the Actuarial Science programme at Makerere University.



## 6.0: OUTREACH ACTIVITIES

At the national level, several workshops, seminars, demonstrations, exhibitions and conferences involving several stakeholders were successfully held. Our staff and students have engaged in community projects as they put theory into practice and also learn from communities.

### 6.1: Annual CAES Students' Agricultural Exhibition and Career Expo held



Minister of State for Animal Industry Hon. Joy Kabatsi on behalf of the Minister for Agriculture, Animal Industry and Fisheries (MAAIF) officially opened the Annual CAES Students' Agricultural exhibition and Career expo 2017 at the Makerere University Freedom square

The Minister was received by the Vice Chancellor Makerere University represented by Prof. Bernard Bashaasha who is also Principal College of Agricultural and Environmental Sciences (CAES).

The three day event that started on 21<sup>st</sup> - 23<sup>rd</sup> March 2017 was organized by CAES students under the theme, **“The role of Youth and Small holder farmers in agricultural transformation amidst changing climate and growing population”**.

The event attracted exhibitors from Makerere and other universities, researchers, secondary school students,

small holder farmers, youth entrepreneurs, agricultural professionals, farmers and agricultural companies in the categories of crop production, animal husbandry, food production technology and human nutrition, agricultural machinery, environmental conservation, forestry and tourism. Different financial institutions, government authorities, the media and other service providers in the sector also attended.

The objectives of the exhibition and career expo were to provide an opportunity for the youth and small holder farmers to interact with the different actors in the agribusiness value chain and expose University students to the different agricultural stakeholders in the country and abroad.

The other objectives were to showcase the contributions that the youth and small holder farmers make towards agricultural transformation and bridge the gap between different value chain actors by providing an interactive environment that can create business linkages.

Besides creating awareness about climate change and its impacts on agricultural development and food security, the exhibition and career expo provided a platform for sharing and learning between agribusinesses, financial and legal service providers, government institutions and other players among others.

While opening the exhibition and Career expo on behalf of the Min. MAAIF,

Minister of State for Animal Industry Hon. Joy Kabatsi congratulated all exhibitors for displaying their products and technologies and appealed to them to share experiences and knowledge with the show goers.

The minister acknowledged and appreciated the importance of the agriculture sector in the economy. She reported that sector contributes 26.2% of Uganda's GDP, employs 80% of Uganda's population and contributes 53% of Uganda's export revenues.

Hon. Kabatsi told participants that the Government Agriculture Sector Objectives as contained in the National Development Plan are to Increase incomes through increasing production and productivity; Ensure household food and nutritional security; Create on-farm and off farm employment opportunities; Promote value addition and domestic and external trade in agricultural products.

She said, Government with support from the Food and Agricultural Organisation (FAO) was developing the National Strategy for Youth Employment in Agriculture sector intended to attract youth into Agriculture.

The objectives of the strategy according to the Minister are training the youth in agro- enterprise development, identifying youth champions and mentors to serve as models, and training youth in farming as a business and identifying linkages to agribusiness incubators and financing. The other objectives are promoting youth participation in small scale value addition and processing, promoting youth programmes by profiling and supporting them to develop agriculture enterprises.

Minister Joy Kabatsi said government recognizes the importance of Sustainable Agricultural land management as one way of combating climate change. This,

she said calls for strategies and practices that enable farmers and communities to adapt as well as become more resilient to climate change by increasing food production, conserving soil and water as well as enhancing food security.

She informed participants that the Ministry has continued to intervene in making investments that promote sustainable land management, adaptation and mitigation measures.

“The Ministry has a formal working relationship with Makerere University operationalised in form of Memoranda of Understanding. The Ministry is committed to continue working with Makerere University in areas of development in research, provision of agriculture extension services and capacity building for farmers, Value addition especially food processing and incubation centers and, general transfer of knowledge and technology”.

The Minister acknowledged the role of the agricultural research system in addressing research in drought tolerant varieties of the priority crops. She also appreciated agricultural research scientists in both public and private sectors for generating knowledge, technologies and innovations that have enabled farmers to adapt to sustainable agronomic practices.

“Mitigating the effects of climate change through sustainable agriculture requires the engagement and expertise of scientists, government, farmers' organizations and business. Government will continue to place emphasis on sustainable and smart agriculture for food security and prosperity”. Hon Kabatsi pledged.



## 6.2: The 2nd CAPSNAC Annual Research Dissemination workshop held in Mbale



The CAES held the 2nd research dissemination workshop for the project titled, “Regional Capacity Building for Sustainable Natural Resource Management and Agricultural Productivity under Climate Change (CAPSNAC)”, with a call on public to sustainably manage the environment and stop wetland degradation.

The workshop was held at Mbale Resort Hotel on 28th February, 2017 and attended by farmers, Chief Administrative Officers, Environmental Officers and many more from the greater Mbale i.e. Mbale, Kween, Manafwa and Bududa among others.

The workshop was also attended by the Principal CAES represented by his Deputy, Assoc. Prof. Gorettie Nabanoga, Scientists, staff and Graduate students undertaking a number of research in the Eastern region.

