



Where is the evidence? Tracking the impact of IITA R4D technologies on poverty reduction

The vision of the International Institute of Tropical Agriculture (IITA) is to contribute to lifting 11.6 million people in sub-Saharan Africa out of poverty by 2020 as stated in its [Refreshed strategy](#). One challenge that the Institute's social science team has been grappling with is how IITA will track, measure, and demonstrate the influence of IITA technologies and adoption rates on poverty reduction.

Dr Victor Manyong, IITA Director for East Africa and Leader of the IITA social science research group, at a TED-X talk in Ibadan, Nigeria, shed light on the way his team is going about this task. "By 2020, we may have reached and even exceeded the target of 11.6 million that we have set but we might not be able to claim this success because we have no empirical data to show," he said. "One of the biggest challenges here is to bring together studies on adoption rates and poverty reduction, by demonstrating that it was really our work that contributed to poverty reduction."



Dr Victor Manyong

Progress on measuring IITA's impact on poverty reduction

Dr Manyong said the team had conducted studies which clearly demonstrated the impact of IITA's past interventions on poverty reduction. Where data over time existed, studies before and after intervention were conducted to determine the differences in poverty levels associated with the adoption of IITA's technologies. Where data over time did not exist, IITA also compared poverty levels between those who were exposed to a technology and those who were not.

One such study using the before-and-after approach was conducted in the Great Lakes region of Eastern and Central Africa to evaluate the impact of the project [Consortium for Improving](#)

[Agriculture based Livelihoods in Central Africa \(CIALCA\)](#). By comparing poverty levels at the start of the project in 2006 and again in 2015, using the headcount index indicator, it became clear that the project had contributed to reducing the number of poor people in Rwanda and eastern DRC (people living on less than 1.25 USD/day/person) by over 8 percentage points in Rwanda and over 13 percentage points in eastern DRC. This was established by calculating the difference-in-difference in poverty levels between those that had adopted the various technologies being piloted by the project and those that had not.

The other study used the with-and-without approach and looked at the

impact on poverty of adopting improved varieties of cassava in selected cassava-growing districts of four countries – DRC, Sierra Leone, Tanzania, and Zambia – under the project [Support to Agricultural Research for Development of Strategic Crops in Africa \(SARD-SC\)](#). Using the propensity score matching (PSM) analysis and looking at the poverty levels between the adopters and non-adopters of the cassava varieties, the research team found that the adoption of improved varieties had contributed to getting about 220,000 farmers out of poverty.

"In the two studies, an estimated half a million farmers could be said to have moved out of poverty as a result of being associated with our technologies. The challenge now," Dr Manyong said,

“is to validate the above preliminary results through more rigorous analyses, to replicate these studies for all of IITA’s mandate crops and projects, and to ensure that those who have been lifted off poverty remain above the poverty line and further reduce the poverty gap and the severity of poverty among smallholders.”

Lessons from assessing adoption of R4D innovations

Dr Manyong also used examples of past adoption studies to highlight key lessons learnt by the Institute over time in the process of adoption of R4D innovations.

A study on the adoption and impact of improved maize varieties in Eastern Zambia under the project [Sustainable Intensification of Maize-Legume Systems for the Eastern Province of Zambia \(SIMLEZA\)](#), (Khonje et al. World Development. 2015) established that the adoption of improved maize varieties had increased crop income and household wealth and reduced the probability of poverty.

The importance of releasing research technologies in a good policy environment was highlighted by a study on the impact of a cassava program at the farm level in DRC ([Rusike et al. Food Policy. 2014](#)) which found that weak policies were a major impediment to the adoption of improved varieties. Markets also are a crucial factor, according to a study on the role of institutions in modernizing the yam sector in West Africa, (Mignouna et al. IAAE. 2015), and so are farmers’ groups (Ainembabazi et al. IAAE. 2015), which were found to speed up significantly the adoption of technologies by smallholder farmers.

He also shared insights on a new study



A farm worker at the rice fields in Ruhuha, Rwanda by Olive Thiong'o (CIAT/CIALCA).

that will look into the challenges of adoption studies of improved cassava varieties in Nigeria. It will be the first large-scale adoption study for cassava in Nigeria which will include interviews with 2500 households and use DNA-based varietal identification, GPS-assisted area measurement, and gender-differentiated end-user perspectives. The study in dissemination will be conducted in areas where 80% of the Nigerian cassava production is located. It will provide data on real adoption rates, factors driving adoption and dis-adoption, and gendered criteria for preferences in varietal attributes which will help IITA in its efforts to develop improved technologies and in particular new varieties. It will also contribute to the development

of replicable tools and methods that the Institute can use in other adoption studies.

