

Lack of biocontrol regulations hinders safe and effective management of Musa pests and diseases

A major thrust to develop and deploy safe and effective biological control methods to manage and reduce crop damage from pests and diseases in banana and enset is under way through MUSA2020, an EU-supported project. Across Africa, however, these efforts are being hampered by a lack of regulations on the use of biocontrol products.

“For example, only two countries in Africa—South Africa and Kenya—have enabling laws that allow scientists to register biocontrol products against nematodes and weevils, the two major pests of banana and enset,” said Dr Henry Wainwright, General Manager, [Real IPM Kenya](#).



The three stages of a weevil found in a NARO banana trial field.

He noted the continent has had some cases of classical biocontrol

successes, one of which, was the use of biocontrol for cassava mealybug

that reduced losses by over 90%. The initiative was led by the [IITA](#).

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TAAT gains momentum with more start-up activities

The implementation of the [Technologies for African Agricultural Transformation \(TAAT\)](#) program continues to gain traction with several start-up activities already undertaken. In an email briefing to stakeholders at [IITA](#), Program Coordinator [Chrys Akem](#) highlighted some of the achievements at this early stage which include planning meetings, hiring of staff, and submission of Compact documents.

Following an inception meeting at the [African Development Bank \(AfDB\)](#) Headquarters in Abidjan, an inaugural and work planning workshop was held at IITA, Ibadan, on 22-25 January. At this meeting, nine value chains (rice,

cassava, wheat, sorghum/millet, maize, high iron beans, orange-fleshed sweet potato, small livestock, and aquaculture) and five enabler/cross-cutting (policy, capacity building, ENABLE-TAAT, water management, and fall armyworm) compacts were presented based on an expanded Concept Note Template that had been prepared and shared with the Compact Leaders.

One of the key features of TAAT is the establishment of the Clearinghouse to serve as an independent evaluator and honest broker of outscaling efforts. To ensure its effectiveness, recruitment for a few key positions was

expedited including the appointment of Dr Mpoko Bokanga as Head, TAAT Clearinghouse. Other appointments are Dr Mary Igbinosa as the Partnership Engagement Expert, Dr Zefack Tonnang as the Agricultural Technology Transfer and Outreach Expert, and Dr Paul Woomer as a Consulting Technical Advisor to the Clearinghouse. Two consultants were also contracted for interim roles: Mr Dougou Kieta as Partnership Engagement Expert and Prof Alphonse Emechebe as Technology Transfer Expert.

The Protocol of Agreement between IITA and the African Development Fund on the implementation of TAAT was signed

on 2 February 2018, the effective start-up date for the TAAT Program.

Following a proposal from the TAAT Appraisal Document, a TAAT Program Steering Committee (PSC), which is the highest decision-making body of TAAT, has been set up and was presented for approval by the AfDB. The newly appointed PSC participated in their first meeting at the Clearinghouse base in Cotonou on 27-28 March, during which the TAAT Compacts were approved.

A Program Management Unit (PMU) has also been set up. Dr Chrys Akem was appointed as TAAT Program Coordinator along with Mr Fashokun Seyi as TAAT Program Accountant, and Mr Monsuru Bakare as TAAT Procurement Specialist. This fulfilled one of the preconditions for first fund disbursement from the AfDB.

"I believe we are on track to effective Program implementation despite the



TAAT Program Coordinator, Chrys Akem.

challenges that delayed the start-up of the Program," Akem noted in his email. He also assured that periodic updates

would be shared concerning the progress of program implementation.

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Wainwright gave a presentation on "The past, present, and future of biocontrol in Africa," at the three-day MUSA2020 workshop recently held in Kampala, Uganda, 27-29 March.

The workshop brought together over 30 banana researchers from across the globe who are all collaborating on the implementation of the 4-year Microbial Uptakes for Sustainable management of major banana pests and diseases (MUSA2020) project worth 4 million Euros. The project involves partners from Belgium, Costa Rica, Cuba, Ethiopia, Italy, Kenya, Nigeria, Spain, Tanzania, Uganda, and the United Kingdom. Participants were given the opportunity to appreciate East African banana growing culture and conditions by visiting farmers' fields and the research labs.

