



Zambian farmers excited about prospects of safer crops with aflasafe™

Farmers in Zambia are in high spirits as IITA and partners develop and distribute the first-ever batch of aflasafe™ that is tailor-made for the country, giving hope of crops that are safe from deadly aflatoxins.

In mid-January, maize farmers in the Eastern Province of Zambia received more than one ton of aflasafe™ that is now being applied in their fields. This marks the first official field application of the biocontrol product in the country and comes only a year after researchers from IITA, the Zambia Agriculture Research Institute (ZARI), and the National Institute for Scientific and Industrial Research (NSIR) began work to identify the best safe – or atoxigenic – strains of the *Aspergillus flavus* fungi.

Toxigenic – or poison-forming – strains of the *A. flavus* fungus are what causes aflatoxins in crops; however, its atoxigenic cousins could also be used to counter them. This is the basic principle of an innovative biocontrol solution developed and commercialized by the United States Department of Agriculture's Agricultural Research Service (USDA-ARS) widely used in southern USA to combat aflatoxin contamination in maize, cotton, and groundnut.

Safe strains of the fungus are inoculated onto sterile sorghum grains and applied in the field to out-compete their aflatoxin-producing cousins. The product is called aflasafe™.

After a year of careful study at IITA in Nigeria and the USDA-ARS in the US, eight unique and naturally-occurring atoxigenic strains were identified from over 3000 Zambian fungi. These strains do not possess the genetic machinery to produce aflatoxins, are unrelated to aflatoxin-producing fungi, and are highly competitive. These strains were then used to develop aflasafe™ deployed in Zambia.

Belita Kayumba, the first Zambian farmer to receive and apply aflasafe™, said, "We know that some of the crops we produce are not safe to eat, but what can I do when my children say that they are very hungry? We just take our chances."



Mrs Belita Kayumba, a maize farmer, applying aflasafe™ in her field.

"But now with aflasafe™ here in my field I am sure that my children will finally be safe and healthy!" she said excitedly.

Dr Thomas Dubois, IITA scientist who led the research to develop aflasafe™ for Zambia, said, "In a couple of months, after harvest, she and other farmers like her will know how good aflasafe™ is in reducing aflatoxins in their crops and in their food."

"The use of aflasafe™ reduces aflatoxins during crop development, in postharvest storage, and throughout the value chain. Based on our experience in West Africa, we estimate that aflatoxin levels in fields treated with aflasafe™ will be reduced by 80 to 90 percent," he added.

Maize and groundnuts—two of Zambia's most important cash and food security crops—are prone to aflatoxin contamination. This is a major concern as it negatively affects the health of humans and domesticated animals, causing stunting in children and cancer. Aflatoxin contamination also hampers international trade and economic growth as it prevents affected export commodities from meeting stringent trade and food safety standards.

Worse still is that rejected contaminated produce are not usually destroyed, finding their way into the domestic food chain and wreaking havoc on local consumers.

CGIAR Consortium and Global Crop Diversity Trust partner to revitalize genebanks

The Global Crop Diversity Trust and the CGIAR Consortium (with funding from the CGIAR Fund) have agreed to partner in a US\$109 million research program that would help to sustain the global network of seed banks.

This CGIAR Research Program for Managing and Sustaining Crop Collections is dedicated to maintaining the 706,000 samples of crop, forage, and agroforestry resources held in "genebanks" at 11 CGIAR research centers around the world, which includes IITA.

The seed banks house the world's largest and most diverse collections of wheat, maize, rice, potato, banana, sorghum, forages, beans, and many other plants. This diversity is viewed as essential to providing farmers with new crop varieties critical to overcoming an array of weather- and pest-related threats. Over the last ten years alone, CGIAR genebanks have distributed

more than one million samples to plant breeders and crop researchers, which has saved millions of lives globally through the development of new, resilient crop varieties.

The CGIAR's genebank collection is intended for everyday use by plant breeders and crop researchers. The collection is safety duplicated in the Svalbard Global Seed Vault on a remote island near the Arctic Circle. With the government of Norway, the Trust established the Svalbard facility as a back-up seed collection built to stand the test of time and to protect the world's crop diversity from natural or manmade disasters.

The new partnership between the Trust and the CGIAR Consortium will fund crop preservation and collection work at the CGIAR genebanks and ensure their crop samples are still widely shared. During that time, the CGIAR Consortium and the Trust will work with donors to



IITA has a germplasm collection of more than 27,000 accessions.

secure a more permanent endowment to fund the genebanks in perpetuity.

