

Visiting USAID and AGRA teams praise IITA initiatives and facilities in DRC



Dr. Joseph DeVries, AGRA (2nd from left); with IITA scientists in the greenhouse.

In the week of 7 September, a two-person team from USAID and AGRA visited IITA-Kalambo station to learn more about the agricultural development activities going on there and to explore areas of collaboration.

The USAID team consisted of Dr Peter Ewell (a consultant) and Mr Augustin Kidima Ngeleka of USAID Kinshasa. The visitors were taken around the station and interacted with key staff and members of the IITA Kalambo Youth Agripreneurs (IKYA). The team visited the processing unit, fabrication unit, exhibition center, greenhouses, and laboratories. They expressed amazement at what they saw

of the facilities and ongoing work at the site. In the laboratories, the team asked many questions on rhizobia strain tests, the supply of inoculants, crop responses to inoculants especially by common beans and soybean, market issues and prices, etc. The visitors were happy with the responses that in his closing remarks, Dr Ewell said, "It has been very inspiring to see such a well-designed and well-managed program. The site is spectacular."

A few days later, another team from the African Green Revolution for Agriculture (AGRA) visited the Station. The team was composed of Dr Joseph DeVries, AGRA's

Director for Africa's Seed Systems Program, and Dr Chris Assanzi, AGRA's Program Officer based in Goma, DRC. Dr DeVries presented on AGRA's activities in DRC. These included organizing training on crop breeding, funding projects on breeding new crop varieties, developing and strengthening private sector capacity on seed systems, and developing strong partnership networks to improve on the quality and quantity of improved seed accessibility. After visiting the processing unit, AGRA representatives expressed amazement at the diversity of soybean-derived products and the explanations provided by the IKYA members. They said they would advocate and lobby with their financial backers so that soybean could also be included as part of their mandate crops as well. After the visit, the team said they were overwhelmed by the investments made, congratulated those with the vision to build the site, and expressed their willingness to partner with IITA-Kalambo. To share in the IITA-Kalambo vision, the team discussed important areas of collaboration, such as soil sample analysis, demonstration of new technologies to farmers, training of agronomists, and tests of laboratory experiments.

IITA Kalambo moves from paper to electronic survey

The socioeconomic unit of IITA-Kalambo, in collaboration with colleagues from Nairobi-Kenya, Uganda, and HQ-Ibadan, organized an 8-day training on 1-11 September on the use of e.survey tools (tablets) to conduct household surveys. The training was conducted in the context of the baseline study of the CGIAR Research Program on Humidtropics and the key performance indicators of IITA on poverty and sustainable land use (SLU).

These tools will help save time and reduce errors in undertaking household surveys as well as shortening the time of reporting according to the organizers. Also

through the training, IITA-Kalambo built capacity among NARS representatives and university students who attended the training.

"I appreciate this new technology; previously we used only printed paper with the associated risks of damage from rain, errors, problems, and waste of time," Zalugurha Igega Thithy said.

Another participant, Sebba, a social economist and agronomist, said "I have been involved in several surveys but this training was very useful to me. It gave me more knowledge about conducting a better survey. Before this training, our knowledge was limited," said.



A participant with farmer taking the GPS coordinate during the practical session.

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

Yam farmers in Oyo State trained on seed yam production using minisett and vine cutting technologies



Farmers in a minisett technology training session.

The project Yam Improvement for Income and Food Security in West Africa (YIISFWA) trained two groups of farmers on 6 and 12 August on seed yam production using minisett and vine cutting technologies. The first group of 34 major yam farmers from six villages gathered at Agunrege via Saki (Oyo North) and the second training event was a group of 20

yam farmers at Abeta village near Eruwa in Ibarapa East. The training sessions were facilitated by the Catholic NGO Justice Peace Development Movement (JDPM).

Farmers lamented the unavailability and high cost of seed yam as their major constraint and asked JDPM to train them on minisett and vine cutting techniques

and procedures to ensure self-reliance in the production of healthy seed yam.