"MUSA2020 is one of the EU Interactive Innovation Projects (EIP) and just like the rest, it takes a multi-stakeholder approach. The most important principle of EIP is that from the onset

of the project, relevant partners with complementary knowledge are brought together to share their knowledge from the beginning up to the end of the project; and the focus during implementation is on the end users' problems and opportunities," said MUSA2020 project leader [Dr. Aurelio Ciancio](#), Institute for Sustainable Plant Protection, National Research Council of Italy.

The project aims to sustainably intensify production of banana and enset (in Ethiopia) crops through identification, development, and implementation of integrated pest management (IPM) technologies that are based on naturally occurring beneficial microorganisms.

In his opening remarks at the same meeting, Dr Jerome Kubiriba, Head of the National Banana Research Program of [NARO](#), noted that bananas are not only important in the countries where they are grown, but they are consumed worldwide. However, their production is greatly threatened by pests and

diseases, which are increasing each day with changes in climatic conditions.

"While Uganda is the second largest producer of banana in the world, farmers only produce 10 tons per hectare per year, yet at the research stations, 60 tons are harvested per hectare per year. As a research organization, we collaborate with partners to develop innovations that enable farmers to increase their output to at least 40 tons per hectare per year, through conventional breeding," he said.

Participants shared their experiences on banana farming systems in their countries as well as the main challenges they were facing and the ongoing research to address them. The team also visited banana research fields of IITA, NARO, and Real IPM.

By the end of the workshop, the different organizations present were each assigned to develop abstracts on different research areas. IITA will lead in writing abstracts on nematodes and Fusarium Wilt (Panama Disease).

How gender dynamics affects women's participation in cassava food value chains in Tanzania

A team of researchers working in Tanzania has conducted a gendered mapping of the structure and functioning of the traditional cassava value chain in Kigoma, Mwanza, Coastal Region and Zanzibar Island of Tanzania. The cross-sectional study by Blessing Masamha, Vusilizwe Thebe, and [Veronica Uzokwe](#) sought to understand gender relations and power dynamics within households of the traditional cassava value chain as this has received little attention in contrast to the global high value chain. Titled "Mapping cassava food value chains in Tanzania's smallholder farming sector: The implications of intra-household gender dynamics," the paper has been published in the [Journal of Rural Studies](#).

The researchers collected data through structured interviews with 228 farmers, combined with key informant interviews, direct observations, and repeated household visits. Adopting a conceptual framework that focused on gender at the household level, they used a pro-poor value chain approach to analyze their results. The use of a value chain approach enables the identification of gaps and interventions that can benefit marginalized groups such as women and the poor.

According to the researchers, "The study revealed weak linkages within the cassava value chain, which is highly gendered." They contended that "while the production and processing nodes of the chain, which commenced from villages, were dominated by women and children, women were not well integrated within high value nodes such as marketing in urban areas and cross-border trading, which were dominated by men." Transportation of cassava to highly lucrative markets was also dominated by men. Cassava processing was conducted at the household level as well as within small-scale cooperatives, with the major portion of this work being done by women.



Above: More women in the cassava value chain are in the production and processing nodes, Below: Veronica Uzokwe, IITA scientist.



The paper concluded that gender-focused mapping of the cassava value chain, with its inception point in the village, has shown that intra-household gender power dynamics influence the structure and functioning of the chain. The major actors within the chain are input suppliers, smallholder farmers, middlemen, traders, small-scale processors, and retailers. The study revealed that women participated more in the chain's production and processing nodes, with high value nodes such as packaging, marketing, and transportation being dominated by men. Women were

also more engaged in sales at local and roadside markets than men, who had access to high income urban markets.