The four year project started in January 2014 and is funded through the NORAD program, NORHED to the tune of NOKS 17 million (about

shs.8bn). The money is channelled through Makerere University(Uganda) as the lead university in collaboration with other three universities of Addis Ababa (Ethiopia), University of Juba (Southern Sudan) and the Norwegian University of Life Sciences (Norway).

The projects aim is to strengthen the capacity of universities to address issues to do with climate change, environment and natural resource management.

A total of 15 Masters and 5PhD students are being trained to conduct research on different themes including climate change adaptation, mitigation and risk management and wetland management among others.

The research is being conducted in the Eastern region mainly the greater Mbale where most communities were affected by the impacts of climate change like landslides.

While opening the workshop, the Resident District Commissioner Mbale District Mr. Shilaku James commended the regional nature of the research and training component for PhD and Masters Students as part of the regional integration efforts geared towards addressing issues of climate change, food security, trade and capacity building among others.

Mr. Shilaku reported that as a result of deforestation and swamp reclamation, the Eastern region has been hit hard by climate change manifested by change in rainfall

patterns, landslides and inadequate food stocks among others.

The RDC expressed happiness over the project research saying, it was tackling the real issue of Climate Change. As Local government, he said, the district had drawn a strategy and identified all wetlands that have been affected through cultivation and instructed all users to leave immediately.

### 6.3: A research dissemination workshop on Uganda's Secondary School Agriculture held



A new study has revealed that Uganda's Secondary School Agriculture needs policy realignment and instructional facilities. This was disclosed during the research dissemination workshop of Makerere University held at the Grand Global Hotel in Kampala on 19th January 2017.

The study titled, **“Is the African School in the 21st Century still an enemy of the Farm? Contextualizing the pedagogy for secondary school Agriculture under Uganda's CURASSE reform”**, was carried out in June-October 2016 in four regions of Uganda.

He was optimistic that the project research will help people understand that climate change is real and help enhance the understanding on the advantages and disadvantages of climate change and contribute towards reconstruction of wetlands and enhance efforts towards ensuring food security.

The study looked at how to improve teaching and learning of agriculture in secondary schools in the phase of unemployment and agriculture contributing to the National Gross Development Product (NGDP).

Major findings indicated that there are many agencies involved in agriculture and technical education but BTVET is skewed against secondary schools.

The other key finding was that secondary school agriculture lacks fiscal support for practicals while agricultural teachers require in-service support to update their skills.

Further, the study revealed that teaching is not only theoretical and examination- oriented but also, the basic teaching learning facilities are lacking in schools.

The research study was supported by Alborada Fund and the Cambridge Africa Programme for Research Excellence (CAPREx) at Makerere University, University of Cambridge

UK and the University of Ghana Legon.

In Uganda, researchers visited 69 schools in 25 districts in Northern, Eastern, Central and Western Uganda and talked to 85 teachers and 85 school administrators. The districts covered include Soroti, Kaberamaido, Lira, Mbale, Kapchorwa and Jinja. Others were Kampala, Wakiso, Luweero and Masaka among others.

Presenting during the research dissemination workshop at the Grand Global Hotel in Kampala, The Principal Investigator Makerere University, Dr. John James Okiror from the Department of Extension and Innovation Studies said the general purpose of the study was to assess the vocational pedagogical needs of agriculture teachers in Uganda and Ghana.

Specific objectives according to Dr. J.J Okiror were to assess the context in which teaching and learning of agriculture occurs in secondary schools; examine the pedagogical methods used by agriculture teachers in secondary schools; establish the pedagogical training needs of secondary school agriculture teachers and explore opportunities for collaborative research to address the challenges.

Dr. Okiror reported that there is no coherent national policy to harmonize the provision of agricultural education and training in the country.

He told participants that the novel ideas and interests exhibited by top-level management towards agriculture subject are not backed by implementation at school level despite the clearly defined mandates of major players in the education sector.

Dr. Okiror further reported that there are competence based gaps in teacher education or instructors most of whom, are of mixed backgrounds, some are professional agriculture teachers, others only have the BSc in Veterinary Medicine or agriculture and, are regarded as trainers/practitioners and lack pedagogical skills.

The Don reported that secondary schools focus on theory exams yet, they are the terminal level of education for many students. This he said leaves majority of the secondary school dropouts unable to engage in practical commercial agricultural ventures.

The study recommends that National policy prioritization for vocational agriculture should be matched by resource allocation to secondary schools and teacher training colleges as well for hands on skills development.

The role of the theoretical examination according to the study should be re-examined and the expertise enlisted towards competence based teaching and assessment in secondary schools without necessarily equating it to the lower junior certificate.

The other recommendation was that school farms should be funded inspected and head teachers sensitized to support both teaching and commercial outcomes of such farms.

**6.4: MUARIK in Conjunction with the Bee Hive Ltd. holds Refresher Course for Uganda's prospective and active beekeepers.**



Makerere University Agricultural Research Institute Kabanyolo (MUARIK) in collaboration with the Bee Hive Ltd, Uganda held a workshop to provide the basic techniques for prospective, intermediate and experienced bee keepers from different regions of Uganda.

