

## Development partners meet to address Africa's food security amid COVID-19

In 2018, over 200 million people in Africa were undernourished due to food shortages. The advent of coronavirus has added another dimension to this issue. An examination of these problems led to the World Bank and Economic Community of West African States (ECOWAS) convening a virtual conference to put together a response plan to address these issues.



*Dr Kwesi Atta-Krah was interviewed for BBC Focus on Africa.*

A recent BBC [Focus on Africa](#) segment featured an interview with [CGIAR-IITA](#) Director of Advocacy and Country Alignment Function (ACAF), [Kwesi Atta-Krah](#), during which he explained some of the challenges facing African agriculture and food security during the pandemic. Atta-Krah spoke about the likely negative impact of the crisis, especially if it is prolonged. He said this is mainly due to our food supply relying heavily on smallholder farmers who are mostly over the age of 50.

Atta-Krah also identified seed supply as another potential problem area because the lockdown may limit commercial activities, leaving farmers with the option of eating their seeds if they are unable to purchase food for their families. By the time the pandemic is over, these farmers may have exhausted the inputs they had initially set aside for planting.

BBC program host Audrey Brown asked why this is a specific problem in

Africa rather than in other parts of the world: "Has it got to do with the profile of the farmers, the size of the farms, or the methods?"

"I would not say it is particularly restricted to Africa. I can see this same scenario playing out in some parts of the world where you have smallholder farmers," Atta-Krah said. He noted that smallholder farmers, who often

**to page 2**

## IITA scientist develops a cheaper and faster tool for identifying whiteflies

A [CGIAR-IITA](#) scientist, [Everlyne Wosula](#), has developed a more cost and time-effective molecular diagnostic tool that accurately identifies different subgroups of cassava whiteflies, *Bemisia tabaci*. The tool can be used in local laboratories in Africa that often lack expensive sequencing technologies.



*Previous methods of identifying whitefly species were found to be less effective.*

This innovation marks a significant milestone in efforts to accurately characterize whiteflies, which transmit viruses that cause cassava mosaic disease (CMD) and cassava brown streak disease (CBSD), major diseases that have wreaked havoc on Africa's cassava crop over several decades. The combined damage resulting from infection with these two diseases is estimated to cause annual yield losses amounting to 50% in East and Central Africa, equivalent to more than US\$1 billion.

Efforts to control pests and diseases are founded on proper identification. However, whitefly species are complex, requiring the use of genetic tools to make accurate identifications. The most widely used method has been partial sequencing of the mitochondrial DNA cytochrome oxidase I gene (COI).

This, however, was recently found to be much less effective in identifying cassava whiteflies compared to the more robust single nucleotide polymorphism (SNP)-based genotyping method using NextRAD sequencing.

Wosula, a Vector Entomologist based in IITA-Tanzania, has made use of

the SNP data to develop a cheaper and more rapid diagnostic method using the Kompetitive Allele-Specific (KASP) PCR. This breakthrough has been published in a paper "[KASP genotyping as a molecular tool for diagnosis of cassava-colonizing Bemisia tabaci](#)" in *Insects*. This is the first time that this method has been used for insect identification.

The KASP assay method gives reliable results in a day and at a fraction of the cost of sequencing-based methods. One hundred and fifty-one of 152 whitefly specimens (99.3%) collected from cassava from 12 countries across sub-Saharan Africa and tested with KASP gave the correct identity obtained from the SNP genotyping.

"Using this method to keep track of potentially dangerous whitefly populations as part of their early warning systems for pests and diseases will be very straightforward for many national laboratories in Africa with limited resources," Wosula said.

Wosula previously analyzed over 7,453 SNPs occurring across the genomes of cassava-colonizing *B. tabaci* from Africa NextRAD sequencing. This research revealed the existence of six

haplogroups of whitefly species in Africa, designated as sub-Saharan Africa (SSA) 2, SSA4, SSA-Central Africa, SSA-East and Southern Africa, SSA-West Africa, and SSA-East and Central Africa.

The findings were published in the paper "[Unravelling the genetic diversity among cassava Bemisia tabaci whiteflies using NextRAD sequencing](#)" in *Genome, Biology and Evolution*.

The new KASP diagnostic, which is based on this earlier research, is already being used in new research programs to monitor cassava whiteflies in several African countries. Although most of the work is currently being done in the IITA-Tanzania lab, Wosula plans to provide training so that the technique can be added to the toolkits of national research systems and universities across Africa.

Wosula collaborated with researchers from [Boyce Thompson Institute](#) at Ithaca, New York and the [United States Department of Agriculture – Agriculture Research Services \(USDA-ARS\)](#), and was supported by members of the Virus Vector Ecology Group at IITA-Tanzania. The research was funded by [USAID](#) and the [Roots, Tubers and Bananas Program \(RTB\) of CGIAR](#).

## Development partners meet to address Africa's food security amid COVID-19 .... [Continued from page 1](#)

have challenges in resources, need money to get inputs such as fertilizers, pesticides, etc. Given the present situation, this is going to be a lot of pressure to achieve.

With several countries in Africa locked down for two months now, Atta-Krah expressed hope that the scenario will change soon because the longer the situation goes on, the more damage it would cause. "Part of the challenge is that several countries are also putting in place policies to try to prevent food from being exported. So, if you are a country that has been depending on food imports from neighboring countries, you will feel the effects of

some of the restrictions because of this coronavirus," he continued.

However, a positive dimension to the crisis is the recognition that countries need to achieve a higher level of self-sufficiency. Atta-Krah notes that this has alerted governments of the necessity to support their farmers so that they can produce what the country needs and have some for export.