Source: Excerpted from the story on <http://www.croptrust.org/content/press-release-31-january-2013>

Tanzania agric minister tours science building and pledges support

The Minister for Agriculture, Food Security and Cooperatives in Tanzania, Honorable Engineer Christopher Chiza, has commended IITA for investing in the construction of a state-of-the-art science building in the county for the region and its overall support to boost production of major staple crops such as cassava and banana.

He also assured the institute of his support in the planned launching of the building scheduled for May this year.

The minister was on a short visit to IITA's Eastern Africa hub office in Mikocheni, Dar es Salaam, where he held talks with DG Nteranya Sanginga, and the hub scientists led by Dr Victor

Manyong, the Director for the Eastern Africa hub. He also toured the nearly completed science building.

The visit was at the invitation of the institute to seek his support for the high-level inauguration of the building on 10 May.

Dr Sanginga congratulated the minister on his government's efforts to boost agriculture in Tanzania through the Kilimo Kwanza (Agriculture First) initiative and assured him of IITA's support.

He said IITA had decentralized its research activities leading to the creation of four hubs in Central, Eastern, West, and Southern Africa.

He explained that the Eastern Africa hub based in Dar es Salaam will focus on research on key pests and diseases affecting important staple crops such as cassava, maize, soybean, and banana among others. To enable IITA to serve the region better, the institute was investing in the construction of the science building which will be open to local and international researchers and students, he said.

He said IITA was keen on having a high-level launch ceremony for the building attended by dignitaries from the country and its neighbors—Kenya, Uganda, and DRC. Furthermore he said, IITA's Goodwill Ambassador, ex-President Obasanjo had agreed to lead the IITA delegation from Nigeria.

He added that IITA was particularly keen on building capacity for research in the country and region to address the current gap left by the retirement of experienced researchers who have no successors following the structural adjustment policies in Africa of the early 1980s. This had governments stop hiring new staff for nearly a decade. And secondly, supporting cassava commercialization in the country as it holds immense potential as a cash crop in addition to being a food security crop.

The Honorable Minister assured Sanginga and the scientists at the meeting that his government appreciated IITA's decision to choose Tanzania as the hub for eastern Africa and for constructing the science building there.



H.E. Tanzanian Minister Christopher Chiza (center) on a tour of the new science building at the Eastern Africa hub accompanied by IITA staff led by DG Sanginga (right).

Global alliance to fight banana bunchy top disease in Africa

International experts met on 2 to 4 February 2013 in Arusha, Tanzania, to develop a continent wide strategy to combat banana bunchy top disease (BBTD)—one of the most devastating viral diseases of banana and plantain.

Africa has over 6 million ha—about 50% of the world area—of plantain and banana widely distributed across the humid tropics where they are a primary source of income and nutritious staple food.

First discovered in 1950s in DRC, the disease is now well established in 13 countries in Central and Southern sub-Saharan Africa. In 2011-12, BBTD outbreaks were discovered in Benin and

Nigeria, which opened a new window for disease spread in the West African subregion.

BBTD, caused by Banana bunchy top virus and transmitted by a ubiquitous insect, banana aphid, first destroys productivity and eventually kills infected plants. The spread of the disease into new areas initially remains undetected and hence complicates timely eradication work. The disease spreads into new fields, primarily through infected planting materials and within fields by aphids. No sources of resistance have yet been identified. Due to lack of concerted efforts disease spread is unabated in sub-Saharan Africa.

IITA and Bioversity International, under the CGIAR Research Program on Roots, Tubers, and Banana, organized this workshop to develop a global alliance—an international coalition of experts to counter the BBTD threat to banana in Africa.

Lava Kumar and Rachid Hanna of IITA together with colleagues from Bioversity, convened this workshop, which was attended by experts from CORAF/ECOWAS, FAO, CARBAP, and Ministry of Agriculture, universities from Benin, Cameroon, Congo Brazza, DRC, Malawi, Nigeria, and Zambia, and research partners from Australia, Asia, India, Pakistan, USA, and Europe.

The global alliance involves diverse experts from public and private organizations, including researchers, policy makers, growers and entrepreneurs, with a collective vision to protect African banana from invasive BBTD.

Ken Dashiell, DDG, Partnerships and Capacity Development, in his opening remarks, lauded the unified approach to fight a common enemy of banana and plantain in Africa. The workshop reviewed the state of knowledge on BBTD, new developments in disease diagnostics, control and crop improvement, and prioritized a framework for medium and long-term research on BBTD control.



