

Special bulletin: All Africa Postharvest Congress, Nairobi, Kenya

## IITA-associated technologies among two of top three innovations to reduce postharvest losses in Africa

What do an affordable and effective biocontrol product to reduce aflatoxin contamination in maize and groundnut and a technology to convert fresh cassava peel into high-quality livestock feed have in common?

Both aim to reduce postharvest losses and were declared winners during the [postharvest innovation challenge](#) at the [first All Africa Postharvest Congress & Exhibition](#) held 28-31 March, in Nairobi, Kenya. Secondly, IITA has been involved in developing both technologies, working alongside various partners. Each technology received a certificate and a cash prize of US\$5000.

The innovation challenge sought to highlight emerging postharvest technologies and innovations that make a significant difference in reducing postharvest losses and that have high potential for scaling up.

### Transforming cassava peel into livestock feed

IITA is collaborating with the International Livestock Research Institute ([ILRI](#)) to develop technologies to convert fresh cassava peel into high-quality livestock feed. Processing cassava generates millions of tons of peel, which go to waste.

“The technology is being piloted in Nigeria where 14 million tons of cassava peel is generated annually. The fresh cassava peel is grated finely, the water extracted using presses, and then sun dried. They are then milled finely or coarsely for feed for cows, chickens, and goats among other livestock,” said [Iheanacho Okike](#), former ILRI country representative in Nigeria and who received the award on behalf of the team.

The team is also developing other products such as pellets and silage from grated and whole cassava peel.



Top: Ranjit receives cheque for aflasafe as winner no 3, and Bottom: Iheanacho receives cheque for cassava peels for livestock feed technology

Other partners in the project are [CIP](#), [CGIAR Program on Roots and Tubers](#), and [CGIAR program on Livestock and Fish](#).

Commercialization of the technology is under way with Niji Foods—a cassava-processing firm, which was selected to set up three cassava peel processing units with financial assistance from [USAID](#).

## Aflasafe—making food safe from deadly cancer-causing aflatoxins

Aflatoxin is a toxic and cancer-causing poison produced by certain types of the green fungus, [Aspergillus flavus](#) that naturally occur in the soil. It is a threat to food security, health, and incomes of smallholder farmers.

It renders food and feed unfit for human and livestock consumption, untradeable, and requires additional cost for disposal.

Aflasafe is an effective biocontrol product developed by [IITA](#)

in partnership with the United States Department of Agriculture ([USDA](#)) to reduce aflatoxin contamination in maize and groundnut.

It makes use of non-aflatoxin producing strains of the green mold which is able to outcompete and displace the toxin producers.

[Aflasafe](#) was ranked as the third top technology of the innovation challenge. [Ranjit Bandyopadhyay](#), IITA Principal Plant Pathologist who has been leading efforts to develop the technology, pitched the technology to the congress participants.

He also collected the award certificate and money on behalf of the team.

“The Aflasafe technology, which has been found to effectively reduce aflatoxin contamination by between 80 and 98%, was developed by Peter Cotty in the United States. At IITA, working with many partners, we have adapted it for and are rolling it across many Africa countries,” he said.

“Aflasafe has been registered in four countries—Nigeria, Kenya, Senegal, and The Gambia—and is at various stages of development in nine others,” said Bandyopadhyay.

In Nigeria, commercial production of Aflasafe is taking place at a model plant constructed at IITA’s [Business Incubation Platform](#) while construction of similar plants is under way in Kenya and will begin in Senegal in 2017.

## Overall winner

The overall winner of the postharvest innovation challenge was the [DryCard](#) developed by the Horticulture Innovation Lab and the University of California at Davis (UC Davis).

It is a low-cost and easy-to-use technology that uses colored strips to measure moisture levels in grain.

High moisture levels in stored grain lead to attack by mold and spoilage as well as aflatoxin contamination, if attacked by the aflatoxin-producing mold. DryCard was developed by UC Davis scientists Michael Reid and James Thompson.



Group photo of aflasafe team

# IITA supports Africa's first ever postharvest loss congress

IITA was among the major sponsors and partners of [first All Africa Postharvest Congress & Exhibition](#).

The Congress resonated well with one of IITA's key areas of focus—reducing postharvest losses.

"IITA's vision is to reduce hunger, poverty, and malnutrition by, among others, increasing yields of major staple food crops such as cassava, yam, maize, banana and plantain, soybean, and cowpea by 60% and increasing the average farm income by half. However, we cannot achieve this if we do not tackle postharvest loss"

Postharvest losses render all our attempts to increase production a waste of effort and resources," said [Ranajit Bandyopadhyay](#), speaking at the official opening of the Congress on behalf of IITA's Director General, [Nteranya Sanginga](#).

