

## Modern cassava production turning around farmers' fortunes



A farmer sharing her experience with journalists on cassava cultivation since coming in contact with the ACAI project

Mr. Petro Kagusi, a cassava farmer from Kidete village, Mzenga ward, Kisarawe region, Eastern Tanzania is extremely happy with the new improved farming practices he has learned through the African Cassava Agronomy Initiative (ACAI) project. These include proper spacing, use of improved varieties and fertilizers.

"I used to grow my cassava following the traditional way - planting randomly, not maximizing space or using any fertilizers.

The results were very poor yield, not good at all," he said while speaking to a group of journalists visiting the project's trial on farmers' fields in Kisarawe district, Eastern Tanzania.

"After joining the project and learning of better ways to grow cassava including planting in rows, closer spacing and applying NPK fertilizer, I have been getting very good harvests. As farmers, we should

adopt these technologies, so we can increase the crop's production and attract investors to process cassava," he said as he showed the media the bricks he had bought to build a new better home for his family.

Another farmer, Maria Mtanga explained that the agronomic practices they had learned under the ACAI project made operations such as weed management and harvesting easier.

Maria has been interacting with other farmers sharing the good agronomic practices learnt from the project. She said many of the farmers were willing to adopt the technology, particularly the use of fertilizer.

"Now we need to make sure the technology (fertilizer) is accessible and available to meet the demand," she said.

### Growing new varieties not good enough

The Director General of Tanzania Agriculture Research Institute (TARI) - one of the project's important collaborators in the country, Dr Geoffrey Makamilo was also part of the trip.

While briefing the media, Dr Mkamilo explained that cassava is an important crop,

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## IITA-CWMP develops mobile app to help smallholder farmers apply herbicides correctly

The IITA- Cassava Weed Management Project (IITA-CWMP) has developed a mobile application that could help farmers apply the correct dose of herbicides on cassava and other field crops.

In most rural communities in Africa, the use of knapsack sprayers is common, and the challenge has been the difficulty of farmers knowing exactly what quantity of herbicides to add to their knapsack to avoid over- or under-dosing.

Dr Alfred Dixon, Project Leader of the IITA-CWMP said the development of the first version of the app was a welcome development to help farmers to efficiently apply herbicides and control weeds.

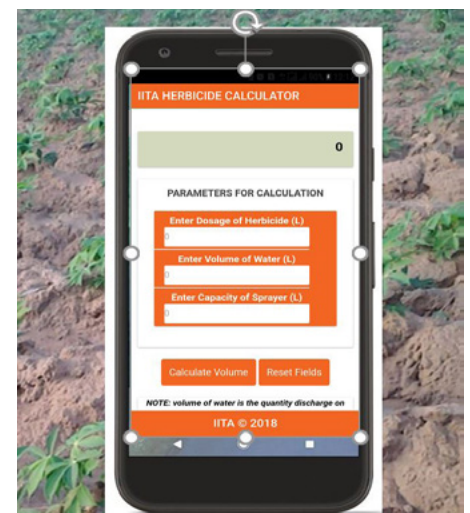
"Besides, the beauty of this app is that it

helps farmers to calibrate themselves and can also be used in other crops," he added.

Godwin Atser, Communication & Knowledge Exchange Expert at IITA, who led the development of the mobile app, said the app was a tool to help millions of farmers in Africa on how they make decisions about herbicides application.

"In several communities I have trained farmers, the challenge has been how to get farmers to calibrate themselves properly, and more importantly what quantity to mix in the spray tanks. This app provides the solution," he added.

Further validation and a launch of the app is being planned soon.



The herbicide mobile app



# Obasanjo to join forces with IITA and Bayer on dissemination of innovations on weed control and others



Former President Obasanjo (middle) with Bayer and IITA team in Nigeria

Nigeria's former President, Chief Olusegun Obasanjo has agreed to support the dissemination of improved technologies on weed control and other agricultural innovations to farmers, as part of efforts to bring about agricultural transformation in Africa.

The former president made his position known when he received reports from the International Institute of Tropical Agriculture (IITA) - managed Cassava Weed Management Project on the efficacy of Lagon—one of Bayer products for control of weeds in cassava and maize—from a delegation comprising Bayer and IITA officials in Ogun State.