Experts meet in Tanzania to discuss a framework for research in the fight against Banana bunchy top disease.

IITA's science impact reaffirms importance of investment in agric research

Results from decades of research and development work at IITA demonstrate the need for more investments in agricultural research in Africa, according to the German Consul General, Walter von den Driesch.

During his visit this week to IITA, von den Driesch was excited by the quality and the areas of research.

"Your research is an example of how things can work on the continent," he said.

He was happy to associate Germany with the work that IITA is doing in Africa.

Over the years, Germany has remained one of the strongest financial supporters of IITA. In 1998, Germany gave funds to IITA to initiate research on the biocontrol

of aflatoxins—toxins produced by the fungus *Aspergillus flavus* that contaminate crops such as maize, groundnuts, and chili pepper—which cause cancer, suppress immunity, and even lead to death. The outcome of that research is the development of aflasafe™ – a biological control product—that is effectively controlling aflatoxins.

von den Driesch, who visited the labs and research fields, said he was "impressed with what IITA is doing."

Earlier while receiving the Consul General, the Director General of IITA, Dr Nteranya Sanginga, thanked the German government for its contribution to IITA over the years.

He said that the challenge of food insecurity in Africa remains huge considering that several nations on the continent were still heavily food import dependent.

According to the director general, food security is now synonymous to state security.

"The reason is that the two are closely linked. If food exporting nations decide to halt exports, it will certainly affect the state security of food-importing nations," he explained.

During the visit, Drs Ranajit Bandyopadhyay and Irmgard Hoeschle-Zeledon made presentations on their work to control aflatoxins in Africa, highlighting milestones. Ms Hilde Koper gave a summary of German investment to IITA in the last five years.



German Consul General Walter von den Driesch (third from left) with IITA staff (L-R): Toyin Oke, Karina Lawal, Hilde Koper, DG Nteranya Sanginga, R4D Director Robert Asiedu (Western Africa), DDG Kwame Akuffo-Akoto, Irmgard Hoeschle-Zeledon, Godwin Atser, Ranajit Bandyopadhyay, and Katherine Lopez.

Nigeria's largest flour miller explore areas of collaboration with IITA

Nigeria's largest flour miller, Flour Mills of Nigeria Plc, is exploring areas of possible collaboration with IITA.

Flour Mills said it is integrating backward and has established an agro-allied division with investments in oil palm, cassava, maize, soybean, rice, and sugarcane, etc. The division also has investments in fertilizers, agro-processing, and feed mills. Flour Mills desires that IITA technically backstop that division.

A Flour Mills delegation made of Messrs

Hugh Glyn-Jones and Louw Burger held discussions with IITA in this direction. The meeting was a result of several interactions with the group by DDG Kenton Dashiell.

Dr Ousmane Boukar, IITA Scientist, who presided over the meeting, expressed IITA's willingness to support the company. It is envisaged that a public-private sector partnership with Flour Mills will help in unleashing some of the innovations and would impact positively on the West African nation.



IITA staff led by Dr Ousmane Boukar (second from right), meet with Flour Mills of Nigeria Plc representatives.

EIARD impact publications

Two IITA case studies were selected by the European Initiative for Agricultural Research for Development (EIARD) to be featured on their web site. To view the PDF files, go to: <http://www.iita.org/web/iita/publications>.

Healthy yam seed production

Key fact: IITA has developed a simple method for producing clean planting material for yam, an improvement on the 100-year-old traditional technique developed in the 1950s. This has been shown to give better yields for yam farmers to grow their own seed yam and plant store yam than traditional methods.

Summary: Yam is an important food crop for at least 60 million people in West Africa, particularly those in the humid tropics. It is a staple food and a source of income for many farmers. However, yam production is often hampered by the lack of clean planting material, which is often contaminated with viruses and other pathogens. This leads to low yields and high losses. IITA has developed a simple method for producing clean planting material, which is a significant improvement on the traditional method. This method involves the use of a clean, sterile environment for the production of clean planting material. The method is simple and can be used by small-scale farmers. It has been shown to give better yields for yam farmers to grow their own seed yam and plant store yam than traditional methods.

Impact: The method has been adopted by many farmers in West Africa. It has helped to increase yam production and income for many farmers. It has also helped to reduce the risk of disease and other pests. The method is simple and can be used by small-scale farmers. It has been shown to give better yields for yam farmers to grow their own seed yam and plant store yam than traditional methods.