The Congress was organized by the [World Food Preservation Center](#)® LLC in conjunction with the University of Nairobi and a consortium of universities and a research and development institution in Africa. With the theme: "Reducing Postharvest Food Losses: Sustainable

Solutions for Africa", it brought together over 600 stakeholders in the food supply chain including researchers, policy makers, development partners, farmers, and the private sector.

Ranajit was also a keynote speaker during a parallel session on Aflatoxin management, food safety and nutrition.

IITA in collaboration with partners also organized a [three-hour symposium](#) looking at efforts across the continent to reduce aflatoxin contamination and its impact on food security, health, and trade. IITA was also among the 60 exhibitors at the Congress to showcase its technologies and efforts to reduce postharvest losses. These included the effective and affordable biocontrol product for aflatoxin control, Aflasafe. The Institute also demonstrated technologies to reduce postharvest loss in cassava through processing into stable products with increased shelf life such as flour and garri by coating the roots with wax.

While normal cassava roots go bad in three days, coating with wax increases the shelf life to 14 days allowing for transportation to distant markets. The technology is being piloted in Uganda for the urban market where consumers were willing to pay the extra premium for the extra days of shelf life. The wax-coated cassava roots are being sold in supermarkets.



*Ranajit and CS Kenya agric ministry during opening session*

## Congress declared a major success!

The participants of this inaugural conference declared it a success but asked organizers to ensure it was not another talk-show and to follow up on recommendations made.

The other suggestion was that it should not be a one-off event but should take place every two to three years and the venue rotated around different African countries.

IITA's participation in the event was ably led by [Charity Muteji](#), IITA's Aflasafe Coordinator in East Africa and a member of the Congress' Local Organizing Committee. She was assisted by Jane Kamau and [Njeri Okono](#), both from IITA's Aflasafe Technology Transfer and Commercialization (ATTC) Project, as well as by [Catherine Njuguna](#) from IITA Communication and the IITA Aflasafe team based at KALRO Katumani.

Got a story to share? Please email it with photos and captions every Wednesday to Katherine Lopez ([k.lopez@cgiar.org](mailto:k.lopez@cgiar.org)), Jeffrey T. Oliver ([j.oliver@cgiar.org](mailto:j.oliver@cgiar.org)), Catherine Njuguna ([c.njuguna@cgiar.org](mailto:c.njuguna@cgiar.org)), or Adaobi Umeokoro ([a.umeokoro@cgiar.org](mailto:a.umeokoro@cgiar.org)).



# Yes! We are winning in the fight to reduce aflatoxin contamination in key staple crops in Africa but... the fight is far from over, panel discussion concludes

This was the general conclusion of a three-hour symposium organized by IITA and several other stakeholders to discuss the ongoing efforts and progress made to reduce aflatoxin contamination on key staple crops in Africa and how the various stakeholders can synergize and strengthen these efforts. This was held on 30 March at the first All Africa Postharvest Congress & Exhibition.

The session titled “Are we winning or losing the fight against aflatoxins?” combined presentations by various partners on the ongoing initiatives to control aflatoxins and a panel discussion on the lessons learned and next steps in efforts to reduce aflatoxin contamination and its negative effects. It attracted over 200 participants.

The session started with opening remarks from ATTC Managing Director, Abdou Konlambigue, who emphasized the urgent need to work together to reduce aflatoxin contamination in food and feed to safeguard the harvest, health, and incomes of people in Africa. He said the aflatoxin challenge was too big and complex for any single organization to solve alone hence the need for this symposium to learn from and join forces with other players in the continent.

This was followed by a presentation by Liz Ogutu, Senior Officer for Strategy and Operations at the African Union’s Partnership for Aflatoxin Control in

Africa ([PACA](#)). She highlighted the gravity of aflatoxin contamination problems as she shared the findings of studies that showed high levels of contamination in grains and milk in the market in many African countries and in the blood of children. She also outlined the activities of the pan-African initiative in promoting appropriate policies and technologies across the continent.

Other speakers were [George Mahuku](#), a plant pathologist at IITA, who presented on various ways to reduce aflatoxin contamination in staple crops and in particular on appropriate postharvest handling by smallholders. Vivian Hoffman from the International Food Policy Research Institute ([IFPRI](#)) presented on the challenges faced in promoting existing technologies for reducing aflatoxin contamination to smallholders. Hoffman pointed out that for farmers to adopt any technology, its economic benefits must be evident. Stanley Kimereh, a program officer with the [United Nations Food and Agriculture Organization](#), spoke on lessons learned and the outcomes of their campaign to create awareness on aflatoxin mitigation in Kenya.

