

Madagascar government to collaborate with IITA for agricultural solutions after natural disaster



Delegates from the Government of Madagascar, headed by Mrs Fanjaniana Raharinomena, the Secretary General of the Ministry of Agriculture, representing His Excellency, Xarifid Ramilison, the Minister of Agriculture and Livestock, visited [IITA](#) from 23 to 28 February.

At IITA-BIP, the team learns how to protect plants from aflatoxin using Atlasafe.

[to page 3](#)

BASICS-II brings together public-private stakeholders to promote sustainable cassava seed delivery in Tanzania



BASICS-II Project Manager Lateef Sanni (first from left) and other stakeholders at the National Cassava Business Summit.

The project [Building Economically Sustainable Seed Systems for Cassava, Phase 2 \(BASICS-II\)](#) organized a day-long National Cassava Business Summit towards developing a cassava seed system in the country. The summit was held on 17 February in Dodoma, Tanzania.

The meeting aimed to catalyze public-private partnership sector-led investment in the cassava seed value chain, bringing together about 100 participants from

the public and private sectors, NGOs, institutions, entrepreneurs, farmers, and other key cassava stakeholders.

In her opening remarks, the [IITA](#) Eastern Africa Hub Director, [Leena Tripathi](#), noted that cassava is at the heart of IITA's works and lauded the government for its efforts in developing the crop for commercialization through launching the [National Cassava Development Strategy \(2020-2030\)](#) in 2021.

"I am glad that Tanzania and Nigeria are comparing notes on developing the cassava sector," she said.

Tripathi also noted that IITA has multidisciplinary experts in breeding, disease management, and tools such as Nuru and SeedTracker, agronomy, and postharvest management. IITA is ready and willing to share its expertise and technologies for agricultural sector development.

The representative of the Minister of Agriculture, Eng. Anna Mwangamulo, advised scientists to research based on market needs so that the solutions could cater to the consumers' needs. Also, she urged the cassava stakeholders to implement the cassava strategy in their activities to develop the whole cassava sector.

"I appreciate the efforts from IITA and TARI in releasing 25 improved cassava varieties," Mwangamulo said.

During the meeting, the participants attended interactive presentations and impactful plenary sessions to tackle the challenges within the cassava seed sector, finding solutions to boosting profitability and efficiency in the cassava seed systems, and making the entire cassava value chain more productive and private-investment friendly.

"If we adopt the BASICS model, we will improve production, increase productivity, and enhance livelihoods through increased income and employment," advised [Godwin Atser](#), BASICS-II Advocacy, Promotion & Outreach Lead at IITA. He also noted that Tanzania needed to increase productivity to attract investments, and the seed system is a massive opportunity for farmers to explore.

Mwantumu Mahiza, the Chairperson of Tanzania Cassava Producers and Processors Association (TACAPPA), urged financial institutions to have feasible youth-friendly loan regulations to attract professional youth into the agriculture sector.

Cassava stakeholders shared their experiences and showcased their activities across the cassava value chain. "When I started working on machine designs for cassava processing, many thought I was wasting my time. But seeing how cassava has become a focal crop and people want to develop the sector, they have started to understand my perspective." reflected Peter Chisawilo, Processing Machines Manufacturer at Intermech.

Mama Antonia did not believe the cassava seed business was profitable when she started, but after receiving training on cassava seed production from the Building Economically Sustainable Cassava Seed Systems in Tanzania (BEST Cassava) project, she has learned and managed to have a successful, sustainable, productive business. "Through this business, I have taken my children to school, built modern houses, and increased food security in my family," Antonia testified.

Lateef Sanni, Project Manager for BASICS-II, said the burgeoning private investments in cassava processing across Africa put a demand for improved cassava seeds, and growers are now aiming to satisfy industries.

He noted that the changing narrative was an opportunity for growers, especially the private sector, to take advantage of the seed sector.

BASICS-II, which IITA leads, aims to provide farmers with access to affordable, quality-assured seed of cassava varieties in demand by local food and processor markets by strengthening a commercially viable seed value chain operating across breeder, basic, and commercial/certified seed levels. This value chain will enable more efficient dissemination and adoption of superior varieties to improve productivity, increase the incomes of cassava growers and seed entrepreneurs, improve gender equity, and contribute to inclusive agricultural transformation in Tanzania and Nigeria.

