

## IITA partners with Michigan State University to implement youth program

IITA is partnering with [Michigan State University](#) to implement the [AgriFood Youth Opportunity Lab project](#) in Nigeria and Tanzania.

The project is sponsored by the [MasterCard Foundation](#) and will help 15,000 young people access employment and entrepreneurship opportunities in Africa's fast-growing horticulture, aquaculture, poultry, cassava, and oilseed sectors.

The project will focus on young men and women between the ages 18 and 24 in major food-shed regions surrounding Lagos and Dar es Salaam, Tanzania. The Ag Youth Lab will assist economically disadvantaged, hard-to-reach, and out-of-school youth transition into employment and



Joshua, a n IITA Youth Agripreneur (wearing a green lab coat), explaining about the rapid propagation technique for banana and plantain to young visitors.

entrepreneurship opportunities in the agrifood system. The program will have a special focus on gender equity, aiming for

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## IITA Cameroon and Congo Basin Institute host donors and potential partners in conservation projects

The sustainable ebony project funded by Taylor Guitars is a joint project implemented by the Congo Basin Institute (CBI) partners: UCLA, IITA, and the Higher Institute of Environmental Science (HIES). IITA-Cameroon/CBI was proud to host several global forestry experts visiting Cameroon on 27 April as part of the World Forestry Tour for Bob Taylor (founder and president of Taylor Guitars).

The high-level delegates were Bob Taylor of Taylor Guitars; Andre Bena, DG, Crelicam; Ahmadou Mboure from Crelicam; Vidal de Teresa, CEO, Madinter; Steve McMinn, CEO, [Pacific Rim Tonewoods](#), Concrete,



Visitors visit IITA Cameroon facilities.

WA, USA; Kevin Burke of Pacific Rim Tonewoods and [Paniolo Tonewoods](#); Nicholas Koch of [Forest Solutions](#), Hawaii; Scott Paul, Taylor Guitars, Director of Natural Resource Sustainability; and [Paul Akers, Fastcap](#) and American Innovators.

Presentations to visitors highlighted the project's progress on ecology, geographical modelling, tissue culture propagation, and community engagement. Visitors also stopped by the tissue culture lab and nursery to see IITA's progress on developing the best conditions for reproducing ebony in the laboratory from tissue fragments.

The visitors proceeded to the nursery at the World Agroforestry Centre (ICRAF)

to see conventional propagation techniques being explored by Marc Aurel, a student from HIES. The visit also allowed the team to better understand the objectives and progress on the ebony project and to witness some of the novel techniques being developed at CBI as a result of bringing together diverse expertise from various institutions to address complex modern issues.

In a related event, Matthias Waltert, biologist and population ecologist, and his team of researchers from Gottingen University paid a courtesy visit to IITA-Cameroun/CBI last April. Their visit aimed to establish future collaboration between their research group—Conservation Biology/Workgroup, Georg-August-

Universität Göttingen—and the CBI. Every year, Waltert organizes a tropical field course in Cameroon; this year the course was held at the Korup National Park with a team comprising one postdoc (Denis Kupsch) and 13 postgraduate students. They hope to organize a course in CBI's Bouamir field station in the future.

The team also paid a courtesy call to HIES and Mbam Djerem National Park before leaving Cameroon. This potential collaboration could be included within the existing hosting agreement between IITA and Gottingen University, which is presently covering a collaborative Gottingen-IITA project on carbon emission from different land uses in Cameroon.

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an equal representation of young men and women across its programs and addressing policy, training, mentoring, and other constraints that affect the ability of young women to start enterprises or obtain employment.

Using the "youth-to-youth" and "train-the-trainers" approach, IITA, through its youth component model—[IITA Youth Agripreneurs](#) (IYA) will work with a Nigerian company known as Venture Garden Group, Tanzania's Sokoine University Graduate Entrepreneurs Cooperative (SUGECO); and Nigeria's Oyo State College of Agriculture and Technology.

According to IITA Director General [Nteranya Singa](#), "IITA will bring the lessons from its experience to help Ag Youth Lab tap the dynamism of Africa's youth, by creating better jobs for themselves; youth can transform Africa's agrifood systems and build a brighter future for Africa."

President and CEO of MasterCard Foundation, Reeta Roy speaking on the partnership, said it is an excellent example of using evidence to address youth unemployment. This according to her is achievable by engaging the private sector to develop business opportunities for young people and

also addresses some of the challenges youth face in seeking work.