Atta-Krah reported on the progress from the conference, highlighting the West Africa Resilient Food Systems project and funding by some of the development partners, including the African Development Bank (AfDB), the

Rockefeller Foundation, and the Bill & Melinda Gates Foundation.

While these have been challenging times for Africa, Atta-Krah is optimistic that COVID-19 has triggered the understanding that there has to be collaborative engagement between governments as no single country can address the issue of Africa's food security all by themselves.

"We are beginning to see the political dimension being built into the technical processes, and I believe that this is going to result in real energy that will be brought into the agriculture domain," he concluded.

### Got a story to share?

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



# Tanzania: Postharvest innovations key to raising youth involvement in horticulture

Horticulture is a field of agriculture that involves a short growing season averaging three months and offers quick yields and returns on investments despite the high rate of postharvest losses.



*Participation in horticulture gives Tanzanian youth income options within a short period.*

In Tanzania, with the Government-initiated National Strategy for Youth Involvement in Agriculture (NYSIA) for 2016–2021, horticulture is one viable option that would give Tanzanian youth income within a short period. Operated through the Ministry of Agriculture, the vision of the scheme is to empower youth to participate fully in agricultural development, contribute to economic growth, and address the challenge of unemployment.

Horticulture offers employment throughout each crop cycle, an

aspect that is advantageous to youth employment, yet this field of agriculture records a high rate of losses. According to research, about 50 to 70% of horticultural output is lost during harvesting, handling, packaging, transporting, and marketing. Hence, postharvest management is critical to success in the horticulture sector.

Adella Ng'atigwa, a fellow of the [Enhancing Capacity to Apply Research Evidence \(CARE\) in Policy for Youth Engagement in Agribusiness and](#)

[Rural Economic Activities in Africa](#) project, carried out a study on ways to empower youth to reduce horticulture postharvest losses in Tanzania. In the research, Ng'atigwa reveals that lowering the rate of postharvest loss for fresh produce would raise returns to young agripreneurs as well as increase food security in Tanzania.

Ng'atigwa conducted the study among youth in three of the six districts in the Njombe Region of the southern highlands of Tanzania. It reveals the stages at which losses occur, and some of the causes for crop loss that include poor storage facilities, weak transport systems, inadequate market location, poor handling, and inferior packaging materials.

Along with inadequate market location being a significant cause for postharvest losses in the Njombe Region, price fluctuations were cited as the most encountered problem facing young horticultural producers.

Based on the research findings, Ng'atigwa recommends staggered planting and harvest periods, timely harvesting, and ripening while warehoused, as ways to manage postharvest losses. Other recommendations include cold storage, solar drying, improved agronomic practices, more market places, and improved transport facility. Achieving these will raise returns and attract more youth to the horticulture industry in Tanzania.

Ng'atigwa added that there is a need to create incentives for the small and medium financial institutions and microcredit financial institutions in Njombe to provide loans with an affordable interest rate for youth. Such youth-friendly credit schemes will help them to access farm inputs and postharvest management (PHM) innovations.

With Africa striving towards achieving the Sustainable Development Goals (SDGs) and zero hunger, Tanzania's move to improve horticulture, a sector that generates more than US\$354 million per annum, is laudable. Addressing the challenge of postharvest losses would create a significant impact on the country's economy and the livelihoods of youth investing their time and money in the sector.

# IITA Cameroon lends a helping hand to farmers' coop at the heart of the COVID-19 pandemic

Cameroon, like other countries in the world, is at the moment grappling with the effect of the coronavirus, having recorded over 6,000 cases so far. Despite the ravaging effects of the COVID-19 pandemic, IITA-Cameroon has collaborated with the Technical Center for Agricultural and Rural Cooperation (CTA) to give a helping hand to members of some farmers' associations situated in Mbalmayo and Lendon II within the Centre Region of Cameroon.

The exercise began in Mbalmayo where the starch sedimentation structure was officially handed over to Mrs Nnomendoue Alvine, President of the SCOOPMAN cooperative, which is involved with producing cassava roots and transforming it into cassava starch. During the handover, Mr Chibikom Richard, the project coordinator for MANIOC 21 in IITA-Cameroon, explained how starch is produced from the slurry (suspension of water and starch) where water separates from the starch in a settling channel or tank.

The second part of the exercise was the inauguration of a water supply system for the cooperative UGILE, headed by Mr Mbassi Fabienne, at Lendon II, a village in the Centre Region. The water supply system is an infrastructure belt used for the collection, treatment, storage, and distribution of water to facilitate processing.

The objectives of these cooperatives align with the vision of the IITA project dubbed MANIOC 21, which aims to improve the livelihood of farmers by enhancing food production and promoting job creation for women and youth through the development of innovative and sustainable cassava business models. Both cooperatives, which have been existing for more than 20 years, have a membership of 561 farmers.

The IITA-Cameroon Station Administrator, Simila Boubakari, speaking on both occasions, appreciated the work of the cooperatives. He underscored the importance of MANIOC 21 and the role played by IITA as the technical partner. Also, he challenged members to take care of the facilities handed over to them, emphasizing that the work done in the

cooperatives should continue to serve as an example in Cameroon and Central Africa as a whole.

Boubakari encouraged members to follow government instructions and take the necessary measures against the present pandemic so that, in the long run, the cooperatives can achieve their objectives.



Top: With members of the SCOOPMAN Cooperative at Mbalmayo.

Bottom: Members of the UGILE cooperative with water pump for the water supply system

## Take responsibility! Stop the spread of COVID-19!

Wash your hands regularly with soap and water; practice physical and social distancing; wear face masks; avoid crowds and public places; keep a 2-meter distance from the next person; practice general sanitation and hygiene.