

DG Sanginga inaugurates renovated facilities of Virology and Germplasm Health Units

The Virology and Germplasm Health Units (GHU) kicked off 2019 with renovated research labs. [IITA](#) Director General, [Nteranya Sanginga](#),

accompanied by members of the management team, Kenton Dashiell and Hilde Koper, inaugurated the upgraded facilities on 14 February.

Dr Sanginga congratulated the team and said the new facilities add to the world-class research environment IITA is creating to foster scientific innovations necessary for agricultural transformation in Africa. It epitomizes IITA's zeal for renovation and innovation and is a tribute to the team who work smartly to make this vision possible.



Lava Kuma (with camera) addressing Management and staff during the tour of the newly commissioned labs.

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IITA News goes mobile with app

Director General [Nteranya Sanginga](#) launched another digital innovation for [IITA](#)—the IITA News app—IITA news on your mobile device. The official launch took place on 14 February as part of the inauguration ceremony of the newly renovated labs of the Virology and Germplasm Health Units.

In launching the application, Communication Unit head [Kathy Lopez](#) said that the main selling point of the app is its ability to provide breaking news and information in real time. "This app will ensure that IITA information or knowledge gets to the users as it becomes available."

Outlining some of the functionalities of the app, Developer and Web Team Lead, Tunde Ajayi, noted that the app is easy to use and provides users regularly with fresh news about IITA. He also said the app will alert users when a new story is posted.

The app reports news events as they unfold—in real time. Developed by the Communication Unit, the app enables users to read stories, catch announcements, view videos, watch livestreams on the IITA video channel, and connect to information and

knowledge resources, including social media platforms.

Also present at the launch were [Hilde Koper-Limbourg](#), Deputy Director General, Corporate Services; [Kenton Dashiell](#), Deputy Director General, Partnerships for Delivery; [Sylvia Oyinola](#), Head of Administration, Western Africa Hub; [Lava Kumar](#), Head of the Virology and Germplasm Health Units; and other IITA scientists.

The IITA News app is now available for immediate download from the Google Play Store.



The IITA News app.

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“The renovation expands our capabilities to use new technologies and improve the learning environment for staff and students working on a range of topics in virology, diagnostics, phytosanitation, seed health testing, epidemiology, phenotyping, and others,” said [Lava Kumar](#), Virologist and head of GHU. “The updated facilities have a better aesthetic look and I hope that the improvements will pave the way to augment labs with modern equipment to support cutting-edge research,” he added.

According to Robert Asiedu, Director for the Western Africa hub and research lead for Genetic improvement and biotechnology, “These upgrades will support increased efficiency and effectiveness in virology research, capacity development, and delivery of outputs from several IITA R4D programs.”

The Virology Unit evolved from the Plant Health Management Division of IITA, the birthplace of classic and applied plant virology

in West and Central Africa. The Unit is involved in the world-class interdisciplinary research on some of the most complex plant virus disease problems plaguing crop production in sub-Saharan Africa. Research and Development (R&D) efforts have resulted in great success and continue to provide knowledge, technologies, and procedures necessary to solve emerging and reemerging virus disease challenges. The Unit also plays an important role in developing plant virology capacity in the subregion.

GHU is the “gateway for safe international exchange of germplasm.” GHU ensures IITA’s compliance with national and international phytosanitary procedures and assists in preventing transboundary spread of seedborne pathogens and pests. GHU and Virology work complementarily in ensuring the health of planting materials generated by breeding and seed increase programs for international distribution.

Both Virology and GHU have the unique distinction of working with scientists from all

disciplines and units of all the IITA mandate crops from all the hubs and stations. “It’s a privilege to work with esteemed colleagues within IITA and partners from around the world to accomplish common goals,” said Kumar. “A motivated team ready to undertake diverse R&D tasks and excellent management support to research are cornerstones of our success.”

“Renovated labs improve motivation and continue to attract bright, young talent to our discipline,” said Patricia Ogunsanya, Research Associate and the longest serving member of staff in Virology.

The new facilities are a shot in the arm for transdisciplinary research through a combination of digital technologies, biotech, and conventional plant sciences.

The event was attended by the colleagues from Facilities Management Services (FMS) and Farm Management Office that contributed to the facelift, management staff, and IITA scientists.



