

West Africa crop breeders boost expertise via IITA and EiB collaboration

[IITA](#), in collaboration with [CGIAR Excellence in Breeding \(EiB\)](#), delivered two professional workshops titled “[EiB Breeding Scheme Design Training](#)” and “[West Africa Breeding Operations](#)” for crop breeders and operations staff from IITA and national agricultural research systems (NARS) in West Africa from 21 to 25 February.



Breeding operations staff attending the “West Africa Breeding Operations” workshop.

The breeding scheme design training aimed to increase the skillset of plant breeders to design breeding schemes. It focused on helping crop breeders improve breeding programs, consider farmers’ and consumers’ needs, and position the product towards the target market. The breeding operations workshop facilitated operations teams to develop action plans to improve their stations.

In his welcome address, IITA West Africa Hub Director, [Michael Abberton](#), encouraged the participants to take advantage of the workshops to initiate new avenues for strengthening research and addressing key issues such as the availability of improved varieties to ensure food security in Africa.

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IITA and BASICS-II team hold crucial meeting with Tanzanian Minister on agricultural transformation



The meeting participants including the Honorable Minister Hussein Mohamed Bashe, flanked by Leena Tripathi (fifth from left) and Lateef Sanni (fourth from right).

Tanzanian Minister of Agriculture, Honorable Hussein Mohamed Bashe, wants IITA to support the East African region in cassava, soybean, and banana transformation for economic prosperity.

In a meeting with IITA researchers, including those working under the Building an Economically Sustainable Integrated Cassava Seed System, Phase 2 (BASICS-II), Hon. Bashe acknowledged that agriculture was crucial to the country's economic prosperity but observed its potential is yet to be realized.

"Take cassava, for instance. During Ramadan, my meal is incomplete if there is no cassava. The crop is still a food security crop. My question is: how can we turn this crop into a cash crop?" he asked.

Data from the Food and Agriculture Organization (FAO) show that the average yield per ha of cassava is still below 10 tons per hectare, making it difficult for countries like Tanzania to compete globally in exports.

The Chinese authorities have offered to buy Tanzanian cassava chips, but farmers are yet to take advantage of such offers as yields remain low.

Like cassava, soybean is another crop whose potential is yet to be tapped owing to a lack of improved and industry preferred varieties.

Hon. Bashe said, "I just signed a contract for the importation of soybean because industries can't get soybean seeds with desired traits." He added that banana in the Western part of the country was also threatened by a new

disease known as Banana Bunchy Top Virus (BBTV).

IITA Hub Director for Eastern Africa, [Leena Tripathi](#), pledged IITA's commitment to work with Tanzania to tackle agriculture challenges.

"Tanzania is strategic for us, and we are ready to work with you," Tripathi assured the Minister, adding that a lot of technologies were available in IITA to advance the transformation of banana and plantain, soybean, and cassava.

On cassava, Lateef Sanni, Project Manager of BASICS-II, harped on the need for Tanzania to learn from Nigeria, especially the Presidential Initiative on Cassava (1999–2007) that drove cassava by linking productivity to markets. "Understanding the market demand for cassava and cassava products and responding to market demands will help create a sustainable cassava transformation," Sanni said.

Apart from the local market, Sanni identified starch and High-Quality Cassava Flour as areas that Tanzania could tap for economic growth.

BASICS-II Advocacy, Promotion, and Outreach Lead [Godwin Atser](#) said Tanzania should invest in a cassava seed system to boost the yield per ha of cassava and make growers in the country globally competitive. He noted that the BASICS model had become

a tool helping countries transform their seed system and urged them to adopt it for food security and economic development.

On the request for support on soybean, [Frederick Baijukya](#) said there were breeding efforts by IITA to offer farmers soybean varieties that are in demand by processors and consumers.

The high point of the meeting was the agreement in principle between both parties to do a market analysis for cassava and soybean. The market analysis will, among other things, determine the demand and the preferred varieties by processors and end-users. Furthermore, IITA and Tanzania will work on ways to halt the spread of banana disease in the country.

The issue of youth employment through agricultural businesses is critical, so the Ministry will also follow up with IITA on scaling the existing model of youth agripreneurship.

IITA Head of Advocacy and Resource Mobilization [Regina Kapinga](#) commended the Minister for the time given the team and promised that the Institute, in collaboration with other partners, would continue to collaborate with the government to address the priorities set in the national agricultural agenda.

Contributed by Gloriana Ndibalema

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Agnes Mbugua, EiB's Seed Marketing Specialist, explained the importance of [market segments](#) in identifying specific market needs and offering solutions to create an impact. She said that since CGIAR crops are quite diverse due to the different subregions, "a common set of where and how to align the appropriate choices of the market segments should be put into consideration via prioritization."