The training sessions were held for both farmers and JDPM agents. Key among the procedures learned on the minisett technology were the appropriate timing of operations, selection and use of healthy and clean mother yam tubers to generate minisett, effective use of recommended rates of chemicals (insecticide and fungicide) in treating planting materials, and nurseries for minisett pre-sprouting prior to field establishment.

For the vine cutting technique, the steps included using healthy seed yam to generate vines in an isolated place (screenhouse), and cutting vines on the secondary branches of the main stem between 60 to 90 days after sprouting. The farmers were overjoyed at the prospect of successful yam propagation. Deacon Ojedele Alleluia on behalf of the farmers and Awoyinka Kayode on behalf of JDPM thanked IITA-YIISFWA for this intervention.

Another new technology for the yam seed system

Traditionally, yam propagation is done by field planting of whole tubers or large pieces or “setts” of between 200 and 500 g. Thus, farmers reserve a large number of otherwise consumable tubers—not enough for planting every year.

In the minisett technique, one tuber is cut into pieces called minisett (each weighing 25-50 g) for planting. For instance, an average of 6 minisett from 1 mother seed tuber will give 6 plants in the following year. In the vine rooting technique, stem cuttings from actively growing plants are rooted to generate new plants or tubers the following year (e.g., stem cuttings made from 6 plants obtained from 1 mother seed tuber which was cut into 6 minisett will generate 180 new plants). These rates of propagation are still low (compared with 1:300 in some cereals), losses are encountered at rooting, and genotype variations exist.

As part of its objective to develop novel technologies for the high ratio propagation of high quality seed yam, YIISFWA is developing protocols for producing seed yam using conventional tissue culture, aeroponics, and temporary immersion bioreactor (TIB) technologies. The use of aeroponics—growing yam in soil-free, mist nutrient—has shown that it is possible to produce 540 new plants from 1 tuber in 1 year.

In addressing the problem of seed quality,

the culture of single nodes of disease-tested plants in test tubes (conventional tissue culture) has been demonstrated to be capable of producing disease-free plantlets with a multiplication ratio of about 1,800 plants or tubers from 1 tuber in 1 year. However, this rate is still suboptimal due to the limited size of the container (which limits the amount of air and nutrients), and the need for frequent subculturing which increases labor costs and the final cost of each plantlet.

Currently, the yam seed system is informal, and farmers reserve up to half of the year’s harvest for future planting, obtain seeds from fellow farmers, or purchase them from the market. In contrast, the formal seed system is about quality control and certification at all stages of the seed yam value chain, and a gradual increase in the quantity

of pre-basic to basic seeds and then of certified seeds that can be commercialized to farmers. The introduction of the formal seed system will require novel technologies, especially in terms of speed of production, uniformity, quality control, and certification of clean pre-basic/basic and commercial seed yam in large quantities. Such rapidity is offered by the automation in the TIB technology.

The TIB technology is a propagation system that rapidly grows yam by intermittently immersing the plants in liquid nutrients in sterile lab containers. It is a new-generation tissue culture technology. In most crops tested (pineapple, cocoa, potato, etc), TIBs increased propagation rates. YIISFWA’s research shows that it is possible to produce between 3,600 and 7,000 plants from 1 tuber in 1 year.



Left: TIB system set-up in IITA. Right: Yam plant immersed in liquid nutrients.

USAID–Tanzania invests US\$2.2 million to support Africa RISING scale out technologies for increasing productivity

The Africa Research in Sustainable Intensification for the Next Generation (Africa RISING) project led by IITA will receive an additional US\$2.2 million per year from the USAID mission in Tanzania to scale out appropriate technologies to smallholder farmers in the maize- and rice-farming systems of Tanzania.

The project has been working in the country for almost three years to identify, test, and adapt best-practice technologies to sustainably increase whole farm productivity of small-holders through use of innovative technologies to improve their livelihoods and at the same time conserve their natural resource base.