One of the renovated labs.

Lessons from 21 years of breeding East Africa's popular cooking banana

As part of a review of a breeding program for the East Africa Highland Banana (EAHB) started by [IITA](#) and Uganda's [National Agricultural Research Organization \(NARO\)](#) in the mid-1990s, a team of scientists at IITA, NARO, and the [Swedish University of Agricultural Sciences \(SLU\)](#) assessed the progress and efficiency of this breeding program in the past 21 years. One of the highlights of the breeding program has been the delivery of the first-ever hybrids, dubbed [NARITAs](#) (NARO-IITA). The review was held at the IITA station in Uganda and outlined progress made to overcome unique botanical challenges encountered in the breeding system of banana.

The East African Highland cooking banana, known as Matooke, is an important staple food and cash crop for millions of people in the Great Lakes region of Eastern Africa. Banana covers over 50% of the permanent cropped area in the region which produces more than half of the total banana production in Africa. Burundi, DR Congo, Kenya, Rwanda, Tanzania, and Uganda produce annually 21 million tons of bananas with a value of US\$4.3 billion.

Production of banana has declined in the last three decades due to attack by a myriad of pests and diseases, declining soil fertility, and drought resulting in a high yield gap—with farmers' harvests averaging between 5 and 30 t/ha against a potential of 80 t/ha. [Some of the contributing pests are banana weevil and burrowing nematode, and diseases include black Sigatoka or black leaf streak disease and banana bacterial wilt.](#)

Breeding for improved varieties with resistance to these pests and diseases was identified as the most sustainable method for addressing these production challenges. However, banana was for many years regarded as sterile with 0 and 1.5 seeds produced per bunch. The breeding program was initiated when the team identified 37 female, fertile EAHB during screening for seed set after artificial pollination. These banana produced up to a maximum of 25 seeds per pollinated bunch.

In addition to the low seed sets produced by the banana, another challenge was low seed germination with estimates showing that only 1% of hybrid seed germinates when planted in the soil. The seeds were therefore germinated in the tissue culture lab which increased rates of seed germination by a factor of 3 to 10%.

Twenty-five of the EAHB hybrids produced up to 305 seeds per pollinated bunch and were therefore

deemed fertile. The percentage of seed germination varied among crosses between 7.4% and 26% depending on the type of cross performed. In total, 27 NARITA hybrids were selected for further evaluation in the East African region.

Despite all this progress, banana breeding is a slow process and the team is exploring ways to accelerate this process. Through [genomic prediction](#) banana hybrids can now be selected faster. Simultaneously efforts are under way to increase the number of hybrids.

The study recommends further research on pollination conditions and optimization of embryo culture protocols to boost seed set and embryo germination, respectively. DNA marker-aided selection is needed in addition to more research in floral biology and seed germination to increase the efficiency of the EAHB breeding program.

The results of this study were [published](#) in *Frontiers in Plant Science*.



A field worker identifying the female parent plant before hand pollination.

IFAD awardees attest to the importance of youth engagement in agribusiness for economic development in Africa

Some of the [International Fund for Agricultural Development](#) (IFAD) fellowship awardees for the scholarship grant on “Enhancing Capacity to Apply Research Evidence (CARE) in Policy for Youth Engagement in Agribusiness and Rural Economic Activities in Africa, during one training course in [IITA](#), discussed the benefits, prospects, and problems their research findings intend to solve in Africa.

IITA, being the implementing institute of this youth-based research program, has a comparative advantage in youth engagement and agribusiness in Africa with its model of youth and agribusiness being adopted in many countries in sub-Saharan Africa. As of today, the Institute is actively involved in socioeconomic research that has contributed significantly to advance the research agenda and increase the human resource pool in Africa, which includes mentoring and coaching young scholars and youth.

IITA Senior Agricultural Economist for West Africa and Program Supervisor, [Tahirou Abdoulaye](#), encouraged the awardees to tackle the challenge of a lack of research and evidence-based information to guide both policy development and program

implementation. “There is an agreement among African leaders and development partners that the transformation of the agricultural sector is of critical importance as it will continue to be the main sector to stimulate economic growth. A strong involvement of Africa’s youth in rural development, agriculture, and natural resource management will boost economic growth in the continent.”

