

## Researchers employ SAH technology to speed up multiplication of cassava planting materials



L-R: Tom Kehoe, Peter Kulakow, and Audu Grema looking at SAH plants

Scientists working on cassava breeding are now using the Semi-Autotrophic Hydroponics (SAH) technology to rev up the propagation of clean cassava planting materials.

The SAH involves the use of modified soil which holds plant roots in planting pots with little water. Usually the trays are filled with a little amount of water, and the soil transports the moisture up to the plant roots, yet the top of the soil remains relatively dry. The roots are encouraged to grow down, and the

dry soil on top discourages damp-off and other diseases caused by excess moisture.

Dr Peter Kulakow, a cassava breeder with the International Institute of Tropical Agriculture (IITA), said the beauty of technology was its rapid multiplication ratio.

Usually when breeders develop new cassava varieties, the challenge is how to multiply and disseminate to farmers. Hence cassava is a clonal crop and multiplication is done using stems, this process takes several years.

Dr Kulakow said this explains in part why it takes long for new improved varieties to be disseminated at scale to farmers.

“With this technology, these constraints will be addressed and it will be easier for farmers to have easy access to new varieties once we develop them,” he explained.

But besides addressing the constraints of slow and low multiplication ratio in cassava seed system, the SAH technology also produces clean planting materials that are disease-free. The cost of production of the plants is cheaper using SAH when compared to tissue culture, Dr Kulakow said.

The SAH technology in cassava is a brainchild of the project: Building an Economically Sustainable Integrated Seed System for Cassava (BASICS).

Hemant Nitturkar, Project Director of BASICS explained that once the technology, which is adopted from Argentina, is adapted and perfected in Nigeria by the Project, it is expected to have a significant impact on the ability of early generation seed businesses to quickly bring suitable varieties within reach of farmers.

The BASICS project is also working with National Agricultural Seed Council (NASC) and Fera of United Kingdom to improve the quality certification system in Nigeria.

## Gates team discusses food security with IITA

Two top officials of the Bill & Melinda Gates Foundation were in IITA to discuss ways to address food security in Africa with impact at scale. The two-person team comprising Tom Kehoe and Audu Grema met with Director General Nteranya Sanginga and IITA management team on the planned program—Technologies for African Agricultural Transformation (TAAT). Thereafter they met with the different IITA programs funded by the Foundation to better understand the impact, which Gates’ agricultural programs are making at farm level. The Gates team also toured IITA’s

1000-ha campus, making stops at the SAH, Business Incubation Platform (NoduMax and Aflasafe), and the yam aeroponics units.



Tom Kehoe and team looking at the SAH process

### Announcement!!!

The Global Cassava Partnerships for the 21st Century (GCP21) will hold its fourth International Cassava Conference

**Date:** June 11-15, 2018

**Venue:** Cotonou, Benin

Pre-registration opens on 1st September, 2017

Please check out <http://www.gcp21.org/beninconference/index.html> for all other information

# ACAI registers remarkable success in field trials set-up in Tanzania



Participants observing cassava-sweetpotato trial

For the first half of 2017, the African Cassava Agronomy Initiative, ACAI, recorded remarkable field trials set up in the Southern Zone and Zanzibar project sites in Tanzania. Between January and May 2017, the International Institute for Tropical Agriculture, IITA, staff coordinating the ACAI project in Tanzania alongside strategic and national partners successfully set up 100 nutrients omission trials, 100 validation trials, and 4 staggered trials in the Tanzania southern zone project site.

In the Zanzibar zone, 102 cassava and sweet potato intercrop trials were established within the same period in collaboration with the Zanzibar Agricultural Research Institute, ZARI. This was part of the work to set up second season trials alongside the ongoing

maintenance and monitoring of season one trials in the two zones in Zanzibar.

In the Southern zone, the trials were set up in accordance with the modeling of plant growth characteristics in respect to Fertilizer Recommendation use case and the Scheduled Planting use case for advising farmers to be able supply all year. Cassava crops in the trial fields within these zones have undergone weeding, fertilizer application, termite control and plant genotype assessment against cassava brown streak disease, CBD, and cassava mosaic disease, CMD.

ACAI project trials were planted using improved and clean planting materials tolerant of both CBD and CMD. The disease

tolerant varieties planted are the Mkombozi variety planted in the lake zone, Kiroba in the southern and eastern zone, and the Kizimbani variety in Zanzibar.