Also speaking on the project, President of Michigan State University Lou Anna K. Simon said: "Working with the MasterCard Foundation and African partners to address one of the most critical problems facing the continent—youth unemployment—reflects the means of pursuing the institution's global vision. It is an opportunity to expand youth agrifood employment both on and off the farm."

The project kicks off after the launching of the program which is slated for 15 May.

## Announcements

- IITA Board Meeting, 9–12 May, Nampula, Mozambique
- SARD-SC Maize Conference, 14–20 May, Livingstone, Zambia
- "Seeds of Renaissance" (distribution of seeds for revitalizing agriculture and rice seeds as food aid), 22 May, Maiduguri, Borno, Nigeria
- Launch of the Ago-uwo Farm Center, 23 May, Osun State
- Africa RISING Science Advisory Group Meeting, 22–23 June, Arusha, Tanzania
- Congo Basin Grant Program application for admission now open. Deadline for application is 1 June 2017.  
Log on to [www.conservationactionresearch.net/apply.php](http://www.conservationactionresearch.net/apply.php) for more details.
- Media day, 22 June, IITA, Ibadan, Nigeria
- Africa RISING-INVc Bridging Activity Project review and planning meeting, 29–30 June, 2017, Lilongwe, Malawi
- Africa RISING-NAFAKA scaling project review and planning meeting, 3–4 July, 2017, Dar es Salaam, Tanzania

Got a story to share? Please email it with photos and captions every Wednesday to Katherine Lopez ([k.lopez@cgiar.org](mailto:k.lopez@cgiar.org)), Jeffrey T. Oliver ([j.oliver@cgiar.org](mailto:j.oliver@cgiar.org)), Catherine Njuguna ([c.njuguna@cgiar.org](mailto:c.njuguna@cgiar.org)), or Adaobi Umeokoro ([a.umeokoro@cgiar.org](mailto:a.umeokoro@cgiar.org)).

# IITA-led project on breeding better banana surpasses major targets as it moves into its third year

A team of international banana experts have developed 48 hybrids of Matoke, a popular cooking banana in the highlands of Eastern Africa, that are now under field assessment in Uganda to select those with the highest yields and confirm resistance to four major pests and diseases.



Rony Swennen explaining the hybrid breeding process that led to NARITA.

The hybrids are one of the key achievements of a five-year, multi-partnership initiative to deliver improved varieties of cooking banana to smallholder farmers in Uganda and Tanzania.

This was one of the accomplishments reported by the team at its third annual planning and review meeting on 24–26 April, in Kampala, Uganda, hosted by the National Agricultural Research Organization ([NARO](#))—a key partner in the project. The team said that this was far above its target for Year 3 and if this pace were to be maintained, the project would outperform its goals.

**BREEDING BETTER BANANAS**

## What is Musabase?

- Global Banana Breeding Database
- <https://musabase.org/>
- Track information in breeding programs
- Management of Accessions, Pedigrees, Trials, Phenotypic information, Images, and Genotypic Information
- A site for the breeding community

A presentation on the Musabase.

The project brings together experts from banana breeding programs across the world including Australia, Belgium, Brazil, Czech Republic, India, Kenya, Malaysia, South Africa, Sweden, and the USA to work with the teams in Tanzania and Uganda.

It is led by IITA and funded by [Bill & Melinda Gates Foundation](#).

## Banana hybrids hailed as a move in the right direction!

The meeting was officially opened by Ambrose Agona, Director General of NARO, who hailed the project as well thought out



NARO Director General.

in its approach to increase the productivity of banana.

"Most of the gains made in agricultural production in many countries in Africa have been made as a result of the expansion of agricultural land. However, we need to intensify production to increase yields of major crops. Therefore, the project's objective of developing high-yielding banana hybrids is a move in the right direction," he said.

Also speaking at the meeting, [Victor Manyong](#), IITA Director for Eastern Africa, noted that banana was not only a major food crop for smallholders but also a major commodity. Therefore, any efforts to increase the crop's production would also translate into an improvement of their livelihoods.

## Building an efficient banana breeding program

The aim of the project is to develop hybrid banana varieties with an increase of 30% in yield and 50% in resistance to at least three of the major pests and diseases compared with the varieties currently grown by the farmers under the same on-farm conditions.