In Tanzania, [BASICS-II](#) builds on BEST, a recently concluded project, which worked with 641 registered Cassava Seed Entrepreneurs (CSEs) from 11 regions. About 1068 hectares under cassava seed production were certified and accessed for seeds by farmers. The project officially released five improved varieties. Four initially released varieties for the Coastal lowland were extended countrywide, and CSEs produced their seed. Tanzanian partners under BASICS-II include MEDA, Tanzania Agriculture Research Institute (TARI), and Tanzania Official Seed Certification Institute (TOSCI).

Contributed by Gloriana Ndibalema



Participants at the National Cassava Business Summit.

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).



Mrs Raharinomena was accompanied by the National Deputy Coordinator of Enable Youth, the Coordinator of DEFIS, the Director of the Organization of Farmers, and the National Coordinator of a program supporting SMEs in agriculture, all in Madagascar. The week-long visit included a tour of IITA facilities and familiarization with IITA technologies, innovations, and initiatives.

The team was received by [Hilde Koper](#), Deputy Director General, Corporate Services; [Kenton Dashiell](#), Deputy Director General, Partnerships for Delivery; [Michael Abberton](#), Director West Africa and Head of IITA Genetic Resources and Bioscience Center; [Sougrynoma Zainatou Soré](#), Head Capacity Development Office; [Victor Manyong](#), Emeritus Director; [Leena Tripathi](#), IITA Director East Africa; [Ranjana Bhattacharjee](#), Molecular Geneticist; Toyin Oke, Manager Resource Mobilization, Protocol & External Liaison Unit, and others.

The visit was expedient following the recent cyclone attack in Madagascar, the African Union (AU) regulation banning some of the trade products of Madagascar, the high cost of fertilizer and farm inputs, and raging drought and famine in some regions of the country. Conveying the message of the Ministry of Agriculture in Madagascar, Raharinomena said, “There is an urgency in the agricultural needs of the country because of the cyclone, so we seek to work closely with IITA to see how your experience can benefit our country.”

At the Bioscience and Genetic Resources Center, the delegates learned of the processes of diseases identification, isolation, and tools engaged in making predictions for well-adapted varieties in particular environments. Responding to one of the delegate’s requests for good seed systems and better ways of accessing improved varieties in Madagascar, Abberton said, “We have experience in sending germplasms in regions where agriculture has been disturbed.”

They also visited IITA’s Food Science and Nutrition Laboratory, Cassava Processing Unit, Business Incubation Platform (BIP), Water Treatment Plant,



The team visiting IITA Youth program activities under the STEP project at Fashola.

International Livestock Research Institute (ILRI), and the Semi-Autotrophic Hydroponics (SAH) technology for cassava seed propagation, among others. One delegate highlighted the current yield of groundnut production in Madagascar to be 0.8–1 t/ha, which is very low, and maize, 1–1.2 t/ha. He requested climate-smart technology adaptable to Madagascar, especially with groundnut and maize. They also sought the development of seed systems for rice, cassava, sorghum, millet, sweet potato, small ruminants, and cows, many of which IITA has a wealth of expertise in.

The IITA scientists and research experts shared their knowledge and expertise to meet the goals of the delegates. Many solutions were proposed as strategies for strengthening agriculture in Madagascar. Some are: the development of high-performance varieties, that is, disease-resistant seeds that can also withstand climatic hazards and droughts, capacity development and technology transfer, assistance with the transfer and receipt of phytosanitary products, rapid multiplication of healthy plant materials, development of cassava processing project, irrigation systems, and development of yield improvement technologies.

Seeking solutions in livestock and plant production, the current transitioning to one CGIAR proves helpful. The Malagasy government will leverage both plant and animal technologies developed by different centers in the One CGIAR for

adoption. Tripathi said, “With the One CGIAR, other institutions like ILRI—the CGIAR center working on livestock—and IITA working on plants, will work together to provide an all-round solution to Madagascar agricultural needs. From Madagascar, the CGIAR centers have made proposals to the World Bank while working closely with the government and private institutions on improving agriculture and livelihood in Madagascar.”

In seeking collaboration for the youth in Madagascar from various sponsors and international institutions, the presentations on youth engagement in agriculture from ATola Adenmosun, Acting Head, Youth in Agribusiness, and [Aline Mugisho](#), Executive Manager, Innovative Youth in Agriculture Project (I-Youth), were helpful. The I-Youth Project sponsored by the Mastercard Foundation, the Start Them Early Program (STEP), the Enable-TAAT project funded by the African Development Bank, and an IFAD-funded program for rural youth, were highlighted. The delegates were encouraged to empower their youth by replicating these programs adapted for youth in Madagascar.

The visit was not without immediate direct benefits to IITA, who also received support for ongoing and intended seed collections and genetic sequencing work in Madagascar. Bhattacharjee gained connections to work on the cocoa value chain in Madagascar and prospects for future genetic sequencing work on yam species in Madagascar.

