IITA
Research to Nourish Africa
CGIAR
No. 2295 28 Sept. – 02 Oct. 2015

THE BULLETIN

Africa RISING technologies offer farmers an opportunity to triple earnings

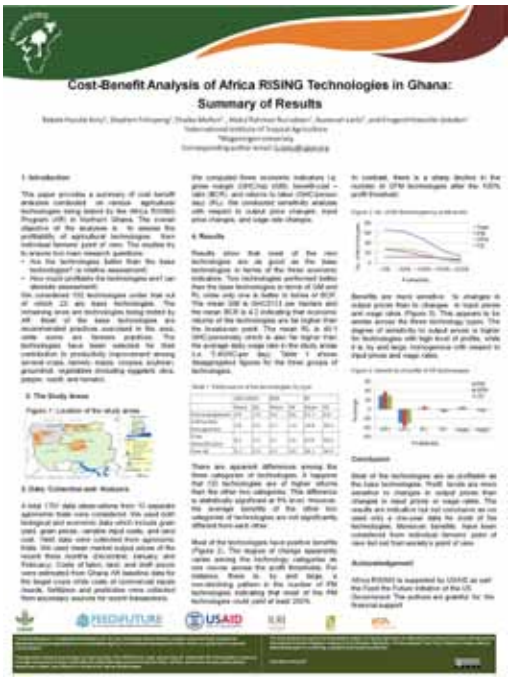
Results from an indicative cost–benefit analysis on the use of Africa RISING technologies in northern Ghana show that farmers are getting better economic returns from adopting the project's technologies.

For instance, the mean benefit–cost ratio (BCR) for the technologies is 4.2 indicating that the farmers earned three times (300%) their total expenditure when using technologies by Africa RISING.

The results also show that the mean returns to labor when a farmer adopts these technologies is GHC 49.1 (US$12.4)/person day compared to the average daily wage rate of GHC 5.4/day in the project research zones. This means that Africa RISING technologies on average can generate a daily net return to labor nine times greater than what a farmer can earn in a day if they are involved in casual work in the project intervention areas.

Crop diversification technologies, soil fertility management, and pest management practices were some of the technology categories reviewed during the cost–benefit analysis. It appears that crop diversification technologies give higher returns than the other two categories.

Furthermore the analysis showed that profits are more sensitive to changes in output prices than to changes in input prices and wages. This implies that the adoption of the technologies is most affected by policy interventions that affect output prices.


Cost-Benefit Analysis of Africa RISING Technologies in Ghana:
Summary of Results

Successful climate change adaptation calls for all-inclusive, context-specific action and supportive policies

Climate smart agriculture (CSA) is one of the ways to support smallholder farmers in coping with the negative effects of climate change. However, for it to work, it must be region and context specific, be supported by appropriate policies, and apply approaches that bring together all the different actors in a coordinated manner. The policies must also be informed by research.

Edidah Ampaire during her presentation.

This was the key message of a presentation delivered by Edidah Ampaire, Project Coordinator, CCAFS Policy Action for Climate Change Adaptation Project, at the 3rd Africa Food Security Conference and Agric-Exhibition in Nairobi on 23 September.

Ampaire said climate change adaptation, including the adoption of CSA must take into consideration various factors across different implementation levels—from the plant and farm level, such as crops that male and female farmers prefer to grow—to community and institutional levels, including coordination of all the different actors in the relevant sectors.

Climate change and coffee

Researchers at IITA and their partners have generated evidence that coffee is one of the crops that is negatively affected by climate change.

Fortunately, she said, research provides several CSA options that can be applied across the different adaptation scenarios. For example, growing coffee under shade creates microclimates that would support the crop to cope with a warmer climate. Banana would also supply extra food and nutrition and biomass for the soil, and capture carbon.