The visiting team also presented to the former president the Six Steps to Cassava Weed Management toolkit—a step-by-step extension guide for controlling weeds in cassava farming systems that has proven to double yields of cassava from the current national average of 10 tons per hectare to more than 25 tons per hectare.

Receiving the presentation, Chief Obasanjo

commended the team for a job well done and promised to support efforts of getting the word out.

"We want to be a hub for spreading the good news," he added.

Earlier, the Country Cluster Commercial Lead for Bayer West/Central Africa, Laurent Perez said Bayer was willing to work with the former President to improve the livelihood of farmers.

"As a major stakeholder and strong voice in Nigeria and Africa, Bayer is willing to partner with Obasanjo Farms in order to achieve our set objectives for Nigeria," he added.

Perez noted the strategic role of Nigeria in the agricultural environment, stressing that the country has huge potential and a very active agricultural environment.

According to him, it was in light of the potential of Nigeria in the agricultural space that Bayer AG Germany decided to make long-term investment in the country.

He called on Nigeria's government to come up with policies that would be investor-friendly so that the huge potential in Nigeria

could be fully tapped and utilized.

Dr Alfred Dixon, Project Leader of the IITA Cassava Weed Management Project said that the improved weed control options being developed by IITA and Bayer were helping farmers to more than double their cassava yield from 10 tons per ha to more than 25 tons per ha.

Dr Dixon who was represented by Godwin Atser, Communication & Knowledge Exchange Expert at IITA said farmers using herbicides with the Six Steps to Cassava Weed Management toolkit had profits increased by 83 percent.

He reiterated the willingness of IITA to work with the former President to lift farmers out of poverty, noting that weeds were depleting farmers' incomes and limiting farm sizes.

The delegation also discussed other areas of crop protection, training, and seeds and drew an action plan.

Other members of the team were the Managing Director, Bayer Middle Africa, Mohammed Jimoh; Country Sales Manager, Temitope Banjo; Development & Regulatory Affairs Manager, Ahmed Mansur Bello; and Area Sales Manager, South West, Adeyemi Adeyemo.



Let's promote this toolkit: Former President Obasanjo impressed with the Six Steps to Cassava Weed Management toolkit

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however, the cultivation of the crop in the district, like elsewhere in Tanzania, is greatly threatened by pests and diseases and use of poor farming methods.

"Several new improved high-yielding disease-resistant cassava varieties have been released by researchers including Korana 1, Kiroba, Cheleko, Kipusa, Kizimbani and Mkumba. However, farmers should understand that growing improved seed varieties should go hand-in-hand with the use of good agronomic practices including the use of appropriate fertilizer regimes to tap into the yield potential," he said.

### Decision Support Tools

David Ngome, ACAI project Communications Officer, added that ACAI had developed a set of decision support tools to guide

agricultural extension officers on the use of good agronomic practices to boost cassava production.

These included site-specific fertilizer recommendation tool and fertilizer blending recommendation tool to maximize returns, scheduled planting recommendation tool to ensure a sustainable year-round supply of cassava to the processing industry, and the high starch recommendation tool to ensure optimum starch content in the cassava roots for processing, appropriate use of fertilizers, spacing and hedging.

"Our fertilizer decision support tool can give very site-specific advice using satellite to locate the farmers' location and the farmer inputting details such as planting time and variety. It is able to recommend the

amount and type of fertilizer to use and the anticipated increase in yield and income," he said.

"The project had distributed over 400 tablets – mobile communication devices – to the extension officers so they can be able to access and use these decision support tools," he added.

The tour engaged journalists from both the print and broadcast including the national Tanzania Broadcasting Corporation (TBC) and international German broadcaster, Deutchewelle.

ACAI has been working closely with farmers and partners to develop and deploy agronomy recommendation tools to intensify cassava farming and increase root and starch yields in Nigeria and Tanzania.



# TAAT: Ogun and Oyo states sign up for Cassava Compact



Dr Dixon (third from right) speaks at the inauguration of TAAT in Oyo State, Nigeria

Ogun and Oyo state governments have thrown their weight behind the Cassava Compact—one of the components of the Technologies for African Agricultural Transformation (TAAT) program that is scaling out proven technologies in cassava value chain.

At separate events organized by the two states to inaugurate the program, policy makers across the two states commended the African Development Bank (AfDB), and the International Institute of Tropical Agriculture (IITA), for initiating the program,

stressing that it would facilitate the transformation of cassava on the Continent.

