

## IITA commences confined field trials of transgenic cassava

IITA was recently granted a permit to carry out confined field trials (CFT) on genetically modified cassava (AMY3 RNAi transgenic lines). This research, carried out in collaboration with [ETHZ Plant Biotechnology Lab](#) in Zurich, Switzerland, aims to reduce starch breakdown in storage roots of cassava after pruning the shoots prior to harvest. The objective is to obtain storage roots with lower postharvest physiological degradation without any loss of the nutritious starch.

Cassava (*Manihot esculenta* Crantz) is an important starchy food crop in sub-Saharan Africa as well as other tropical and subtropical regions. However, cassava farmers face the challenge of high level of postharvest loss caused by the rapid deterioration of the starch-rich roots which occurs naturally after harvesting. Although postharvest deterioration can be reduced by pruning the shoots of cassava plants without unearthing the roots, this poses



*Cassava plant (Manihot esculenta).*

a problem as the desirable starch stored in the root can be degraded by the plant after pruning, which in turn lowers the harvest yield and root quality.

To address this, a research project was conceived at ETH Zurich where

cassava plants using cultivar 60444 were generated using RNAi as the tool to reduce starch breakdown in the root after pruning of the shoots. Extensive testing was carried out in greenhouses in Switzerland, where the plants were grown for three consecutive years.

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## Researchers and policymakers meet in Tanzania to discuss cassava agronomy

Scientists across Africa and colleagues in other parts of the world met with policymakers in Tanzania under the auspices of the [African Cassava Agronomy Initiative \(ACAI\)](#) to discuss the progress made in the last two years in providing clues to the agronomy of cassava.

The meeting, held 11–15 December, reviewed the progress made by the ACAI project managed by IITA—and planned for the year ahead.

Addressing participants at the meeting, the Permanent Secretary, Tanzanian Ministry of Agriculture, Livestock and Fisheries, expressed optimism that ACAI would provide solutions to some of the problems faced by cassava farmers in Tanzania and sub-Saharan Africa.

The Permanent Secretary was represented by Dr Geophrey Kajiru, Assistant Director, Research and Development.

The Tanzanian meeting, which took place in Mwanza, included a planning workshop for the ACAI 2018 project activities in line with the implementation strategy for year 3. The meeting was thus organized to plan and set goals for 2018 activities, share roles, and understand the expectations of each player represented in the project.

The event also highlighted the transitioning of the project into validation and the onset of the dissemination

stage of the decision support tools (DSTs).

[Bernard Vanlauwe](#), Director for Central Africa Hub, IITA, said that ACAI would tap into new opportunities and partnerships to ensure sustainability of the project and use of the tools developed.

Through extensive research working with development partners, ACAI has developed the initial version of the decision support tools that will be showcased at the meeting. This will provide an opportunity for the partners to examine the tools and offer feedback on how the prototype DSTs can be improved. ACAI DSTs are developed based on demand and needs identified by development partners actively engaged in the cassava value chain.

ACAI's Senior Systems Agronomist, [Pieter Pypers](#), said the interaction among project partners would generate concrete ideas that would be incorporated into the development of the DSTs to make them more useful and user friendly.

"The tools we have developed must meet the needs of development partners, that is why we are planning for the partners to have a practical feel of the tools in Mwanza and share with us their expectations," Pypers added.



*Central Africa Hub Director Bernard Vanlauwe addressing meeting participants.*

Project team members made presentations on the progress of the work. ACAI is structured in workstreams that inform the project's critical path through research, development, to the use and dissemination of the final project tools. [Dr. Geoffrey Mkamilo](#), the National Coordinator for Root and Tuber Crops, Agricultural Research Institute (ARI) in Tanzania, said the project had made significant gains in 2017 in research especially in meeting the high demand data in ACAI.

"The trials have performed very well, especially when you look at cassava

response to fertilizer in the field. We are looking to hear about updates from other project sites," [Adeyemi Olojede](#), ACAI coordinator at the [National Root Crops Research Institute \(NRCRI\)](#), [Umudike](#), said.

The project has achieved significant milestones in 2017, a trend that the core team and partners will be seeking to further in the new season.

The meeting in Tanzania had more than 60 participants representing at least 21 organizations partnering with ACAI in Nigeria and Tanzania.

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"Our greenhouse experiments were an important first step, but they cannot substitute for genuine field conditions," said [Prof Samuel C. Zeema](#) of ETH Zurich. "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."

The CFT permit was issued by the [National Biosafety Management Agency](#) in accordance with the National Biosafety Agency Act 2015 and is for the period 22 September 2017 to 31

December 2018. IITA adheres strictly to national and international biosafety standards and will ensure that these are enforced during the trials, which will be carried out within the IITA campus in Ibadan.

The research is a fact-gathering process to gain fundamental knowledge about starch metabolism in the storage root and about cassava as a crop. The cassava plants from the confined field trial are not destined for the market nor for commercial development and therefore will not be consumed. And according to national regulations, all

plants will be destroyed within the CFT site after analysis.

As part of the experiment, regrowth of stem cuttings from the plants will also be assessed, since regrowth may also depend on starch stored in the stem. This is important since cassava is normally propagated by stem cuttings and not by seed.

The primary beneficiaries of the knowledge gained from this research (and its eventual application for improvement) would be cassava farmers in Nigeria and other regions.