Contributed by Folake Oduntan

Take responsibility! Stop the spread of COVID-19!

Always clean your hands; practice physical and social distancing; wear face masks properly; avoid crowds and public places; keep a 2-meter distance from the next person; and practice general sanitation and hygiene.

GSN launches webinar series to promote gender research and its impact

The [IITA](#) Gender Science Network (GSN) has organized a webinar series to enhance gender research and its communication and impact. Integrating gender within other (research) domains is a key objective. Therefore the webinar serves as a learning and engaging platform for the IITA community to dialogue, better understand, adapt, and implement new and existing gender initiatives, methodologies, tools, and approaches in projects and more extensive research programs.



Bela Teeken, sharing insights from research on cassava users livelihoods and their variety preferences.

On 2 March, the first webinar entitled “Structurally integrating gender into cassava breeding: The Triadic comparison of technologies (Tricot) and prospects” was held. The meeting was successful, given the high number of attendees and their active feedback. [Béla Teeken](#), Associate Social and Gender Scientist, presented with support from Olamide Olaosebikan - Senior Research Associate and Bello Abolore - Senior Research Supervisor. [Steven Cole](#), Senior Gender specialist and GSN Coordinator, and [Martina Cavicchioli](#), CIM Gender Scientist, moderated the session.

In his presentation, Teeken shared insights from research on cassava users’ livelihoods and varietal preferences. This research evolved from surveys to more engaged research using participatory variety selection (PVS) methods to inform breeders’ selection. He highlighted that because women are majorly into processing and selling food products and men usually sell more fresh roots; women prioritize processing and food product quality traits.

Through a cooperation between the Nextgen Cassava and RTB Foods

projects, the research compared contrasting clones with farmers and processors to elicit and specify processing-related traits by using a “mother-baby trial” in two locations. They followed up with a scaled “baby trial” (Tricot approach) in which farmers and processors rank different combinations of only three varieties in their field. “Mother trial evaluation is statistically more informative; therefore, a scalable version of the baby trial format was needed to socially and inclusively represent users and their preferences on their farm, within their livelihood,” Teeken said.

The Tricot approach offers an online platform, [CLimMob](#), that can archive and systematically store and analyze PVS data. The aim is to integrate CLimMob with breeder data platforms such as [BreedBase/ CassavaBase](#), through the recently launched 1000-farm network project using the Tricot approach. This will help breeders determine their most important customer segments (types of farmers, processors, marketers, and consumers) and their preferences as to determine the “recipes” (product profiles) of varieties to be developed to achieve socially inclusive and economic

impact in line with the sustainable development goals. The research team led by Teeken is working with the Tricot and CLimMob creators from the Alliance of Bioversity and CIAT to improve the approach and make it more socially and gender-inclusive and better tailored to RTB crops.

The presentation received positive comments and there was a lively question and answer session. One of the participants, Millicent Liani, commended the team for their excellent work and stated that she looks forward to learning more from the presenter and about the Tricot approach. Another participant, Pheneas Ntawuruhunga, shared what he had learned, mentioning the many steps tricot has, from planting to processing evaluation with many farmers and processors to farmers’ and lead farmers’ socially inclusive selection and training.

In his closing remarks, Cole appreciated the team for the great work in their research and presentation. He also thanked the participants for their time and engagement and announced that participants should anticipate the next webinar in May.

Contributed by Favour Ochuwa Eleta

Research shows material from banana waste can help fight destructive potato cyst nematodes

With potato production in East Africa under increasing threat from the invasive and highly destructive potato cyst nematode (PCN) pest, an organic technology developed from banana plant waste material may be the ultimate rescue. Known as “wrap and plant”, the solution involves enclosing potato seed in a thick absorbent paper made from the fiber of banana plants before planting. This strategy provides a protective barrier for the plants against damage by PCN.

These research findings led by the International Centre of Insect Physiology and Ecology (*icipe*), [IITA](#), and North Carolina State University, USA, working with various partners, have been published recently in *Nature Sustainability* (<https://rdcu.be/cHVSg>; [article in Science](#); [short video](#)).

“Initially, we aimed to understand whether the “wrap and plant” technology could improve the delivery and effectiveness of nematicides, the chemical agents used to control parasitic worms that damage crops, such as nematodes,” notes Juliet Ochola (Kenya). She was involved in the research as part of her MSc studies that she completed at Kenyatta University, Kenya, in 2021, co-supervised by *icipe* and IITA.