A PhD awardee, Oluwaseun Oginni, from Nigeria, said that the main thrust of his research is to examine the migration of youth from rural to urban areas, and the negative impact it has on agriculture. Concurring, Emmanuel Tolani, A PhD research fellow from Malawi, highlighted the importance of his topic to the development of his country, as he intends to unveil some of the challenges that impede the full participation of youth in agriculture. “My findings will help policymakers to have a better understanding of the factors that influence youth migration from rural to urban areas, and also devise how best to encourage youth to participate in agriculture,” he added.

Rodrigue Kaki, research fellow from Benin Republic, narrated how the knowledge

gained from the scientific writing training he attended at IITA would help him develop a policy brief at the end of his research. “This would help to motivate youth to embrace agribusiness as a means of sustaining themselves instead of looking for white collar jobs that might not allow them to discover their real capabilities. Some of these challenges range from economic, social, and environmental factors including inadequate credit facilities, low profit margins from farming, lack of production inputs, low opinion of and negative public perception about farming, inadequate land, and persistent poor harvests,” he added.

This implies that empowering youth to become innovators and ‘agripreneurs’ is a key to solving some of the most binding constraints to the growth of a prosperous agricultural sector, thriving agribusiness value chains, and improved food and nutrition security. The challenge today is to understand the reality of the livelihoods for youth agripreneurs. This component seeks to create new knowledge on challenges as well as to understand the factors of success or failures of young agribusiness entrepreneurs.



IFAD fellowship awardees at a past training.

IITA joins world celebration of International Day of Women and Girls in Science

The [International Day of Women and Girls in Science](#) was celebrated globally on 11 February. The day offered a unique opportunity to remember the achievements of women and girls in science, but more importantly, it was an opportunity for the world to encourage more women and girls in science and to break the stereotypes that hold them back.

At [IITA](#) Ibadan, two female scientists, Ana Luisa Oliveira, Molecular Geneticist breeder and Abigail Adeyemi, Laboratory Manager, Genetic Resources Center, commented on the importance of the day. For [Garcia-Oliveira](#), “The International day for women and girls in science is a day we, female scientists, have to be appreciated.” Adeyemi, who has been in science for 27 years, said “the day aims to honor women who have contributed to the growth of science as well as educate young girls on its importance and encourage them to go into careers in science.”

In IITA female scientists have come a long way, given their contributions to the success of the organization. Their number has increased over the years, and so has their impact been felt in all

aspects of scientific research in crop improvement and nutrition in Africa, contributing to what IITA is today. Adeyemi adds, “Many women scientists who participated in the training of girls (and boys alike) have stimulated their interest in science which has contributed to IITA’s success stories being witnessed today.” Echoing the same sentiments, Garcia-Oliveira said “Women, as either scientists or wives to scientists, are great examples to young girls interested in science because of their tenacity and strength in the various fields of science.”

Unfortunately, most countries are yet to achieve gender equality in Science Technology Engineering and Mathematic (STEM) because most girls are not encouraged to go in that direction. Even though the global community has made a lot of efforts in inspiring and engaging more women in science over the past 15 years, some are excluded from participating fully in science for various reasons.

But there is hope. Princess Nisreen El-Hashmite, who overturned convention to become a medical doctor in ultra conservative Iraq, says: “The world celebrates the achievements of women, known and unknown, remembered and forgotten, who have forged the way for those of us in science today and to give an opportunity to children; girls and boys, to choose their role models in science.”

According to UNESCO, only around 30% of all female students select STEM-related fields in higher education. Globally, it has been noted that female student enrolment is particularly low in ICT (3%), natural sciences, mathematics and statistics (5%), and in engineering, manufacturing and construction (8%).



Aspiring women scientists.

Got a story to share?

Please send your story with photos and captions every Tuesday to iita-news@cgiar.org or Katherine Lopez (k.lopez@cgiar.org) and Uzoma Agha (u.gha@cgiar.org) for headquarters and Western Africa, Catherine Njuguna (c.njuguna@cgiar.org) for Eastern and Southern Africa, and David Ngome (d.ngome@cgiar.org) for Central Africa.