"We are supporting the national breeding systems to make them more efficient and vibrant. At the end of five years, we want to deliver hybrid banana of Matoke and Mchare that are not only high yielding and disease resistant but also meet the needs and preferences of the end-user," says [Rony Swennen](#), Banana Breeder at IITA and the project's Team Leader.

"We are ahead of our main target as currently we have already developed 48 Matoke hybrids which are headed for Preliminary Yield Trials and we have many more in the pipeline," he added.

The project is focusing on the two most popular types of East African Highland cooking banana, Matoke in Uganda and Mchare in Tanzania, and the two major diseases attacking the crop—[Fusarium Wilt](#) and [Black Leaf Streak](#) (Sigatoka disease), and two major pests—parasitic nematodes (microscopic worms) and weevils.

"In addition to the 48 hybrids, we have six other trials from which we expect to select over 600 hybrids for Preliminary Field Trials. We have also delivered great results on developing seeds for crossing to support the breeding work, adds Jerome Kubiriba

from NARO who is also the team leader for the project's breeding efforts.

Bananas are sterile with very low seed sets making breeding very difficult. Researchers have to force them to develop seeds for crossing and developing varieties.

"However, the varieties still have a long way to go before getting into the farmer's hands. Usually it can take up to 20 years to develop new banana varieties but with this project, working with breeders from all over the world, we are exploring novel ways to reduce this time." NARO is leading the project's banana breeding efforts—the largest and most important component.

### Tools to speed up banana breeding

The project has also brought on board different experts to support and work alongside the breeding team to speed up and ease the lengthy and complicated banana breeding process. They have also made great progress in their objectives.

#### Rapid screening of diseases against pathogens and pests

"We have collected a lot of information on the most important disease pathogens and pests of the crop we are addressing—Fusarium Wilt and Black Sigatoka, and nematodes and weevils. We have also developed rapid screening methods that can help reduce to a half or a quarter the time it takes for breeders to screen their varieties for resistance."

"These tools will also contribute to speeding up banana breeding efforts globally," says Albertus Viljoen from the University of Stellenbosch, who is leading these efforts.

Developing molecular tools to hasten screening for resistance

The project's molecular biologists are developing biotech tools to support breeders in early screening. These include molecular markers that help breeders detect early in the breeding process the presence of the genes associated with the desired traits, such as resistance to pests and diseases, and only plantlets with those genes proceed for field trials.

"We are mapping genetic markers to help us identify genes that control pest and disease resistance in the plants. We have also developed models for predicting yield and other traits based on genotypic markers which we will be evaluating in the coming years," says [Brigitte Uwimana](#), a molecular breeder with IITA-Uganda.

#### Musabase – supporting data collection, storage, and sharing

Data collection and analysis are a big part of the breeding effort; to facilitate this, the project has supported the development of digital tools including a database and a mobile data collection app.

"If you want to use modern breeding techniques, you will need to collect a lot of genotypic (genetic) and phenotypic (physical) data. To do this you need a good database to efficiently store and share all these data. The Musabase is a database specifically for banana breeders. It will also help to create synergies across the teams," says Lukas Mueller of the Boyce Thompson Institute—who is leading the bioinformatics efforts.

A mobile app adapted to breeders' needs in the field has also been developed to allow real time collection of data. The

app is being tested with the team in Arusha before being rolled out to the rest of the team.

"The database and mobile app will ensure data are collected, analyzed, and stored without leaving the digital ecosystem. We have also trained many researchers and technical staff in data collection and use of the database," Mueller said.

#### Field testing hybrids from previous IITA & NARO collaboration

Past collaboration between IITA and NARO saw the development of 27 early Matooke hybrids named NARITA. Two of these were formally released by NARO in 2010 in Uganda and are now being grown in at least 15% of the banana farms in Uganda.

The project is supporting the evaluation of 20 of these NARITA hybrids in Uganda and Tanzania for local suitability and acceptance by farmers.

"We are evaluating the NARITAs in five field locations in the two countries to recommend for official release those that have the highest levels of yield and disease resistance and meet farmers' needs," says Inge Van den Bergh from Bioversity International and leader of this objective.

"We have also conducted a baseline survey to understand the traits farmers look for in banana. We have interviewed over 1,000 households and held over 100 focus group discussions; we are analyzing the data. These will be shared with the breeders to assist them in breeding banana that meet farmers' and other end-users' needs."

The tools and methodologies developed by the project will also support banana breeding all over the world.



Group photo of participants.

