



Fund Council and Board of Trustees commend IITA Management

The Fund Council has commended IITA Management for the progress made so far, especially for the transparency of its operations and the collaborative spirit in which it has dealt with issues.

Also the IITA Board of Trustees has lauded the efforts of the Management team for their innovativeness and the ongoing transformation.

The Board noted that the Institute had made excellent progress in the last year and specifically congratulated IITA DG Sanginga for a job well done.

Receiving the DG's Report, the board— during its meeting in May in Dar— endorsed the Business Incubation Platform and its initiatives as important mechanisms for adoption and scaling out of IITA technologies that reflect many years of

research, and asked the DG to ensure that these technologies also reach the poor farmers that IITA is targeting.

The Board was pleased with the progress IITA has made towards regularizing eligible staff in the consultants/casuals category and noted the steps being taken for an overall improvement in

staff emoluments at IITA. They considered it an important step forward in recognizing the staff that have made "exceptional" contributions to IITA, and endorsed the IRS job grading and classification system being undertaken by management.

Board members, however, expressed serious concern, about the under spending on special projects and suggested a number of measures that IITA management could consider implementing. In their opinion, under spending not only leads to less funding due to the reduction in overheads, very important for investing in upgrading the Institute, but it also compromises IITA's reputation with donors. The Board looks forward to an improvement in 2013... *Read the message from the DG for more information*



DG Sanginga



DDG (PCD) Kenton Dashiell



DDG (Research) Ylva Hillbur



DDG (CS) Kwame Akuffo-Akoto

IITA-Staff Cooperative Society makes giant strides

The IITA Staff Cooperative Investment and Credit Society (CICS) has reported a profit of N20.466 million for 2012. And with the reduction in honorarium to executive officials, members of the society were able to receive bountiful dividends and gifts. At the 9th Annual General Meeting of the Society on 31 May, the President of the Society, Ali Adeleke, acknowledged the support received from the members.

In his progress report to members, Adeleke noted that the society in the last year had reduced its interest rate

on loans to members to 1% across the board. The IITA Staff Cooperative Society provides a financial window for staff and offers loans, especially



Staff at the AGM

to national staff.

Through the society, staff are able to acquire household materials such as computers. The president also informed members that the deal for the land acquisition was almost done while the land vendors were equally present to attest to it. The plan is to allocate the acquired land to members who cut across General Staff to Internationally Recruited Staff.

Germplasm from IITA assists Mali to develop and release early maturing hybrid maize

Researchers using maize inbred lines from the International Institute of Tropical Agriculture (IITA) have developed two early maturing hybrid maize varieties that have been released by the Malian government to boost maize production.

The improved hybrids, which are locally named *sanu* and *mata*, are resistant to the parasitic weed, *Striga* and possess genes that enable them to withstand drought which occurs at the flowering and grain filling periods and low soil nitrogen, and are high yielding with good cooking qualities.

Sanu, which means "big man" has a yield of between 5 and 7 t/ha while *mata*— meaning mama— has a yield of between 4 and 5 t/ha. Local varieties have yields of between 1.5 and 2 t/ha.

Sanu is recognized as IITA hybrid TZEI 86 x TZEI 60 and *mata* as IITA hybrid TZE-Y Pop DT STRC4 x TZEI 13.

"The release of these hybrids will help Mali and the West



Improved maize

Africa region to boost the production of maize," Badu Baffour-Apraku, IITA Maize Breeder and West Africa Coordinator of the Drought Tolerant Maize for Africa (DTMA) project said.

"This is the first time early maturing hybrid maize with combined resistance/tolerance to *Striga*, drought, and low soil nitrogen has been released in the subregion," he added. Consumed in several forms including boil/roast and eat, or processed into flour, couscous, bread, beer or animal feed; maize is an important crop for the sustenance of livelihoods in Mali.

Ntji Coulibaly, the head of the

national maize program with the Institute of Rural Economy, Mali, who led the testing and release of the hybrids, noted that the new hybrids would contribute significantly to improved food security and would be part of the solution to the problems of climate change.

"They should solve some of the problems associated with maize production in the subregion," he explained. Prior to their release, researchers and farmers jointly carried out extensive varietal testing across the various agroecological zones of Mali. "Farmers love the hybrids for their excellent cooking and agronomic traits so we are optimistic that adoption of the hybrids will be high," Coulibaly said.

The new varieties were developed with funds from the DTMA project, which is being implemented by CIMMYT, IITA, and national agricultural research systems across 13 countries of sub-Saharan Africa.

Dissemination of provitamin A cassava for 2013 begins

Researchers have begun the dissemination of pro-vitamin A cassava varieties to rural households as part of efforts to tackle vitamin A deficiency in Nigeria. This deficiency leads to poor health, blindness, stunting, and even death.