"Climate change and agri-food policies also need to be gender responsive", Ampaire said as she shared the findings of a study that had looked at the gaps in national policies and strategic plans in Uganda. From the study, many of the national policies such as the National Climate Change Policy of 2013, the National Agriculture Policy (2013) and the National Development Plan, among others, did not articulate gender issues well. The Uganda Gender Policy of 1997, on the other hand, did not

address climate change adaptation and disaster risk reduction issues. "CSA must be all inclusive and not benefit one group at the expense of the other. It must especially address the needs of marginalized groups such as women and youth", Ampaire said. The partners involved in the case studies included the agriculture ministries and national agricultural research systems in Tanzania and Uganda, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), International Livestock Research Institute (ILRI), World Agroforestry Centre, International Centre for Tropical Agriculture (CIAT), Bioversity International, and USAID.

YIIFSWA conducts farmer exchange visit from Ghana to Nigeria

Recently, the Yam Improvement for Income and Food Security in West Africa (YIIFSWA) project hosted a 4-day farmer exchange visit for farmers and extension agents from yam production regions (Ashanti, Brong Ahafo, and Northern region in Ghana as well as Abuja and Oyo State in Nigeria). They visited key production locations in the River Niger yam production system, namely, Ilushi seed yam market, multiplication and minisett demonstration fields in Ilushi, Edo State, yam field and demonstration plots in Idah, Kogi State, and a yam farm in Kwali, Abuja.

The exchange visit, the first of its kind for YIIFSWA, brought together 12 farmers and extension agents each from Ghana and from Nigeria.

Farmer exchange participants to Nigeria.

According to Beatrice Aighewi, YIIFSWA Seed Specialist, the purpose of the trip was to expose the project seed yam farmers to new ideas on large-scale seed production for commercial purposes, and give smallholder farmers the opportunity to learn directly from their peers.

Throughout the course of the visit, participants from Ghana noticed that the yam fields visited had fewer diseased plants compared to Ghanaian yam farms.

Edward Boateng of the Grains Legumes Development Board indicated that although the Ilushi seed market is part of the informal seed system he was quite impressed with the cleanliness of the farmers' yam fields.

In addition, participants were impressed with the staking styles, namely, tripod and pyramid staking in Ilushi and "networking" in Idah. According to Ali Yaro, an agricultural extension agent from Mion District, Ghana, the staking method on farmers' fields was cost effective and reduced drudgery; farmers can easily weed their farms unlike in Ghana where they have to hire labor to hold up the vines while spraying chemicals for weed control.

Seed yam producers in Ilushi practiced the cutting of a healthy tuber into setts; they previously did not treat the yam setts with fungicide and insecticide to protect it against fungal infection and insect damage. However, that has changed with the introduction of new technologies by YIIFSWA and its clean seed yam interventions in the community. Many demonstration plots have been established over the years on minisett technology.

Moreover, lessons learned from YIIFSWA demonstrations are being used to train farmers on clean seed yam production on other donor-funded programs.

Aighewi also added that such interventions will greatly improve the quality of seed yam tubers in the River Niger yam production system.

After the field tour the participants held group discussions on what they had seen and learned during the exchange visits. Key take-aways from the visits are that farmers in Ghana and Nigeria should be encouraged to:

- Rogue diseased plants from yam fields to keep infestation to a minimal level.
- Treat planting materials before planting.
- Initiate the establishment of seed yam markets in Ghana and other parts of Nigeria.
- Stake depending on agroecological zone--if staking is needed, farmers should seek out cost-effective methods of staking to enhance air and sunlight penetration as well as easy farming activities.

Got a story to share? Please email it with photos and captions every Wednesday to 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).

IITA trains PICS bag vendors on hermetic storage

IITA's socioeconomics team working on promoting the use of the Purdue Improved Crop Storage bags, also known as PICS bags, held a workshop at Stanford Hotel, Kubwa, on 22 September to promote the benefits and cost-effectiveness of PICS bags for long-term storage of cereals and grains.

Present at the program where agro-vendors from across Nigeria who sell PICS bags or have been involved in the project promotion of the storage technology in their communities.

Participants at the PICS bags vendor training.