While reiterating his support for the IITA vision, Dr Nteranya Sanginga, IITA DG, said the future direction of IITA’s research would move away from crop improvement alone. He enjoined scientists to redefine their research strategies and plan for the socioeconomic assessment of projects so the exact numbers reached on the fields can be easily noted.

“Sustainable development, poverty reduction, and business and employment creation are the future for the Institute and will ensure IITA stays relevant and continues to receive funding,” Dr Sanginga said.

AWARD leadership and management course successfully held in Ibadan



Last week, IITA hosted 27 outstanding women from various research organizations to participate in the leadership and management training course conducted by the *African Women in Agricultural Research and Development (AWARD)*.

The course included training modules that dealt with power and assertiveness, influencing skills and practice, sustaining team performance, as well as emotional intelligence and personal management and leadership styles.

IITA scientist's research on Aflatoxins featured in Women and Power program on a leading Kenyan TV station

[Charity Mutegi](#) was featured by one of the leading private broadcasters NTV in Kenya in a two-part documentary on women and power.

Charity Mutegi coordinates IITA's [Aflasafe™](#) research in East Africa to find a cost-effective and long lasting solution to aflatoxins, the poisonous chemical compound secreted by naturally occurring fungi which contaminate food and feeds making them unsafe.

Aflatoxins pose serious threats to the health of both humans and livestock when consumed in levels above recommended limits.

The five-minute Part I feature *A day in the lab with Charity Mutegi* was broadcast on 13 June 2015 during the prime news hour of NTV. A journalist spent a day with Dr Mutegi to get a better insight into the ongoing efforts to make foods safe from mycotoxins. This was at the regional mycotoxin research laboratory at KALRO research station in Katumani, Eastern Kenya that was launched last year. The laboratory is a joint initiative of IITA and the Kenya Agricultural and Livestock Research Organization (KARLO).



Dr Charity Mutegi.

The scientist walked the journalist through the activities at the laboratory to use biocontrol as a natural, safe, and cost-effective solution to control aflatoxins. Aflasafe™ makes use of fungi that do not produce aflatoxin to outcompete and displace those that do produce the chemical.

The journalist said Dr Mutegi was singled out for her efforts to find sustainable solutions to control aflatoxin in the region, particularly in Kenya. The country is one of the world's hotspots for contamination by this deadly poison which attacks maize—a main staple food crop —among other grains. Kenya, the journalist noted, has

experienced what is believed to have been one of the highest incidences of aflatoxin poisoning ever documented in 2014 that led to the death of over 100 people and made over 300 others ill.

In addition, Dr Mutegi's efforts earned her the prestigious [Norman Borlaug Award for Field Research and Application](#) in 2013 from the [World Food Prize Foundation](#). The award is given to outstanding researchers under 40 years for their contribution to international agriculture and food production.

Part 2 of the series was broadcast on 20 June 2015 and dwelt on the challenges she has faced in her career journey as a woman scientist as well as her advice to young and upcoming scientists. She admitted women scientists still faced negative attitudes but this was slowly changing. "With time I have come to realize many people do appreciate women scientists and believe they can be as good as the men."

Her advice to young upcoming scientists: "There's really no substitute for hard work. Absolutely not!"

Links: [A day in the lab with Charity Mutegi Part 1](#) and [A day in the lab with Charity Mutegi Part 2](#).

IITA DG lays foundation for Institute's new Aflasafe laboratory

IITA is constructing a new state-of-the-art laboratory to strengthen its capacity to research on [Aflasafe™](#), safe and effective biocontrol product for aflatoxin. Widely found in important staple food crops in many parts of the world and produced by the naturally occurring fungus *Aspergillus flavus*, aflatoxin is a deadly carcinogenic chemical associated with stunting and immune-suppression.

Aflatoxin is an important constraint to improving the health, income and well-being of farming communities in sub-Saharan Africa where people are chronically exposed to unsafe levels of the chemical.

The IITA Director General [Dr Nteranya Sanginga](#) laid the [foundation](#) stone for the new AgResults Aflasafe laboratory on Tuesday 16 June to give a fillip to the construction of the new laboratory which will improve the working conditions and efficiency of researchers with well-designed layout. He was assisted by [Dr Kenton Dashiell](#), the Deputy Director General (DDG)-PCD, [Dr Ranajit Bandyopadhyay](#), Senior Plant Pathologist, and Mr [Lawrence](#)

[Kaptoge](#), the General Technical Manager, Business Incubation Platform, all based at IITA-Ibadan.

During the event the DG expressed the hope that the lab would be up and running when the Board of Trustees visits IITA in November.

Among others, the lab will monitor, evaluate, and verify farmers' use of the aflasafe product through microbiology and DNA testing. The new facility became necessary

as the current IITA lab could not cope with the increasing number of samples for testing.