In Zanzibar, a total of 71 farmers and groups were selected by FCI in Unguja and 31 more in Pemba for the trials. Commercial Village Trained Farmers (CVTF), are working in close collaboration with ZARI, and IITA to run the trials. Field staff and extension agents from both zones successfully finalized soil sampling and packing to send for analysis. The soil samples will be analyzed for wet chemistry at the analytical soil laboratory in Dar-es-Salaam. Dry chemistry alongside other non-destructive above the ground measurements will be carried out by the African Soil Information System, AfSIS, an ACAI partner in Arusha.

According to the official report from the project teams in the two zones, the trials registered an impressive sprouting percentage, and the trial maintenance activities were on schedule. The highlight of the field trial activities in Tanzania has been the active participation of partners on the ground including ARI, FCI and government extension agents. In April, ACAI's Agronomists, Dr Uzokwe and Jeremiah Kabissa, led trainings on harvesting procedures and on site starch determination procedures in readiness for the harvest of the first season trials.

The project team has scheduled more trainings for CVTF and government extension agents in monitoring and maintenance of the trials as well data collection in all project sites in Tanzania.

## ACAI reviews second season results, plans future activities

The African Cassava Agronomy Initiative team met on the 21st and 22nd of June in Zanzibar to review the second season results and plan for the project's third season activities that will be undertaken during the 2017-2018 season in Tanzania. The ACAI in-house planning meeting organized by Dr Veronica Uzokwe of ACAI Tanzania included a series of presentations by the ACAI project leadership and ACAI implementing partners. The presentations highlighted the progress that the project has made as well as the challenges it had faced.

Mrs Bernadetha Kimata, Agronomist / Plant Breeder at ARI-Naliendele, who is leading the implementation of ACAI activities in the Southern Zone, highlighted good collaboration with MEDA and CAVA-II that has led to successful site selection and establishment of over 200 trials across use cases carried out in the zone.

ACAI is carrying out field trials for the project use cases in four zones in Tanzania: Lake Zone, Southern Zone, Eastern Zone

and Zanzibar. Laurent Aswile, ACAI Site Representative from the Eastern Zone, reported that farmers in the region had started adopting ridging in their cassava farm, learning from their peers who are participating in the ACAI trials.

ACAI Project Coordinator, Dr. Abdulai Jalloh gave an in-depth illustration of the project's critical path, pointing out milestones that the project had collectively achieved based on the project work streams. Dr Abdulai pointed out that the project was on course with data parameterization and modelling framework for Decision Support System for Agrotechnology Transfer (DSSAT), and Quantitative Evaluation of the Fertility of Tropical Soils (QUEFTS) models.

Key issues discussed and agreed upon included modalities that would guide data collection in field trials, guidelines for the baseline survey, communication, and weed management. The project will launch a Shiny App in September 2017 that will be used to

track progress against milestones.

Extended sessions also had participants discuss and formulate action points to enable capitalization on the information gathered by extension workers, and the development of the framework and interface of the decision support tools. ACAI has facilitated installation of over 60 rain gauges across the project zones for collecting rain data that will provide vital data for the development of the decision support tools.

The meeting brought together ACAI's primary research and strategic partners, national research organizations as well as implementing partners at national level with representation from ZARI, ARI, FCI, FJS, CAVA-II, MEDA, Minjingu fertilizers, CABI, AfSIS, DAICO and eSOKO.

Participants at the meeting were taken for a site visit to the on-station trial farm at the ZARI research station and to two farmers' fields within Unguja, Zanzibar.

# IITA-CWMP signs agreements with 136 farmers for on-farm demonstrations

The IITA Cassava Weed Management Project is signing agreements for the setting up of 136 demonstration plots with farmers across four states in Nigeria.

Under the agreements, participating farmers will make available plots of land for the demonstrations. They will also ensure that adequate security is provided on the land during the research duration to prevent theft and cattle invasion.

Hence the demonstrations are farmer-led, farmers will keep records of the farm activities and share these records with the nominated authorized representative of IITA.

They will ensure to apply all the inputs (fertilizer, herbicides, and planting materials) provided by IITA and in the prescribed manner.

Another condition is that farmers will be responsible for all the cost of the farm operations (slashing, burning, ploughing, fertilizer application, herbicides application and harvesting of the plot). They will notify IITA when the harvesting period is due and both parties will carry out harvesting of the crops.

The IITA-CWMP on its part will provide fertilizers, herbicides, and planting materials to be used on the on-farm plot at no cost. The project staff will carry out harvesting on the land in conjunction with farmers, and will be responsible for collating all necessary data on the on-farm demos.