The second part of the symposium presentations looked at efforts to scale up appropriate technologies to reduce aflatoxin contamination. Presentations were made by Sophie Walker from ACIDI-VOCA; JB Cordaro from Mars Incorporated; Asenugu Idowu from Agribusiness Supplies Ltd, Nigeria;

and Raphael Wanjogu, Chief Research Officer at the National Irrigation Board, Kenya.

Idowu and Wanjogu shared on their successes in promoting and using [Aflasafe](#)—the safe biocontrol product for aflatoxin management developed by IITA and partners—in Nigeria and Kenya. According to Wanjogu, the technology had successfully reduced aflatoxin contamination in the major government irrigation schemes and the board will continue to use Aflasafe across all its major irrigation schemes.

The session was facilitated by David Githang’a, a pediatrician and cardiologist and also a former president of the Pediatrics Association of Kenya.

This was followed by a lively panel discussion on lessons learned and building consensus on the next steps in reducing aflatoxin contamination.

The panelists included Chebii Kilel, Head of Food Crops Directorate, Agriculture, Fisheries and Food Authority, Kenya; Martha Byanyima, a lead expert on Sanitary and Phytosanitary measures; David Githang’a, a medical doctor; Kevin Manyara, Operations Manager, Cargill; and Delia Grace from the International Livestock Research Institute (ILRI) and flagship leader for the CGIAR Research Program on Agriculture Nutrition and Health.



IITA’s ATTC Managing Director, Abdou Konlambigue, Sophie Walker from ACIDI-VOCA, Session facilitator David Githang’a, Raphael Wanjogu, from the National Irrigation Board, Kenya, George Mahuku, a plant pathologist at IITA.

Some of the areas highlighted from the discussions were on the need for governments to harmonize policies on various aspects of aflatoxin control efforts including testing of the contaminant in grains such as

maize, and standardization of testing protocols.

There was an urgent call to create awareness and address the impact of aflatoxin on children which was

irreversible and to support farmers to access proven technologies for reducing aflatoxins. The panel discussion was chaired by Gerald Makau Masila, the Executive Director, Eastern Africa Grain Council.



An over view of the well-attended parallel session with over 200 participants.

## NRI cassava bag wins US\$500,000 Cassava Innovation Challenge award

The [Natural Resources Institute](#) (NRI), based at the University of Greenwich, United Kingdom, in partnership with the Federal University of Agriculture, Abeokuta ([FUNAAB](#)), Nigeria, was declared the winner of the Cassava Innovation Challenge launched last year by Rockefeller, IITA, and Dalberg.

The team received a grant of up to US\$500,000, along with technical assistance, to test and market the winning technology—the NRI Cassava bag that can keep cassava fresh for at least eight days postharvest.

The announcement was made by Rafael Flor from the [Rockefeller Foundation](#) flanked by [Richardson Okechukwu](#) from IITA and Marcus Watson from Dalberg at a cocktail at the All Africa Postharvest Congress & Exhibition in Nairobi, Kenya.

“We received more than 600 applications from 32 countries with ideas on how to solve this problem of short shelf-life for cassava. We had a panel of 21 judges from around the world, including Nigerian cassava experts, who recommended a shortlist based on the Rockefeller Foundation’s criteria for innovation,” said Flor while announcing the winner.

IITA’s Okechukwu noted that reducing cassava spoilage held real potential to increase the incomes of smallholder farmers and increase the efficiency of the entire cassava industry in Nigeria and other major cassava-producing countries in Africa.

“As part of the judging team we selected the winning innovation due to its potential to significantly reduce spoilage in the cassava value chain. It can successfully and affordably be adopted and scaled out, both within Nigeria and other developing countries, and has potential

to be commercialized for sustainability, once the Challenge funds have been depleted,” said Okechukwu.

The [Cassava Innovation Challenge](#) sought to identify and support novel solutions for increasing cassava shelf life in Nigeria and the world. Cassava has a very short shelf life, and if unprocessed it will perish within 24–72 hours after harvesting or less if it is damaged during harvesting or transport.

Approximately 40% of cassava is lost due to spoilage, limiting farmer incomes and rural economic development.



Okechukwu and Dalberg and Ford Foundation representatives giving award plaque to winner of the challenge from NRI