She adds: “We established that when loaded with ultra-low dosages of nematicides, the banana paper enables the chemicals to be released in a slow and sustained manner and in very low but effective concentrations. The paper also facilitates the nematicides to be conveyed specifically to the root zone of the potato plants; the infection site of the nematodes, thus preventing contamination to non-target areas and organisms.”

As Prof. Baldwyn Torto, Head, Behavioural and Chemical Ecology Unit, *icipe*, explains, the most significant discovery of this study was that, even without the nematicides, the “wrap and plant” technology protects potato from PCN damage. “We established that the banana-fiber has unique sponge-like properties. Thus, through a process known scientifically as ‘hydrogen bonding’, the ‘wrap and plant’ paper can soak and physically bind the critical chemical signals released by potato crops that allow the PCN to hatch, find, and infect the plant’s roots. We confirmed this to be the case, as we recovered these chemicals from the paper,” he states.

The banana-fiber characteristics make the “wrap and plant” paper dense, rigid,

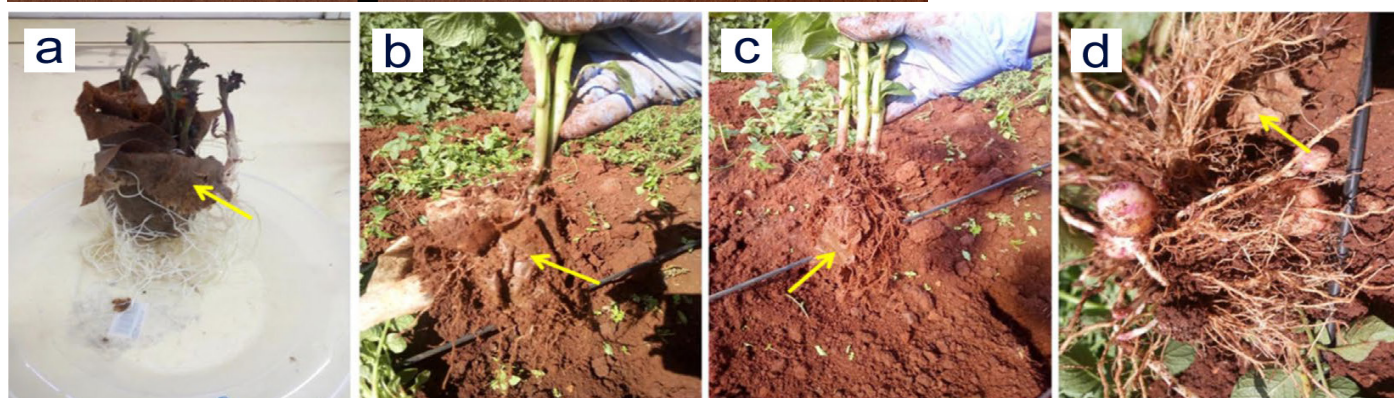
and sturdy, such that it remains intact in the soil while also allowing the plant’s roots to germinate and thrive. Although the paper is durable, it is also biodegradable and eventually decomposes.

First detected in Kenya in 2015, the PCN pest has now widely spread across major potato growing regions and in Rwanda and Uganda. “Our estimates show that PCNs are causing potato production declines of more than 60 percent, with projections indicating an even worse scenario,” notes [Danny Coyne](#), IITA Soil Health Scientist. “The current study demonstrates that the ‘wrap and plant’ paper, whether containing nematicides or not, and depending on the practices of individual farmers, can increase potato yield by up to five times. This is by preventing the damage by PCNs and other nematode species.”

The “wrap and plant” technology is a promising boost for food and nutrition security and household incomes, as it will help safeguard the production of potato, East Africa’s second most important staple crop. It also contributes to the vision of a circular economy by transforming banana-fiber, often regarded as agricultural waste and a nuisance for farmers, into raw material for a pest control innovation. This could create opportunities for entrepreneurs and farmers.

Besides reducing overuse or misuse of chemical pesticides, the “wrap and plant” technology supports environmental protection by curtailing the growing trend where farmers are compelled to clear forests unsustainably to create productive fields free of PCNs and other pests. Overall, this breakthrough in PCN control demonstrates an environmentally-friendly way to counter disruptions in sustainable food systems.

Contributed by Liz Ng’ang’a (ngangaen@gmail.com)



Top: The “wrap and plant” or W&P technology involves enclosing potato seed in a thick absorbent paper made from banana fiber before planting. **Bottom:** Root penetration through the banana waste based material and its gradual decomposition after 2 weeks (a), 4 weeks (b), 6 weeks (c), and 8 weeks (d) of potato growth.