EiB's Breeding Scheme Optimization Lead, [Eduardo Covarrubias](#), highlighted the tools and methods used in breeding scheme design. The methods highlighted include defining the problem, measuring how to make the crossing, evaluation, and selection (CES) decisions, analyzing the problem background and possible solutions, and controlling the CES decision improvements.

Quantitative Geneticists and Simulation Specialists—Christian Werner, [Marlee Labroo](#), and [Dorcus Gemenet](#)—covered major areas such as transmitting values to the next generation, the optimal number of parents, crosses, and progeny, recycling strategy, and management of genetic variation. The training also featured a group discussion

on "Applying the breeder's equation to your program." The participants took a tour of crop fields, seed processing facilities, and greenhouses.

As Covarrubias recapped the activities carried out during the training, he recommended implementing a check strategy and recording the breeding scheme in specialized software.

For the concurrent breeding operations workshop, EiB's [Breeding Operation Network for Development](#) (BOND) brought together breeding operations staff to improve strategies that accelerate [mechanization](#), technological capacities, and skills levels. EiB underscored the principles of building a culture of excellence – implementing [continuous improvement](#) approaches to ensure operations are focused on improving the lives of farmers.

The workshop covered topics such as moving towards centralized operations, quality management systems in breeding operations, health, safety, security and environment, plotmanship, gender inclusion, [irrigation](#), seed processing, greenhouse management, and addressing capacity development needs.

With the paradigm shift in operations and breeding taking place under One CGIAR, the workshops considered all components, including the activities and challenges of previous organizations and learnings from their perspectives. EiB aims to give the field workers a sense of involvement in the future.

The EiB platform provides system-level coordination of breeding programs, a space for information sharing, collaborative learning, and access to tools and services for partners, including CGIAR research centers, NARS, and the private sector.

Head of IITA's Farm Management, [Alick Mulenga](#), gave an overview of the workshop and focused on [operational excellence](#) and support for breeders. The training also highlighted the technical work in the field, challenges faced in implementing trials for the breeders, and possible improvements.

"One of the things we are trying to do in IITA is centralizing the breeding operations. For instance, we have identified some gaps in terms of planning. We should be proactive and start our planning ahead of time to give ourselves enough time before the onset of the season," Mulenga said.

IITA Abuja Farm Supervisor Gabriel Adedayo, who participated in the workshop, said the training exposed him to new perspectives, widening his view and understanding.

The workshop participants and speakers came from CGIAR centers, NARS programs, and CGIAR Excellence in Breeding. The workshop series is [continuing](#) with [events](#) planned for East and Southern Africa and Latin America. *Contributed by Anita Akinyomade and Oluwaseyifunmi Olumi*



Top: The EiB workshop participants visiting the plantain field. Bottom: The workshop participants at the cassava breeding farm.

IFAD-funded Zero Hunger Project makes progress in achieving its objective in Nigeria

As part of efforts to realize IITA's Zero Hunger initiative (ZHI) partnership with FGN/IFAD-VCDP on cassava value chain development in Benue State, the IITA Zero Hunger Project team were in Benue State in February on an assessment and training visit.



During the visit: (L-R) Zero Hunger Project MEL Manager Oyewale Abioye, Zero Hunger Training Manager Bolanle Olorode, Hon. Commissioner of Agriculture and Natural Resources Dr Kester Kyenge, VCDP State Project Coordinator Emmanuel Igbaukum, and the Secretary to the VCDP SPC.

FGN/IFAD-VCDP Benue State Programme Coordinator, Emmanuel Igbaukum, led the Zero Hunger Project team comprising the Project Monitoring, Evaluation and Learning Manager Oyewale Abioye, Project Training Manager Bolanle Olorode, and IITA Post-Harvest Specialist Peter Kolawole on a courtesy visit to the Benue State Commissioner for Agriculture and Natural Resources, Hon. Kester Kyenge to familiarize and brief him on the Project and its collaborations with FGN/IFAD-VCDP.

Speaking on behalf of Project Lead [Debo Akande](#), Abioye congratulated Hon. Kyenge on his appointment and thanked him for receiving them on short notice. He briefed the Commissioner on programs and the team's efforts to achieve zero hunger in Benue in close collaboration with VCDP. The implementation will align with the initiative's three components: Policy Assessment, Productivity Enhancement, and Capacity Development, with a strong focus on women and youth inclusion. He applauded Benue State's relationship with IITA, which he described as "fantastic and productive"

based on the number of IITA interventions and projects in the State. He also commended the State's Policy Assessment with IITA Zero Hunger Project, evident in a meeting with the then Commissioner of Agriculture, VCDP, and other stakeholders last year.