# Building capacity of IITA gender scientists to analyze qualitative data

The story behind the numbers is as important as the numbers themselves. However, analysis of qualitative data collected in terms of stories and narratives is not an easy task compared to the more straightforward analysis of quantitative data.

As a result, members of the IITA gender scientist network, belonging to diverse disciplines of the social sciences struggle with coding and managing their qualitative data to produce compelling and robust research that can be published in reputable impact factor journals.

To support the researchers in overcoming these challenges, a three-day training on analysis and management of qualitative data using [NVivo](#)—a qualitative data analysis software—was recently organized at the IITA-Eastern Africa hub in Dar es Salaam, Tanzania.

"Social science research is very important for IITA's vision of reducing poverty and improving livelihoods. This training will go long way to improve the quality and vigor of social science research and support researchers to get their work published in reputable journals. It will make gender research more visible and tangible," said [Victor Manyong](#), the IITA Director for Eastern

Africa hub, while welcoming the participants to the hub.

[Amare Tegbaru](#), IITA gender specialist and the coordinator of the gender network, said the training had three objectives: to strengthen the research capacities of the participants, upgrade their methodological skills, and help them to conduct more rigorous qualitative analysis.

"As IITA's gender research network we need to deliver high-quality research, and to do so we need to equip ourselves with the necessary skills. With the skills gained, we will be able to strengthen the gender research component in current and future IITA projects and the Institute's gender mainstreaming efforts," he said.

The training was attended by participants drawn from DR Congo, Nigeria, Tanzania, and Zambia. It was facilitated by Diana Lopez, Guest Researcher at [Wageningen University](#) and an international consultant for CGIAR centers ([CIMMYT](#) and [IITA](#)).

Albertus Kamanzi, a research consultant from the Institute of Rural Development, Planning at the Virtual University of Uganda, shared his experiences with the team on analyzing qualitative data in a large study of CGIAR-Gender Norms, Agency



IITA is aiming to mainstream gender concerns through its projects and research efforts.

and Innovation in Agriculture and Natural Resource Management (GENNOVTE) project. It was conducted in 26 countries with 7,000 correspondents across various [CRPs](#); therefore, a massive amount of data was collected and analyzed.

The training was practical and hands on with lots of exercises. There was daily homework and a final assignment to ensure the participants felt confident to conduct independent high-quality qualitative analysis using the software.

## IITA celebrates World Migratory Bird Day

World Migratory Bird Day ([WMBD](#))—an annual global awareness raising event which highlights the need for the conservation of migratory birds and their habitats, was celebrated at IITA on 10 May.

With the theme "Their Future is Our Future, a healthy planet for migratory birds and people", WMBD focused on "Sustainable Development for Wildlife and People". The event highlighted the interdependence of people and nature, and more especially people and migratory birds, which in many cases compete for the same limited resources. The aim was to raise global awareness of the need for a sustainable management of our natural resources and to demonstrate that bird conservation is crucial for the

future of humankind. This annual event targets school children in particular as they are the future scientists. It was commemorated by four schools in Oyo state: Ibadan International School, Bethel American International School, Esther Foundation School and Ansar-Ud-Deen high school.

Migration is a death-defying journey and exposes birds to a wide range of threats, many of which are caused by human activities. The loss of wintering and stopover sites may have a serious impact on their chances of survival as they depend on a range of sites throughout their journey. Wale Awoyemi, [IITA Forest Unit](#) Project Supervisor, who is an ornithologist, explained the need to protect habitats for wintering [palearctic](#) migrants and

emphasized the importance of gardens to birds". Posters showing different species of migratory birds were given to all schools that attended to facilitate further teaching and learning.

One attendee, Bimbola Adeyemi, a biology teacher from Ibadan International School, said, "I am grateful and honored to be in IITA because my students have seen the opportunity to practice and observe all they have been taught about birds." On behalf of the students, Abikaima Kumar, also from Ibadan International School expressed, " I thought it was going to be a speech presentation, I never knew it was going to be a practical aspect of learning, I feel more knowledgeable and I wish to have this magnificent and outstanding experience sometime again soon.

World Migratory Bird Day was initiated in 2006 by the secretariat of the Agreement on the Conservation of African-Eurasian Migratory Waterbirds ([AEWA](#)) in collaboration with the Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals ([CMS](#)). These institutions also provide the multilateral environmental agreements, legal framework, and coordinating instruments necessary for wildlife cooperation.



The WMBD taught children—Africa's future leaders and scientists, how to conserve nature.