At a press conference, Tahirou Abdoulaye, IITA project coordinator of the PICS3 project, said: "The purpose of the workshop was to train vendors on the technology, because they will be the ones to sell the bags to farmers. Therefore, they need to understand the technology to sell it better. From IITA's perspective, we know from statistics that if we can reduce postharvest losses, we can improve food security in Africa. And that is what PICS bags offer—food safety and food security."

In Nigeria, there have been cases of food poisoning due to chemical storage leading to what is commonly called "killer beans". The PICS bag technology eliminates the need to use any chemicals for storage.

The technology is a simple and easy-to-use approach that uses special airtight (hermetic) plastic bags to preserve grains in storage. The hermetic triple bagging system prevents the air from penetrating, and hence limits the survival of weevils and other insects that damage crops.

To promote the storage technology, IITA and the PICS3 project uses three avenues: demonstration at the farmer level, capacity building of extension agents and agro-vendors, and promotion of the technology via mass media and ICT tools.

According to Abdoulaye, "IITA is the main source of information; we provide constituents with information on the technology. Currently we are training and building the capacity of stakeholders to promote the product. As of last year the Institute has conducted demonstrations in 1,500 communities in Nigeria and is working with the media and distributors in more than 25 states. Currently, 70 vendors are registered PICS bag sellers in Nigeria.

On the challenges of product adoption Abdoulaye explained that "The main constraint we are facing is the continuous challenge of building a supply chain. Research has shown that adoption picks up very quickly if the average distance between a PICS bag dealer and a farmer is anywhere below 7 kilometers."

Under the PICS3 Project, IITA is providing technical backstopping to Agricultural Development Programs of 21 states, local government areas, PROGREEN, Women Gender Developers, and some farmers' organizations.

IITA has been promoting the PICS bags technology since 2008 to help preserve and protect all kinds of grains. It started with cowpea and demonstrations in more than 12,000 villages in Nigeria. Further research has shown that the technology is as effective in storing most grain and cereal crops.

Announcements

- **Africa RISING Program Strategy Workshop,** Mali, 6-8 October.
- **Third Annual CEO Forum,** private sector and government assembly to end poverty and hunger by 2030 in line with the overall aim of the Sustainable Development Goals, 7 October, Offices of Ford Foundation Lagos.
- **Open Day, IITA Ibadan,** Nigeria, 14 November
- **R4D Week,** IITA Ibadan, 22-28 November.
- **Joint World Cowpea and Pan-African Grain Legume Research Conference 2016**, co-organized by IITA and the Feed-the-Future Legume Innovation Lab, Livingstone, Zambia, 28 February to 4 March 2016. For more information, visit the conference website or download the conference announcement.

- **IITA and CGIAR 2014 annual reports now available online!**
- The CGIAR 2014 Annual Report was officially launched this week. With a special feature on nutrition and health, the annual report has been widely shared through the social media (Twitter, Facebook, Linkedin) and the CGIAR networks. The document is available on the following link http://annualreports.cgiar.org.

- The IITA 2014 Annual Report is also available at http://www.iita.org/annual-reports. This report highlights breakthroughs in our research-for-development efforts in biotechnology, genetic engineering, agribusiness, climate change, research, and natural resource management, including achievements of some CGIAR research programs, and innovative partnerships for 2014. The interactive PDF and online version are available at http://bit.ly/1Ff30As and http://wpar12.iita.org/.

Staff update

Asrat Asfaw Amele, an Ethiopian, has joined IITA-Abuja, Nigeria, as a Yam Breeder. He obtained a BSc degree in Plant Science from the former Alemaya Agricultural University (now Haromaya University), Ethiopia in 1995. He has an MSc degree in Plant Breeding and Genetics from CCS Haryana Agricultural University, Hissar, India. He obtained his PhD in Plant Breeding at Wageningen University, The Netherlands in 2011.

Before this appointment, he had been a Potato Breeder at the International Potato Center, sub-Sahara Africa Regional Program since 2012. He can be contacted on a.amele@cgiar.org

David De Koeyer, a Canadian, has joined IITA-Ibadan, Nigeria as Project Leader for the AfricaYam Project. He obtained a BSc degree in Agriculture from the University of Guelph, Ontario in 1988. He obtained his MS and PhD degrees in Plant Breeding from the University of Minnesota, St Paul, Minnesota in 1992 and 1996, respectively.