These findings show that there is a need to strengthen women's participation in high value nodes of the cassava value chain. The researchers also argued for a need to provide the farmers with cassava processing equipment to reduce postharvest losses and the need for policy options to be explored to empower women to own productive resources and decision making as well as their participation in the transportation and marketing of cassava. In general men played a prominent role in the control of resources, marketing, and income.

In conclusion, the mapping of cassava value chains could help to identify avenues for understanding poverty, enhancing food security, upgrading capacities, reducing gender inequality, and enhancing women's participation in marketing and income control in the cassava value chains.

Confined field trial of transgenic cassava is completely safe, says IITA scientist

The Confined Field Trial (CFT) currently being carried out on transgenic cassava at an [IITA](#) site has been described as “completely safe with absolutely no risk of contamination to local cassava varieties.” [Anna Carluccio](#), a scientist on the research team at IITA, said this in an interview in which she also noted that there is no cover of secrecy surrounding this research on transgenic cassava.

Last year, IITA's application to carry out the CFT on genetically modified cassava in collaboration with [ETH Plant Biotechnology Lab](#) in Zurich was approved by the [National Biosafety Management Agency](#). This research is a response to one of Africa's biggest agricultural challenges, namely the high level of postharvest loss of cassava caused by rapid deterioration of its starch-rich roots, which occurs naturally and begins immediately after harvest. This causes a 40% reduction in the postharvest value of cassava and therefore has a huge negative impact on the income of farmers.

Tackling this challenge will have a tangible effect of increasing cassava yields, which will in turn positively impact food security and transform the socioeconomic status of cassava farmers.

The main purpose of this research is to support cassava productivity by breeding for robustly high-yielding plants, as this strategy is the most economically viable for smallholder farmers. “Compared to other crop plants, however, little is known about cassava source-to-sink relations, which are major determinants of final crop yield,” said Carluccio. The purpose of the research therefore, is to raise the level of understanding about cassava physiology to a level comparable with other major crop plants.

At an earlier stage of this research, genetically modified cassava plants were generated to evaluate the activity of the enzyme which hinders the process of rapid deterioration of cassava roots shortly after harvest. Such cassava lines will be able to store their starch in stable forms even long after the tubers have been harvested. The gene construct used was developed at ETH Zurich in the



The Confined Field Trial (CFT) currently being carried out on transgenic cassava

laboratory of [Prof Samuel C. Zeeman](#) and extensive testing was carried out in greenhouses in Switzerland over a three-year period.

According to Carluccio, “The aim of this confined field trial is to evaluate the effect of a reduced A-amylase activity in the storage roots of the transgenic cassava under a local field condition in Nigeria to confirm results obtained in greenhouses at the ETH lab in Zurich.”

The necessity of carrying out the CFT was explained by Prof Zeema who said, “Our greenhouse experiments were an important first step, but they cannot substitute for genuine field conditions. Hence, it is necessary to grow the plants in a tropical climate such as that of Nigeria.”

“IITA is an excellently equipped and well-staffed institute at which to perform such a confined field trial,” he added.

Carluccio reiterated IITA's readiness to carry out this trial amid the highest biosafety standards which include the protection of test plants with anti-aphid mesh to prevent insect entry and guard against cross pollination. Furthermore, flower buds from the cassava plants are removed weekly in addition to the removal of any male or female flowers,

which will be carried out during the entire duration of the experiment, to prevent pollen dispersal.

The CFT site permits access to only authorized personnel and a minimum isolation distance of 100 meters is maintained between it and any plants capable of hybridizing with cassava. The site also has an incinerator that is used to safely burn waste from the site, including packaging and periodically uprooted volunteer plants.

When asked about the timeline for expected adoption of this transgenic cassava variety, Carluccio stressed that there is no plan to adopt this variety as the experiment is purely a scientific experiment to know what happens in the plants after harvesting. “We hope to understand which protein is involved in starch degradation and this result could help us to select plants with these characteristics,” she said.