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## IITA and partners launch Nigeria Stock Brokers Agribusiness Group

On 7 December, [Corporate Farmers International](#) (CFI), IITA, and the [Nigerian Stock Exchange](#) (NSE) launched the Nigeria Stock Brokers Agribusiness Group (NSBAG).

The official launch was held at IITA premises in Lagos. CFI and NSE are partners that have helped IITA with promoting our strategic activities, including the IITA50 celebrations.

[Kwesi Atta-Krah](#), Director, Country Alignment and System Integration, IITA, said that “it is time to transform agriculture from a mere culture to a business since as a culture agriculture is no longer productive.”

“Agriculture has the potential for spurring economic growth, job creation, and revenue generation.

“There is need to create an avenue to engage the private sector into agriculture for it to succeed. It is, therefore, important for everybody to be responsible to ensure that this launch does not end here,” he said.

Atta-Krah also said it is important for everyone to work together for the goals of the initiative to succeed.

Mr Babatunde Sobamowo, Chairman of NSBAG, said that the essence of the group is to ensure a growth in agriculture contributions to Nigeria’s GDP.



*Kwesi Attah-Krah of IITA (left) speaking at the meeting/launch.*

Sobamowo confirms that it is time to raise incomes and reduce the poverty level via agriculture because farmers are losing money due to the fact that there is no platform to place agricultural products.

“It is time to leverage on the opportunities presented by governments at various levels through laudable initiatives. This initiative will create a lot of business opportunities to be able to access cheap and long-term funds at a very low interest rate,” he said.

Mr Solomon Olakanmi, Secretary of NSBAG, said that “now is the time to tap into the potential of the agriculture business through various value chains.”

Olakanmi said that agriculture will thrive with the availability of financial resources and the NSE would be playing an

intermediary role between investors and producers. “This will generate substantial income, jobs, and wealth for the various stakeholders involved.

“All the sections in agriculture like production, processing, and provision of necessary inputs, marketing, trading, and funding will be adequately addressed,” he said.

The National Coordinator of CFI, Prince Ade Ajayi, said that the future of agribusiness would change with the emergence of NSBAG.

Akin Alabi, CFI managing partner, said that this movement will create the public, private partnership (PPP) that will bring investors to the IITA Business Incubation Platform and further develop the Nigerian agribusiness sector.

## Onne Community Development Committee extends a hand of collaboration to IITA

The Chairman, Community Development Committee Onne, Mr Martin Olaka, has called on IITA-Onne to collaborate in tarring the access road linking the station to the town. He made this known during a courtesy visit to the station on 6 December. He said the intervention will open up development in the area and contribute to the smooth operation of IITA’s research activities.

Olaka stated that the road construction should start this December as he would involve other bodies that will facilitate the completion of the project.

[Richardson Okechukwu](#), Head, IITA-Onne Station, in welcoming the guests, said the road intervention is apt at this time when the rains have stopped. He expressed his appreciation to the



*Martin Olaka, Chairman, Onne Community Development Committee (3rd from left) with Richardson Okechukwu (3rd from right) and IITA Onne staff.*

Community Development Committee for extending the hand of cooperation. Months earlier, the newly appointed Onne Youth Executives were in

IITA on a familiarization visit. They expressed their thanks for the commitment in training unemployed youths in agriculture. They said

that this proves the readiness and unequivocal commitment of the institute in empowering youths in the South-South and South-East Zones of Nigeria.

## INERA and HarvestPlus anchor joint sensitization program on cassava brown streak disease and biofortified yellow cassava

The WAVE project of the Environmental Institute for Agricultural Research (INERA), Mvuazi station, and HarvestPlus organized a joint awareness day on cassava brown streak, a viral disease recently observed on cassava, and the production and use of biofortified yellow cassava rich in provitamin A.

The program was held on 2 December in Lukuakua village, located about 50 km from the INERA station, west of the city of Kimpese, Central Congo Province.

The sensitization day was organized at the request of the Lukuakua Cultivators Association (ACLU), which sent a distress signal to INERA to find a solution to observed damage on cassava roots in their area. The damage has been identified by INERA as cassava brown streak disease, a viral disease already observed in some parts of DR Congo. The spokesperson for the association noted that the disease had been observed in the area since 2012.

Tony Bakelana, researcher at INERA, explained that this disease is identified by the presence of brownish spots on the flesh of the cassava tuber, thus completely destroying the useful part of the plant and rendering the cassava unusable. He added that the disease is transmitted by cuttings, which are



*Delivery of cassava cuttings of biofortified yellow cassava varieties rich in provitamin A.*

the main planting material used, and therefore the essential element of the spread of the disease. Farmers in the village were thus sensitized on the need to quarantine cassava fields affected by the disease, indicating that cuttings from these fields can no longer be used.

Through the joint efforts of the project "Action to control cassava brown streak disease (CBSD) in the Democratic Republic of Congo", implemented by IITA and the WAVE project of INERA as well as HarvestPlus, INERA is conducting research to develop varieties that could withstand this viral disease, and be made available to farmers, said Bakelana.

The three development partners proposed that the Lukuakua community cultivate varieties of cassava that have previously tolerated this disease, as well as the rich, biofortified yellow cassava varieties, which tolerate the disease and contain provitamin A, an important nutrient.

HarvestPlus gave the community of Lukuakua cuttings of the biofortified organic variety "Kindisa" that the community is already cultivating. In addition, cuttings of eight other yellow varieties at prerelease stage were also given for multiplication and dissemination to other villages to ensure the food and nutritional security of the area.



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