The plan is to get the varieties across five states— Abia, Akwa Ibom, Benue, Imo, and Oyo—in the first instance. But beyond these states, vitamin A deficiency is widespread in Nigeria, afflicting about 30% of pregnant women and 25% of children below the age of 5. To achieve the planned target, HarvestPlus is working with IITA and other partners to distribute 300,000 bundles of stems to 100,000 households in Nigeria. In May alone, 5000 farmers have received stems in Akwa Ibom, 1500 in Abia, 1000 in Imo and 1000 in Oyo. While disseminating the varieties to farmers in Oyo town, Paul Ilona, Country Manager for HarvestPlus noted that provitamin A cassava



Women farmers receive provitamin A cassava stems provided an excellent option, considering its easy accessibility and affordability to rural people.

He said the adoption and use of the varieties would help in mitigating vitamin A deficiency related diseases and improve the immunity of consumers. He advised farmers to cultivate the varieties and consume them sufficiently especially for children under 5 and pregnant women for better health and nutrition. Besides improving the health and nutrition of the people, the cultivation of the varieties can provide jobs, improve incomes, and lift poor households out of poverty.

Developed by IITA in partnership with the National Root Crops Research Institute (NRCRI) with funds from HarvestPlus, the provitamin A cassava can be processed into several dishes.

The Nutrition Unit of HarvestPlus displayed a variety of novel products that mothers could produce using the provitamin A cassava to enrich their family nutrition. Products displayed included cassava *moi-moi*, *chin-chin*, *gari*, and *fufu*. Hundreds of farmers and invited guests at the occasion were served with provitamin A *gari* and *fufu*.

The event in Oyo was organized in collaboration with ENATUS (Entrepreneurial Action by Us), a student body in Ajayi Crowder University.

Researchers meet to save landraces of cassava

IITA eastern Africa hub and the Global Cassava Partnership for the 21st Century (GP21) brought together scientists from eastern, central, and southern Africa, to deliberate and strategize on how to conserve local cassava landraces being grown by smallholder farmers in the region. This is to ensure that the local landraces do not disappear due to the two viral diseases currently spreading in the region and, to make the rich genetic material available to researchers for breeding improved varieties.

The two diseases are Cassava Brown Streak Disease (CBSD) and Cassava Mosaic Disease (CMD).

The strategy will also ensure that existing relevant instruments such as the International Treaty on Plant Genetic Resources for Food and Agriculture are taken into consideration.

In his welcoming remarks, Victor Manyong the IITA Director for eastern Africa, noted that the base for any breeding program is germplasm and any project focusing on preserving and making the germplasm available was important for smallholder farmers, a target of IITA's research efforts.

Claude Fauquet, Director of GCP21, outlined the objectives of the workshop and concluded that urgent action was needed to stop the genetic loss of cassava landraces.

"We are in danger of losing very valuable genetic material and indigenous knowledge that the farmers have collected over the years at a time when we cannot afford it due to the disease pressure facing cassava and in



Researchers at the meeting in Dar

particularly CBSD," he said. According to Morag Ferguson, an IITA molecular scientist, in the process of collecting the local landraces, the researchers will also gather valuable information on what farmers value in their varieties. This will be used to guide breeding efforts to improve adoption of new varieties.

"We need genetic diversity and farmers' knowledge to develop varieties that will be accepted and adopted by farmers.

However, currently, we do not have such database. Most of the local landraces exist only in the farmers' fields," she said.

"It's therefore important for the cassava community to come together to collect, evaluate, identify, and preserve these valuable germplasm for the breeders and for the farmers."

Simon Bigirimana, Head of Cassava Program at the national agricultural research agency of Burundi, Institut des Sciences Agronomique du Burundi (ISABU), welcomed the workshop as a move in the right direction in cassava breeding

efforts. He said he had faced a lot of challenges in the past while trying to conserve farmers' landraces in his country. "First we had two field sites for conserving local landraces. Then one of them got burnt down and we lost everything and we now have four sites. Therefore, having a regional

conservation effort that includes in-vitro conservation will come in very handy," he said.

The meeting was held at the new science building of the Eastern Africa hub and brought together nearly forty participants from national, regional, and international research organizations. The national research systems of Burundi, Democratic Republic of Congo, Kenya, Madagascar, Malawi, Mozambique, Tanzania, Uganda, and Zambia were all represented. Also in attendance were researchers running gene banks at IITA, Bioversity, CIAT and the Southern Africa Development Corporation (SADC) genebank, and IITA virologists and cassava breeder. Former IITA Deputy Director General, Paula Bramel, joined the discussions through videoconferencing and offered invaluable advice on some of the factors the groups should consider in their proposed strategy.

Next on the agenda will be the development of proposals to raise funds for the exercise.