Although this experimental cassava variety is not planned for commercial release, it is destined to transform lives. As Carluccio notes, “I know that smallholder farmers have this big problem and if we can reduce the rate of starch degradation, even if by only two days, farmers' income would increase.”

IITA to continue collaboration with Samuel Adegboyega University

A delegation from [Samuel Adegboyega University](#) (SAU), Ogwa, Edo State, paid a visit to [IITA](#) on 4 April following the signing of an MoU with IITA. The visit is in line with requirements for regular meetings between the two parties. The University team, which was led by the University's Vice Chancellor, Prof Ben Aigbokhan, was received by [Robert Asiedu](#), R4D Director for IITA West Africa Hub (WAH), [Michael Abberton](#), Deputy Director, WAH, and [Sylvia Oyinlola](#), Head, Administration, WAH.



SAU delegation with members of R4D group.

A brief introduction of IITA and its accomplishments over the past 50 years was shared with the visitors, after which the Director gave further information and clarification on new initiatives spearheaded by the Institute. SAU is seeking the actualization of the MoU with IITA focusing on three of IITA's mandate crops; namely, cassava, yam, and plantain. Furthermore they would like to have training for the University staff in this regard. The VC pointed out that SAU is in a rural community, the only private university in Nigeria to be so located. Consequently, SAU wants to, as part of its corporate social responsibility (CSR), provide the host community with access to new technology, planting materials, and training on the three crops, which are the main crops grown in the area.

Asiedu, however, suggested that the University starts with production of one crop at a time. "Cassava production should be the university's priority, followed by training people on how to excel in the area while developing the institute into a center for propagation at the same time."

Asiedu also advised the University team on producing good and healthy planting materials. He said: "It would be important for the institute to be the source of clean planting materials of the three commodities, cassava, yam and plantain, and the varieties that the farmers in that community are already growing in addition to already released new varieties in the country." The

suggestion was well accepted by the visitors.

The team was taken on a tour of IITA's facilities by Peter Iluebbey, International Trials Manager, Cassava Breeding, during which Aigbokhan promised optimistically: "By this time next year, we will be harvesting clean and healthy varieties of cassava on a large scale."

To conclude the visit, a debriefing of logistics and expectations from both parties was coordinated by Abberton. It was agreed that SAU will provide land and labor for the project and four selected SAU staff for training; IITA will provide the cassava planting materials and training in the techniques of propagation and health management.

Events

- **Country Alignment 4 Agricultural Transformation - Consultative Meeting for Nigeria**, 10–12 April, Abuja, Nigeria
- **IITA Board Meeting**, 24–26 April, [Center for Development Research of Bonn University](#) (ZEF), Bonn, Germany
- **Special event on "African agricultural transformation: The IITA Agripreneur Approach to Job Creation"**, 26 April, ZEF, Bonn, Germany
- **7th International Food Legume Research Conference**, 6–8 May, Palais des Congrès, Marrakech, Morocco

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US ambassador to Nigeria visits IITA; encourages ecotourism in the country and promotes youth-in-agribiz program

“For too long, Nigerians have lived in one place and forgotten what it is like to live in another,” said W. Stuart Symington, the US Ambassador to Nigeria, during a visit with his team to [IITA](#) headquarters, Ibadan, Oyo state, 15-16 April.