Africa RISING will use the complementary funding to work together with two development programs supported by USAID under the Tanzania Feed the Future (FtF) Initiative to disseminate these technologies to more farmers beyond those reached by the research project. The two partner programs are NAFKA (Tanzania Staples Value Chain) led by ACIDI/VOCA and TUBORESHE CHAKULA (Let's improve food) led by Abt Associates.

“In our three years of research being conducted in Manyara (Babati district) and Dodoma (Kongwa and Kiteto districts), in partnership with diverse researchers and farmers, we have already identified very promising technologies and farming practices that have increased

productivity significantly. We will work with NAFKA and TUBORESHE CHAKULA to widely disseminate these technologies to thousands of small-holder farmers to increase their production in sustainable ways,” said Prof Bekunda Mateete, Chief Scientist, Africa RISING in East and Southern Africa based at Arusha.

The new partnership project aptly titled “Enhancing partnership among Africa RISING, NAFKA and TUBORESHE CHAKULA Programs for fast-tracking delivery and scaling of agricultural technologies in Tanzania”, will benefit 47,000 maize-based farming households from small-holder farming communities who will receive new technologies that will diversify and increase their food supply and quality, and income sources, and improve the quality of degrading cropland.

The new project will expand the area under improved rice production technologies by 116,000 hectares and increase both maize and rice yields per unit area by 50%.

These activities will be conducted in the primary regions of Manyara, Dodoma, and Morogoro with planned extension to Iringa and Mbeya, all in the Feed the Future's zones of influence.

Africa RISING has brought together a multidisciplinary team with researchers from national and international organizations to address the major



Jerry Glover (left) of USAID and Elizabeth Maeda of the USAID mission in Tanzania visit a farmers' field.

challenges faced by small-holder farmers in maize-based systems in East and Southern Africa and which lead to the low productivity observed in farmers' fields.

For example, the average yield of rice in Tanzania of 1.95 t/ha does not meet the country's consumption targets as well as the export potential to the surrounding importing countries Kenya, Mozambique, Malawi, Zambia, DR Congo, Rwanda, and Burundi. The country therefore needs at least to double its rice production.

The complementary project will run for 3 years, starting October 2014.

HarvestPlus honors Dixon & others for work on vitamin A cassava



Dr Wolfgang Pfeiffer, Deputy Director (Operations), HarvestPlus (left), presenting an award to Dr Alfred Dixon (right) in Abuja, Nigeria.

HarvestPlus, the organization leading global effort to end hidden hunger, has given an award to Dr Alfred Dixon, known by his peers as “Dr Cassava,” and currently Project Leader of the Cassava Weed Management Project/Head, Project Coordination Office, in recognition of his outstanding performance towards the rapid development of provitamin A cassava varieties in Nigeria.

The award was given to Dr Dixon during the HarvestPlus-organized annual crop meeting held in Abuja on 22-23 September. The organization also honored one of its own – Dr Wolfgang Pfeiffer, Deputy Director (Operations), HarvestPlus. IITA Cassava Breeder, Dr Peter Kulakow; and the Executive Director, National Root Crops Research Institute (NRCRI) Umudike, Dr. J.C. Okonkwo, were also given awards.

Dr Dixon, a cassava breeder, led the development of over 300 improved cassava varieties most of which were introduced to over 30 countries in Africa and helped the continent to increase production. He also pioneered the development of provitamin A cassava varieties. In reference to the contribution of Dr Dixon, Dr Pfeiffer referred to him as “being instrumental to the development of yellow cassava varieties that are agronomically superior.”

In 2008, Dr Dixon left IITA to serve as the pioneer Director General of the Sierra Leone Agricultural Research Institute (SLARI), Freetown, Sierra Leone.

Dr Dixon is often referred to as the “Father of Cassava in Africa.” In recognition of his contribution to the development of the cassava sector in Nigeria, he was awarded a traditional chieftaincy title in Nigeria.