The workshop was held on 18th February, 2017 at the Continuing Agricultural Education Centre (CAEC) in Kabanyolo on the theme, “Is Bee Keeping for me?”

It attracted participants from Agago, Pader; Gulu among others also characterized by presentations, demonstrations and field practical's in

a well-established apiary on the University farm.

A bee expert, researcher, farmer, community worker and Lecturer from a Kenyan University Dr. Emmanuel Muli was the main instructor assisted by the Managing Director the Hive Ltd Uganda Ms. Charity Mable Namala and other company members.

The training focused on basic concepts and practices in bee keeping including Bee keeping Breeding and Production for increased productivity. Under this topic, farmers were lectured on Bee ecology and castes, Colony management, Pests and disease, Migration, Pollination, Swarming and Absconding.

A practical demonstration was also set up on Bee keeping Breeding and production and onsite hands on practicals in an established Apiary at Kabanyolo. Another session was punctuated by a Bee keeping video on Bee keeping technologies followed by participants' reflections from the video.

The training also covered Bee products, Quality aspects and Marketing including honey, pollen, propolis, royal jelly and venom. The last session of the training was on Beeswax processing and Beeswax products before award of certificates of attendance.

The Course Instructor Dr. E Muli from the Eastern University of Kenya who is also Researcher with ICIPE and bee

farmer, said the course was about basic things in bee keeping such as equipment, bee biology, how to inspect the colonies and what to do after hives have been colonized .

Dr. Muli observed that for the last 10 years, East Africa was still struggling with keeping bees but not transforming the industry into a commercial enterprise

He also expressed the need for the Bureaus of Standards in East African countries to come in and have quality controls such that people know what quality of honey is coming from the different countries

While opening the workshop on behalf of the Director MUARIK, Julius Ahangana outlined the mandates of MUARIK including production, training, Research and Outreach. He said the training was organized by MUARIK in partnership with the Hive Ltd. Uganda.

The workshop has also provided an opportunity to build the capacity by offering training for three full time staff of MUARIK who will in turn train service learners, visiting farmers, students and people visiting the university farm.

The CAES signed an MoU with the Hive Ltd. Uganda. The Company's

interest was to market and increase the production of bee products. MUARIK on the other hand, agreed to offer space for demonstration site and venue to train and spread the information on bee keeping. The Hive Ltd Uganda agreed to provide the technical persons and to set up an apiary. The company also makes a contribution towards conference training facilities at CAEC.

The Hive Ltd Uganda is part of The Hive Group operating in 16 African countries particularly Eastern and Western Africa whose mission is to increase bee production. The Hive Ltd started in Uganda in 2013 on realization that the quality of honey and bee products was still wanting.

The company has been working with bee farmers in Agago, Karamoja, Nakapiripiri, Moroto, Kamuli, Adjumani, Kamwenge. It also provides market for honey products..

MUARIK provided the space and cooperation to move the project while the Hive installed 20 bee hives at the farm. The first harvest is expected in April 2017 from to a tune of 400kg of honey. According to the sharing agreement, the honey will be packaged as MUARIK & the Hive Ltd Uganda honey.



## 7.0: SUPPORT SERVICES

### 7.1: Human resources and career development

#### 7.1.1: Prof. Elly Sabiiti gets the Golden Jubilee Medal during the NRM 31<sup>st</sup> Anniversary celebrations



Prof. Elly N Sabiiti (2<sup>nd</sup> L) and other Mak Gold Medalists pose for a group photograph with H.E. Yoweri Museveni.

On 26th January 2017, Prof. Elly N Sabiiti received the Golden Jubilee Medal during the celebrations to mark the 31st Anniversary of the NRM. Prof. Sabiiti was among the 10 personalities from Makerere University recognized for distinguished service to Makerere University.

Prof. Sabiiti has dedicated most of his life to serving Makerere University as a lecturer and researcher for 40 years in addition to providing leadership on different forums. Other personalities from Makerere University also received the Golden Jubilee medals. They include:

- Eng. Dr. Charles Wana-Etyem
- Prof. Barnabas Nawangwe
- Prof. Edward Kirumira
- Prof. Oswald Ndoleriire
- Dr. Emmanuel Mugisha
- Prof. Anthony Mugisha
- Dr. Eria Hisali
- Prof. Elly Sabiiti
- Prof. Murindwa Rutanga
- Prof. Peter Baguma

Every 26<sup>th</sup> of January, the ruling party celebrates this day which marked the end of a 5 year guerilla warfare which ushered NRM/A into power led by H.E Yoweri Kaguta Museveni.

This year's celebrations were held in Masindi Town at the Golf and Sports Club grounds. The Chief Guest was His Excellency General Yoweri Kaguta Museveni. Other dignitaries from within the region and overseas also attended.

The theme for this year's celebration was **“Uganda's success story under NRA/NRM leadership is a shared victory.”**

**FOR THESE AND MORE**

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