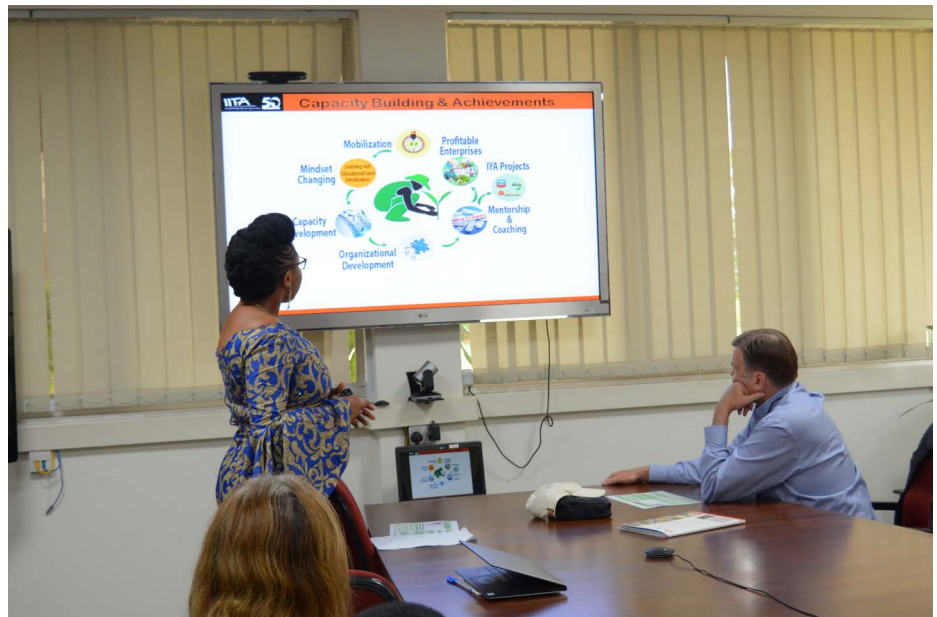
Symington noted the lack of knowledge about nature among the people, precisely because they have not been exposed to Nigeria’s biodiversity and conservation of natural resources.

The Ambassador was received by key members of the IITA management team who made presentations about some of the programs and projects that are being carried out by the institute. [Ken Dashiell](#), Deputy Director General, Partnership for Development (DDG-P4D) spoke about programs in Borno State and the Zero Hunger Forum. [Hilde Koper-Limbourg](#), Deputy Director General, Corporate Services, spoke about the Forest Center; [Robert Asiedu](#), Director, Research for Development Western Africa Hub, detailed [USAID](#) activities in Nigeria; [Evelyn Ohanwusi](#), Head, Youth in Agribusiness, made a presentation on IITA Youth in agribusiness activities.

The ambassador and his team were taken on a tour of the institute’s forest and some of the campus facilities which include [Aflasafe™](#), [NoduMax](#), cassava fields, and youth in agribusiness activities. He expressed his excitement on the changes and growth that have taken place since his last visit to the institute the year before.

Stressing the need for people to visit IITA and its ecotourism facilities, he said “I am thrilled to be here. I want you to know how important IITA is; every part of the world needs to produce not just food but the opportunity and hope for the youth. Here in IITA, the young entrepreneurs, who have university degrees and who could not find jobs are now creating their own jobs—in agribusiness, running successful businesses, and are putting other people to work. All thanks to the Director General and his team for their advice and coaching.”

To wrap up his visit, Ambassador Symington held a press briefing where



The Ambassador listening attentively during Evelyn Ohanwusi’s presentation on Youth in Agribusiness.



Ambassador Symington bird watching with DG Sanginga and members of IITA’s bird watching team.

he spoke passionately to the youth and Nigerians as a whole to embrace the natural endowment of the country.

He also encouraged the youth to invest in ecotourism, by frequently going on a tour of Nigeria’s tourist reserves such as the Obudu Cattle Ranch in Rivers state, Yankari Park in Bauchi State, IITA forest, to mention a few. He said that if the people don’t develop the habit of appreciating these gifts of nature, “the identity of Nigeria would be lost.”

“If you do not have Nigeria, if you lose Nigeria, you will not have a Nigeria. You cannot have Nigerians without the place. I hope you take time to look at the forest, and the trees and simply say Nigeria, ‘wow’, because if you are not careful, the ‘wow’ of Nigeria will be gone, lost forever,” he said.

The visit ended with the Ambassador, his team, and guests joining the IITA and Ibadan bird watchers to look at the special birds in IITA. IITA is a Birdlife International Important Bird Area.