The construction of the building is funded by a trust fund implemented by Deloitte Monitor via the [AgResults Aflasafe pilot project](#)—this is a multi-donor initiative to promote global food security, health, and nutrition. It is a partnership of the Governments of Australia, Canada, United Kingdom, and the United States, the [Bill & Melinda Gates Foundation](#), and the [World Bank](#).



Dr Sanginga laying the foundation stone for the new laboratory.

RTB Evaluation moves to East Africa

The ongoing evaluation of the [CGIAR Research Program on Roots, Banana and Tubers \(RTB\)](#) moved from West Africa to East Africa starting with Kenya before arriving in Dar es Salaam, Tanzania, on Sunday, 14 June 2015.

The first stop for the evaluation team of three, Jillian Lenné, Milla McLachlan, and KV Raman, on Monday morning was at the IITA-EA hub in Tanzania. There they met the CGIAR researchers from IITA and the [International Potato Center \(CIP\)](#) working on roots and tubers and their partners from various agricultural research institutes (ARIS), regulatory bodies, and the [Ministry of Agriculture, Food Security and Cooperatives](#).

Welcoming the team, [Victor Manyong](#), the Hub Director, noted roots and tubers were at the core of IITA's research at the Hub with 45% of the Internationally Recruited Staff (IRS) working on these crops and addressing major challenges affecting them. These included two deadly diseases that attack cassava— Mosaic Disease and Brown Streak Disease (CBSD) – and one on banana (Xanthomonas Wilt – BXW) which together with CBSD is confined to the region.

On her part, Jill Lenne, who is leading the evaluation team said the purpose of the exercise which runs from March to October this year is to provide guidance for decision making and planning to the CRP management team, donors, sponsors, and partners, especially on the second phase of the program.

She said the team would be looking at the program and its organization, its design and implementation, and achievements or outcomes to date as well as the relevance of the research, quality of science, sustainability, impact, partnerships, gender, capacity building, and communications and knowledge management.

Presentations were made by various scientists at the Hub from IITA and CIP and their partners on the ongoing RTB research. These started with [James Legg](#), for IITA, IITA Plant Pathologist and RTB team leader who gave an overview of the RTB crops in the country and their importance. [George Mahuku](#), also an IITA Plant Pathologist at the Hub, briefed the team on work on developing better banana varieties and tackling pests and diseases including BXW, black sigatoka, weevils, and nematodes.

Other presentations were made by Dr Geoffrey Mkamilo, head of the cassava program of the Tanzania Agriculture ministry, who spoke on breeding improved cassava varieties that are resistant to CBSD and CMD; [Morag Ferguson](#), IITA's Molecular Scientist based in Kenya, focused on progress made in finding molecular markers of interest to speed up breeding efforts; Dr Frederick Grant from CIP gave an overview of research efforts to increase productivity and value addition of sweetpotato; and [Marcello Precoppe](#) described the development of efficient cassava processing equipment, in particular for drying—one of the challenges in cassava processing. Two PHD students conducting research on RTB, Rudolph Shirima and Beatrice Bachwenkizi, also presented their research.



Pro-vitamin A “yellow-root” cassava developed by the IITA cassava breeding program.

Field visits

The team then visited on-station research fields nearby to see ongoing trials including the joint cassava breeding by the Agriculture ministry and IITA, agronomic trials demonstrating the use of fertilizers on cassava production by the project [Support to Agricultural Research for Development of Strategic Crops in Africa \(SARD-SC\)](#), and degeneration trials that show how various cassava varieties respond to CMD and CBSD.

They also visited a multiplication site for planting materials of improved cassava varieties with resistance to CMD and CBSD by the Community Phytosanitation project which is working with communities to replace their old, susceptible varieties with the new, improved varieties, and a cassava processing unit, Ukaya Farm, where IITA and partners are doing research on the efficient mechanical processing of cassava including improving the current machines in the market to make them suitable for smallholder farmers.

The evaluation team then left for Mwanza and Kagera regions in the northern part of the country where they will visit more field trials on cassava, sweet potato, and banana.

Events

Annual Review and Planning Meeting - Africa RISING, NAFKA and TUBORESHA CHAKULA Scaling Project, Dar-es-Salaam, Tanzania, 8–10 July

[Africa RISING ESA Project Annual Review and Planning Meeting](#), Mangochi, Malawi, 14–16 July

Africa RISING ESA Project Steering Committee Meeting, Mangochi, Malawi, 16 July

Tropentag 2015, Humboldt Universitaet zu Berlin, Berlin, Germany, 17–19 September

First World Congress on Root and Tuber Crops, Nanning, Guangxi province, southern China, 5–10 October

The 7th International Conference of the African Soil Science Society Announcement of Special Program: Soil Fertility Management for Sustainable Intensification in West and Central Africa, Ouagadougou, Burkina Faso, 25 October – 1 November

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2. Turned off air conditioners; and
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