The Special Adviser to the Governor of Oyo state, Prof Oluwasegun Adekunle pledged the commitment of the State to participate in the Cassava Compact program of TAAT.

He expressed gratitude to IITA for selecting the State to participate in the program, adding that Oyo state has both human and natural resources to invest in agriculture.

The Oyo State Permanent Secretary, Ministry of Agriculture, Mr Victor Atilola

commended the training component of the program and the establishment of demos in communities across the State.

In Ogun state, the Commissioner of Agriculture, Ms Adepeju Adebajo expressed the commitment of the state government to work with IITA to make a success out of the TAAT program.

The Commissioner who was represented by the Special Adviser to the Governor on Agriculture, Mr Akinola Lawson said the program would provide a boost to the State's vision of becoming a top producer of cassava in Nigeria.

He noted that the program came at an opportune time when the State's efforts were towards diversification of its sources of revenue.

Situated in south west Nigeria, both Ogun and Oyo state are noted for cassava production, driven by a favorable rainfall pattern, and a slow but emerging industry of simple cassava processing enterprises.

TAAT inception workshops, which were conducted on 9 October for Oyo state; and 12 October for Ogun state aim to establish demos and training to help farmers raise their productivity per hectare.

Dr Alfred Dixon, Director for Development and Delivery at IITA pledged IITA's commitment to work with states in Nigeria to transform cassava.

## IITA-CWMP conducts mid-season field days

The IITA- Cassava Weed Management Project (IITA-CWMP) has conducted 44 farmer field days across several local communities in Abia, Benue, Ogun, and Oyo states to showcase to farmers, result-driven weed control practices during the Project's mid-season evaluation. The mid-season field days were aimed at catalyzing the adoption of integrated weed control practices as prescribed in the Six Steps to Cassava Weed Management toolkit. The farmer field days were organized following the establishment of demos across the four states in 2018.

The demos were set up using the Six Steps to Cassava Weed Management toolkit developed by the IITA-CWMP to assist farmers in weed control.

Farmers that attended the farmers field days attested to the huge difference in plant health and vigor compared to the farmer's practice as they were taken through the plots to see the progress and evaluate the cassava plants.

Participating farmers in the field days revealed that they would want to adopt the step-by-step approach outlined in the toolkit that was shared with them so as to get the results seen on the demo plots in each of their communities.



Farmers evaluating IITA-CWMP fields to determine the efficacy of the Six Steps to Cassava Weed Management toolkit

With weeds being a major challenge for cassava farmers, the farmer field days organized by the IITA-CWMP demonstrated the results of 5 years of researching the benefit of good weed control using improved cassava varieties, with agronomic practices such as tillage, fertilizer, and appropriate spacing.

The control of weeds which is a significant cost factor in cassava cultivation takes up to 80 percent of the cost in cassava production. Besides, weeds are a big pain to the back of African farmers who spend up to 500 hours per annum stooping to clear weeds from

cassava farms during the growing season of the root crop.

The cultivation of cassava as a staple crop across the African continent has experienced low yield due to weeds invasion and this has affected the incomes of farmers, their health and livelihood as well.

In the last 5 years, the IITA-CWMP has developed best-bet research solutions that is being disseminated to farmers thereby helping them access easier and better options for controlling weeds on their cassava farms.



# The odyssey of certifying cassava breeders' seed, by Julian

Under BASICS, the National Agricultural Seeds Council (NASC) has successfully undertaken the first breeders' seed assessment of causal viruses of Cassava Mosaic Disease (CMD) incidence, collecting leaf samples from the field and undertaking the laboratory analysis at the NASC Molecular Seed Testing Laboratory; thus paving the way for the adoption of the first Breeders Seed Standard for Cassava in Nigeria. The Molecular Seed Testing Laboratory had been officially opened back in October by the Honourable Minister of Agriculture and Rural Development, Chief Audu Ogbeh.

Fera's Jenny Cole and Julian Smith were privileged to spend a day with the Oyo State regional NASC inspectors, Michael Adeseko and colleagues; and IITA staff, Najimi Adetoro, Oguntade Oluwole and colleagues, in inspecting IITA's cassava breeders' seed production site in Ago Owu. The task was to work through the practice of a proposed new Cassava Breeders' Seed Inspection Standard that included the collection of 300 leaves and the testing of these leaves for Cassava Mosaic Disease (CMD) viruses at the NASC Molecular Seed Testing Laboratory at Sheda.