Farmers holding their agreements with IITA-CWMP staff

All proceeds, except 30 per cent of cassava stems, from the demonstration plot will go to the farmers provided the farmers keep to the terms of the agreement.

Participating farmers pledged to keep to terms and conditions of the agreements which they said would foster cooperation between them and researchers.

For farmer Afusatu Akinware, the on-farm demonstrations would help the community to learn better and improved weed management practices for cassava production.

“I am glad this project selected our community to gain from the knowledge on weed control,” she added.

Last year, the project established 58 on-farm trials across the cassava producing zones of Nigeria.

Dr Alfred Dixon, Project Leader for the IITA-CWMP said the acceptance of the project by farmers was a welcome development.

“We see high enthusiasm from the farmers, meaning that we are addressing development needs,” he said.

## Prices of cassava stems retreat to N400 (\$1.3) per bundle

Prices of cassava stems have nosedived to N400 (\$1.3 dollar) per bundle after touching a high of N1200 (\$3.8) as demand eases in Nigeria.

Last year and earlier in 2017, prices of cassava roots and its derivatives such as gari climbed to an all-time high as demand outstripped supply. Researchers are still expecting data on demand and supply from the National Bureau of Statistics, but cassava

roots moved from N13,000 (\$41) per ton to about N40,000 (\$130) according to local buyers.

Cassava is an important crop in Nigeria and the roots are processed to starch, ethanol, flour and gari—a staple. Other uses include akpu, and lafun. In some communities, the root is boiled and eaten directly.

In 2014, about 7 million hectares was planted with cassava, according to the Food

and Agriculture Organisation (FAO).

Most of the varieties planted to cover this hectareage were from the informal sector, says Dr Peter Kulakow, Cassava Breeder with IITA who is also working on the cassava seed systems project.

The Nigerian cassava seed system is not well structured, an arrangement that the project—Building an Economically Sustainable Integrated Seed System for Cassava (BASICS) is trying to correct.

Farmers usually obtain planting materials from previous field, cut them in lengths of about a meter and tie them into bundles comprising 50 stems each and sell.

Certification from regulators is still rare but the Nigerian Agricultural Seed Council (NASC) is working with BASICS to set standards and begin the certification of cassava planting materials.

Farmer Monsurat Kassim, is one of those selling cassava stems in South West Nigeria through the informal channel.

In an interview with Cassava Matters, she said there has been more demand for cassava stems than the previous years.

“More people are buying the stems this year than they did last year... I think the rise in price of cassava products is part of the motivation,” she explained.



Farmer Monsurat (right) discussing the cassava stem business

# Cassava Matters in photos



Participants at ACAI Review and Planning meeting in Zanzibar



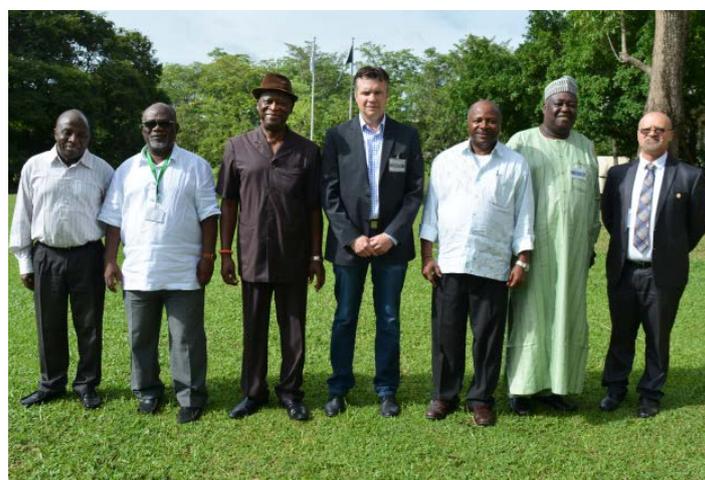
L-R: Godwin Atser, Communication & Knowledge Exchange Expert with IITA discussing cassava weed control during a national broadcast



Hurray!!! Farmers rejoicing over good yield from weed controlled demonstration plots



Nigeria's Minister of Agriculture and Rural Development, Chief Audu Ogbeh recently visited SAH plants in the field in IITA Ibadan



Talking food security! L-R: Chrys Akem (IITA), Kwame Akuffo-Akoto (IITA), Alfred Dixon (IITA), Tom Kehoe (Gates Foundation), Nteranya Sanginga (IITA), Audu Grema (Gates Foundation), and Kenton Dashiell (IITA) during a meeting in Ibadan on ways and means of addressing food security at scale.

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