Abioye highlighted several IITA Zero Hunger Project capacity development interventions in the State, particularly sourcing for seed funding and training some seed entrepreneurs in partnership with FGN/IFAD-VCDP. He also noted that, in collaboration with FGN/IFAD-VCDP, the program has trained some extension agents on Good Agronomic Practices (GAP) and introduced them to digital agriculture tools, such as the Herbicide Calculator and Akilimo. These extension agents also learned to build and collect correct data using Open Data Kit (ODK) software.

According to Abioye, the program has designed, developed, and remolded some agricultural production machinery that they are introducing to farmers and agripreneurs in the State to enhance production. The IITA team would train seed entrepreneurs on best practices on

this visit. Some metal fabricators would learn how to produce a wet hammer mill that can process fresh cassava tubers and dry cassava chips for food and cassava peels for animal feed. He disclosed that this model would be installed at the FGN/IFAD-VCDP Assisted Cassava Processing Centre in Kwande Local Government, in Benue State.

In his address, Kolawole reiterated the need for mechanization in agriculture production and processing to maximize output and profit. He noted that the referenced mechanization does not necessarily mean tractorization but rather basic handheld tools and light machinery, one of which is the wet hammer mill.

Training Manager Olorode emphasized the potential along the cassava value chain, hoping that embracing it would significantly reduce insecurity, unemployment, and youth restiveness. She added that the focus of this visit was to train extension workers and seed entrepreneurs on the production of high-yielding National Agricultural Seed Council (NASC) certifiable seed.

The Project team members charged the Benue State Government to absorb some of the trained extension workers and employ more to increase the chances of achieving zero hunger in the State.

In his remarks, Hon. Kyenge counted the State privileged to be a beneficiary of both the FGN/IFAD-VCDP and the Zero Hunger Initiative, focusing on enhancing the cassava value chain. He noted that Nigeria is prioritizing agriculture to make it the country's mainstay, and Benue, as its food basket, has a major role in the agricultural transformation plan.

The Commissioner promised the State's support to assist VCDP and IITA scale up their intervention in the State while assuring the team that the issue of engaging extension workers was being looked into with the urgency it requires. He also commended the program's focus on youth and women, charging IITA to sustain their partnership with IFAD-VCDP to achieve zero hunger in the State in light of the imminent global population explosion for improved and sustainable agriculture.

Contributed by Oyewale Abioye

Zero Hunger Project installs model wet hammer mill in Benue State

The IITA-led Zero Hunger Project's partnership with FGN/IFAD-VCDP is already yielding commendable results with the local production and installation of a complete stainless steel versatile wet hammer mill machine at the FGN/IFAD-VCDP Assisted Cassava Processing Centre in Kwande Local Government Area, Benue State.



Trainees sourcing materials to build the mill.

The team carried out the installation during a five-day capacity development event held at UDECO Fabrication Workshop, Makurdi.

The intensive training involved 12 youth (including women) from three companies across the State. They learned how to source materials and fabricate the wet hammer mill using stainless steel. This innovation was developed to enhance cassava processing and can process fresh cassava tubers and dry cassava chips for food and cassava peel for animal feed.

The trainees successfully and satisfactorily fabricated the mill under supervision from IITA Post-Harvest Specialist Peter Kolawole. Compared to the previously used grater, which

would ideally grate 2 tons of cassava per hour, the wet hammer mill is more durable and efficient, processing 4 tons per hour under the same conditions.

The mill also meets all standards for food-grade processing machines regarding the quality and type of material used. After the mill was fabricated and tested, it was delivered to FGN/IFAD-VCDP and installed at its Assisted Processing Centre in Kwande.

According to Kolawole, the rationale for training fabricators on wet hammer mill production was borne out of the mechanization needs assessment survey conducted by the Zero Hunger Project and to support cassava processing to achieve zero hunger

in the State. He also highlighted the need to create value for cassava peel by making it easier to convert to animal feed instead of indiscriminate disposal, resulting in environmental pollution. Kolawole further disclosed that the machine was an IITA model, and it was necessary to train local fabricators in line with the "do it yourself" philosophy for continuity and sustainability.

Closing out the workshop, a trainee, Sughter Atom, expressed his appreciation to IITA and VCDP for the opportunity to achieve such a massive feat in such a short time. "I have learned what I didn't learn in five years at the university within five days. I now feel like an engineer for the first time. Thank you all for the upgrade," he concluded.

Contributed by Oyewale Abioye



Left: A trainee practicing how to cut the stainless steel sheets. Right: The trainees testing the completed Wet Hammer mill.