Our workshop, or desk-perceived, plan was for the NASC inspectors to randomly select 12 quadrants of 25 cassava plants (5 x 5) within a single field and to take a leaf from each plant (total 300 leaves per field). Then to fully randomise these 300 leaves, before taking 12 sub-sample of 25 leaves and using a small (5ml) plastic tube to core leaf discs from each of the 12 sub-samples. These numbers had previously been considered by Fera's Roy Macarthur as providing a good level of statistical rigour and quantification for CMD virus prevalence at 1%, 5% and 10%. Once collected, the samples were to be transported to the NASC Molecular Seed Testing Laboratory at Sheda for CMD virus testing.

In what was said to be the hottest days of the year, we quickly realised that 'walking a



*Julian and team on the field*  
cassava field' as you might a rice, wheat or potato field, is not an easy reality. By the 5th to 6th months, the cassava canopy is closed and above your head. By the 10th month, the stand is lodging, making an impenetrable forest. In taking on the wealth of knowledge with NASC and IITA, we agreed that a reasonable expectation was to undertake the inspection from fields aged less than eight months and before lodging. At this age, it was a difficult but doable proposition to push your way through the cassava stand to define a quadrant of 25 plants and take a leaf sample, whilst also recording normal inspection parameters of pests and diseases and off-types as per the standard protocol established by IITA. In working as two teams, we duly set out to collect 300 leaves off 300 plants, taking from 12 randomly selected quadrants per

field; and then to collect the cored leaf disc into the 5ml tubes for transporting to NASC. As we moved between three fields, we gathered confidence that inspection and leaf-sampling can go hand-in-hand; but learnt more preparation was needed with regards to the leaf scoring, such as providing a stool and low table. Overall, the consensus was that leaf sampling could be a practice fitted easily within a Breeders Certification Standard.

From the field activity, Jenny and I left Ibadan to meet with fellow Fera colleagues, Lynn Laurenson and Hollie Pufal, at NASC, Sheda, where the Fera team worked diligently with NASC staff Rebecca Tolulope, Femi Olisa, and Hassan Ismaila to undertake the first true-test of the NASC Molecular Seed Testing Laboratory. Over the course of the next 4-5 days, the NASC staff, through a mix of being mentored and then leading, successfully tested the 300 leaves of the three fields. NASC was pleased to record zero levels of Cassava Mosaic Disease viruses in the three breeders fields. A duplicate set of the same samples analysed in IITA yielded similar results reconfirming the findings.

The success of these events was marked by the NASC Director General, Dr Ojo Olusegun, who organised a well-received evening meal for the Fera staff. The Fera team, dressed in national attire, celebrated a major goal of BASICS that was duly accomplished.



*Nigeria's Minister of Agric, Chief Ogbeh (middle) flanked by BASICS and NASC team in Abuja*

## Prof Ekeleme gets award as a Fellow of WSSN

Prof Friday Ekeleme has been awarded Fellow of the Weed Science Society of Nigeria. The award is in recognition of his contribution to weed science. Prof Ekeleme received the award at the 46th Annual conference of the WSSN in Port Harcourt, Rivers State, Nigeria. A Principal Investigator for the Sustainable Weed Management Technologies for Cassava Systems in Nigeria (IITA-CWMP) at the International Institute of Tropical Agriculture, Prof Ekeleme joined IITA in 1989 and worked as a Research Associate in Weed Science from 1989 - 2000. In 2001, he joined Michael Okpara University of Agriculture, Umudike, Abia State, where he taught weed science from 2001 to 2013.

While in Michael Okpara University of Agriculture, he served as Head, Department of Plant Health Management; Dean, College of Crop and Soils Sciences; Director, University Advancement and Internal Member of the University Council. Prof Ekeleme conducts research on herbicide efficacy, weed biology and ecology, integrated weed management, and weed management in smallholder systems using motorized mechanical weeders. He has over 80 peer reviewed publications in reputable Thompson rated international journals. He is the immediate past president of the Weed Science Society of Nigeria. He is also a member of the Weed Science Society of

America, and the European Weed Science Society.



*Prof Ekeleme (right) receiving the award at the WSSN annual conference in Port Harcourt, Rivers State*