Growing seed yams in the air

Can yam, "the king of the crops," grow in a soilless system? That future is not so distant—for at least seed yam multiplication. IITA through the initiative of YIIFSWA is currently undertaking an innovative research for the propagation of seed yam through the aeroponics system, which was setup by a team of consultants and engineers of IITA's Facilities Management Services (FMS). Aeroponics is the process of growing plants in an air or mist environment without the use of

soil or an aggregate medium. In the preliminary trial, Norbert Maroya together with a team of scientists at IITA successfully propagated yam by directly planting vine cuttings in aeroponics boxes to produce mini-tubers in the air. The aeroponics system is known and widely used by commercial potato seed producers in eastern Africa (Kenya, Uganda, Tanzania etc.), and southern Africa (Mozambique, Malawi etc.) but successfully growing yam on aeroponics is a novelty for

rapidly multiplying the much-needed clean seed tubers in large quantities.

The first aeroponics trial for producing seed yam was carried out in a screenhouse on IITA campus at Ibadan, Nigeria. A special structure was built with Dixon shelf frames using perforated styrofoam box, as support for plant vines, while the developing roots of the plants in the air were enclosed in conditions of total darkness to simulate the situation of soil to the roots...*continue on page 4*

Project records significant progress to save maize from *Striga*

Thousands of farmers in Kenya and Nigeria are successfully battling the invasion in their farms by *Striga*, a deadly parasitic weed also called “purple vampire”. They are now enjoying higher yields in maize, the number one staple in Kenya and an important cash crop in Nigeria.

The key to managing this weed is to combine sustainable multiple-pronged technology options being advocated by the Integrated *Striga* Management in Africa (ISMA) project to sustainably eliminate the weed from their fields, says Dr Mel Oluoch, ISMA project manager. More than 60 project implementers, partners, private sector players, and other stakeholders met in Kisumu, from 4 to 7 June for the Second Annual Review and Planning Meeting to review the project status, evaluate project indicators and processes, identify gaps, and plan for next year’s implementation.

Striga attacks and greatly reduces the production of staple foods and commercial crops such as maize, sorghum, millet, rice, sugarcane, and cowpea. The weed attaches itself to the roots of plants and removes water and nutrients and can cause losses of up to 100% in farmers’ crops.



Participants visit a maize farm that uses *Striga* management technologies

Furthermore, a single flower of the weed can produce up to 50,000 seeds that can lie dormant in the soil for up to 20 years.

The weed is the number one maize production constraint in Western Kenya, and Nigeria, infesting most farmers’ fields. The four-year ISMA project demonstrates the effectiveness of using a combination of existing and new technologies, developed by various national and international research organizations and private companies, to sustainably control the lethal and hard-to-control weed.

The management technologies range from simple cultural practices such as intercropping maize with legumes such as groundnuts; crop rotation of maize with soybean which stimulates *Striga* to germinate but which later dies in the absence of the maize host to latch onto; deploying a “push-pull” technology that involves intercropping cereals with specific *Striga*-suppressing desmodium forage legume; using *Striga*-resistant maize varieties; and using CIMMYT-developed maize varieties resistant to Imazapyr—a BASF herbicide (StrigAway®), which kills the *Striga* seed as it germinates and before it can cause any damage; and adopting *Striga* biocontrol technologies which uses a naturally occurring host-specific fungal pathogen that kills the *Striga* at all stages without affecting other crops.

Imazapyr-resistant maize varieties with natural resistance to *Striga hermonthica* have been developed.

ISMA (<http://www.iita.org/web/isma/>) is funded by the Bill & Melinda Gates Foundation and is being implemented with *icipe*, CIMMYT, African Agricultural Technology Foundation (AATF), BASF Crop Protection, and other national agricultural research and extension services and private sector players in Kenya and Nigeria.

Cultivating seed yams in the air

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For the plant and tuber to develop, an automated system was established for atomizing periodically nutrient enriched water solution in the form of mist.

The preliminary result showed that vine rooting in aeroponics had at least 95% success rate compared to vine rooting in carbonized rice husk with a maximum rate of 70%.

Rooting time was much shorter in aeroponics. Prof Felix Nweke of Michigan State University commended the research. He said: “This innovation presents an exciting opportunity for yam production in Africa.” Aeroponics is coming at an opportune time for African farmers. Traditionally, seed yam production is expensive



Mini-yam tubers growing

and inefficient. Farmers save about 25 to 30% of their harvest for planting in the following season, meaning less money in their pockets. Moreover, these saved seeds are often infested with pathogens that significantly reduce farmers’ yield year

after year.

However with an established aeroponics system for seed yam propagation at the premises of an interested private investor, seed company or humanitarian NGO; yam producers can have access to clean seed yams.

The soilless yam propagation system will increase the productivity of seed and ware yam and effectively reduce diseases and pests incidence and severity (no soilborne or vector-transmitted pests and diseases during the vegetative phase). “African farmers need clean seeds to increase yield and we are working to ensure that it becomes a reality through private actors for yam farmers in Ghana and Nigeria,” Maroya said.