Key figures: The method has been adopted by many farmers in West Africa. It has helped to increase yam production and income for many farmers. It has also helped to reduce the risk of disease and other pests. The method is simple and can be used by small-scale farmers. It has been shown to give better yields for yam farmers to grow their own seed yam and plant store yam than traditional methods.

lacking killer aflatoxins in African food crops

Key fact: The International Institute of Tropical Agriculture (IITA) has developed a natural, safe and effective method of reducing aflatoxin contamination in food crops, a biological control product that IITA has developed in Africa.

Summary: Aflatoxins are highly toxic chemical products that are produced by the fungus *Aspergillus flavus*. They are a major cause of cancer and liver disease. Aflatoxins are also a major cause of death in children. Aflatoxins are found in many food crops, including maize, groundnuts, and chili pepper. IITA has developed a natural, safe and effective method of reducing aflatoxin contamination in food crops. This method involves the use of a biological control product, aflasafe™, which is a natural, safe and effective method of reducing aflatoxin contamination in food crops. Aflasafe™ is a biological control product that IITA has developed in Africa. It is a natural, safe and effective method of reducing aflatoxin contamination in food crops. Aflasafe™ is a biological control product that IITA has developed in Africa. It is a natural, safe and effective method of reducing aflatoxin contamination in food crops.

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Help conserve electricity!

Before leaving your workplace at the end of the day, make sure that you have:

1. Powered off all unnecessary electrical office/ lab equipment;
2. Turned off air conditioners; and
3. Switched off all lights.

264 farmers trained on weed control and best farm management practices

About 264 farmers have been trained on weed and best farm management practices in eight states of Nigeria.

The training was aimed at equipping farmers with the skills on controlling one of the major constraints to cassava production, thanks to funds from Nestle

Plc. Benefiting states included Ondo, Ekiti, Osun, Delta, Anambra, Imo, Enugu, and Abia.

"About 40 percent of those who participated in the training were women," says Dr Gbassey Tarawali, Coordinator of the IITA Cassava Enterprise Development

Project.

The training which were designed to include both theoretical and practical sessions educated participants on the use of chemicals for weed control in cassava farms, as well as the timeliness and importance of their use.

According to Dr Ifeanyi Ojiako the program aims to identify the types and categories of weeds; identify the types and functions of chemicals used for weed control; identify the tools/equipment used for mixing and spraying chemicals (including relevant kit, knapsack sprayer, etc.); outline the advantages and disadvantages of the use of herbicides in a cassava field; outline the safety measures associated with mixing and spraying of agro-chemicals; and demonstrate the use of the knapsack sprayer on a weedy field. Farmers who participated in the training thanked IITA and Nestle for improving their knowledge on weed management.

For farmer Christiana Onyemuwa, she said, "I appreciate this empowerment, because of what I have learned today, which has increased my understanding of the farming process."



IITA and Nestle conduct a training to equip farmers with skills to control weeds.



IITA International School pupils get to see how a radio program is broadcast live during a field trip to the Diamond FM 101.1 facilities in Ibadan, Nigeria.

Radio station hosts pupils from IITA International School

Diamond FM101.1 owned by Nigeria's premier university, University of Ibadan, hosted pupils from the IITA International School who went on an educational tour of the station.

During the visit, the pupils interacted with staff of the radio station and more importantly saw first-hand how the radio broadcast industry operates.

Mr Emokhare Paul, who received the pupils, described Diamond FM as a community station. According to him, the radio station is the first and one of the most functional radio stations in Nigeria. He also explained about the operations in the station vis-à-vis preparation of news items, broadcasting, and the different units that make up the station.

The pupils who were thrilled by the visit asked several questions. For instance, why do some radio stations talk for 24 hours. Mr Paul answered that most of the stations use machines to record and transmit 24 hours.

In addition, there was a live program called "sport safari" and the pupils were allowed in the studio to see how programs are being anchored. They were also offered to have their voice recorded at the studio.

The field trip is part of the Grade 4 class' lessons on communication and how to influence or persuade people. According to Favor Atser, one of the students, he would certainly want to experience becoming a broadcaster and that he would be interested in becoming a reporter like his dad.

Passages

Rasaki Nureni, died 28 January, at Molly Hospital, where he has been receiving treatment. Mr Nureni hailed from Ibadan, Oyo state, Nigeria. He was a Field Worker I in the Research Farm Unit.



Mr Osunjajo Martins Olugbenga, 56, died 5 February, at University College Hospital (UCH), Ibadan, where he had been receiving treatment.

Mr Osunjajo hailed from Ijebu-Igbo, Ogun state, Nigeria. Until his death, he was a Head Chef in HOTCAT Unit.