Before he took up this appointment, he was a Research Scientist working on potato genetics and bioinformatics at the Potato Research Centre, Agriculture and Agri-Food Canada (AAFC), Fredericton, New Brunswick (2000 to May 2015). His office is located in Building 400, room 44 with telephone extension no. 2340. His e-mail address is d.dekoeyer@cgiar.org

Francis Muthoni, a Kenyan, has joined IITA-Tanzania as a Postdoctoral Fellow–GIS specialist. He holds a BA degree in Geography from Moi University, Eldoret, Kenya (2003) and an MSc in Geo-Information and Earth Observation in Environmental Modelling and Management (2010). He received his PhD in Spatial Ecology from the Faculty of Geo-Information Science and Earth Observation (ITC) University of Twente, Netherlands (2014).

Before this appointment, Francis was a Geographical Information Systems (GIS) consultant for the GFA Consulting Group on an IGAD project (April to June 2015). Previously he was a GIS Officer at the University of Cambridge Laikipia Elephant Project (2007 to 2008). He can be contacted on f.muthoni@cgiar.org

Sika Gbegbelegbe Dofonsou, a Canadian, has joined IITA-Malawi Station as an Agricultural Economist (Foresight Modeler). In IITA, her research focuses on using bio-economic modeling tools for foresight analysis related to IITA's mandate crops.

She obtained her Bachelor (1999) and Master's (2000) of Science degrees in Agricultural Economics and Business from the University of Guelph. She earned a PhD degree in Agricultural Economics and Business from Purdue University in 2008.

Prior to her appointment, she was the Leader and Focal Point for the research program on Policies, Institutions and Markets (PIM) in CIMMYT (2013 to May 2015). She can be contacted on g.sika@cgiar.org. Her office address is IITA-Malawi Chitedze Station; PO Box 30258; Lilongwe 3; Malawi with telephone no: + 265 (0) 1 707 014.

Julius Adewopo, a Nigerian, has joined IITA Kano, Nigeria as a Postdoctoral Fellow–Geospatial Analyst Maize-Based Systems. He obtained a B.Tech. degree in Forestry and Wood Technology at the Federal University of Technology Akure, Nigeria (2006), and an MSc degree in Forest Resources at the University of Arkansas-Monticello (UAM), USA (2010). He proceeded to pursue a PhD degree in Soil and Water Science at the University of Florida (UF), Gainesville, USA, and graduated in 2014.

Prior to this appointment, he acquired a year's corporate experience as a Compliance Advisor at a Fortune 500 Company in the USA, and honed his research experience while he worked for 4 years as a Graduate Research Fellow at the Soil and Water Science Department, UF. His contact email is j.adewopo@cgiar.org

Henry Kpaka, a Sierra Leonean, has joined IITA-Tanzania as Project Coordinator and Monitoring and Evaluation Specialist. He has a Bachelor's degree in Economics from Whitman College, USA (2009). He obtained his master's degree (MPA/ID) at Harvard University, USA, in 2011.

Before he took up this appointment, he was an Associate Program Officer (May 2012 to May 2015) and a consultant (November 2011 to May 2012) with the Bill & Melinda Gates Foundation, Seattle, USA. His e-mail address is m.kpaka@cgiar.org

Adane Tufa, an Ethiopian, has joined IITA-Malawi as Monitoring and Evaluation Officer. He holds a BS degree in Animal Sciences from Alemaya University of Agriculture, Dire Dawa, Ethiopia (1995), an MSc degree in Agricultural Economics from GB Pant University of Agriculture and Technology, India (2002) and a PhD in Agricultural Economics from Wageningen University, Netherlands (2013).

Before he took up this appointment, he was an Assistant Professor, Agribusiness and Value Chain Management at Hawassa University, Ethiopia. He worked also as Socioeconomist on a USAID-funded project in 2014. His e-mail address is a.tufa@cgiar.org.