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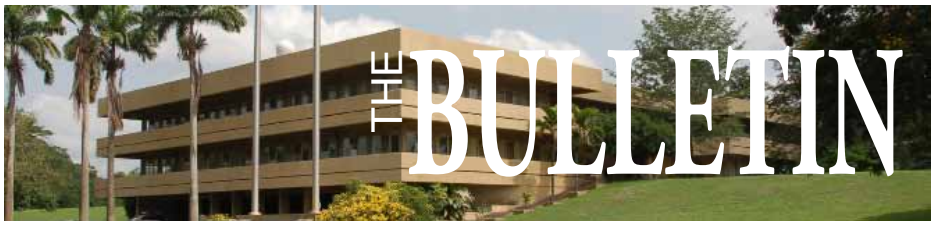

Research-for-development project chalks up significant progress to save maize from parasitic *Striga* weed in Nigeria

Thousands of farmers in Nigeria are successfully battling the invasion in their farms by the deadly parasitic weed *Striga* or "Wuta Wuta". As a result they are enjoying higher yields in maize and cowpea, important staple and cash crops 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 based at IITA, which is coordinating the project.

More than 70 project implementers, representatives of government agencies, private sector players, and other stakeholders met in Kano on 7-8 April for the third National Review and Planning Meeting. The meeting aimed to review the progress being made on the ground and come up with the way forward for upscaling to reach thousands of farmers in the next year.

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. 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 and cowpea production constraint in 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 *Striga* weed.

Management technologies range from cultural practices such as 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; using *Striga*-resistant maize varieties; and using maize varieties resistant to Imazapyr—a BASF Crop Chemical herbicide (StrigAway®) and Metsulfuron Methyl (MSM), a Dupont Chemical herbicide which is coated on the herbicide-resistant maize seeds developed by IITA and which kills the *Striga* seed as it germinates and before it can cause any damage; other technologies include adopting novel *Striga* biocontrol technologies which uses a naturally occurring host-specific fungal pathogen that kills the weed at all stages without affecting other crops; and deploying a "push-pull' technology that involves intercropping cereals with specific *Striga*-suppressing desmodium forage legume.

The project, being implemented in Kenya and Nigeria, aims to reach 250,000 farmers directly and improve the livelihoods of over 25 million small-holder farmers in the immediate impact zones within 10 years. In addition, the project aims to increase current maize and cowpea yields by over 50% in *Striga*-infested areas and reduce the area under *Striga* infestation by 13%.

According to Dr Alpha Kamara, IITA Systems Agronomist leading the project activities in Nigeria, "We are disseminating integrated solutions to tackle the *Striga* menace in Bauchi and Kano States in Northern Nigeria. In the three years, a total of 8600 farmers from 300 communities in Bauchi and Kano States have been trained on *Striga* management technologies. In addition, over 1770 demonstration fields have been established in the 300 communities to validate the field performance of the technologies and disseminate the best-bet practices and varieties. About 112,000 target farmers have been reached with these technologies through multiple activities and pathways. In partnership with community based seed producers and private sector seed companies, about 1243 tons of seed of *Striga*-resistant maize and 300 tons of *Striga*-resistant cowpea have been produced and disseminated to farmers through community, government, and commercial channels."

So far, the varieties developed such as herbicide-resistant (IR) maize varieties with natural resistance to *Striga* produce grain yields up to 4.6 t/ha on-farm compared to 1.7 t/ha with farmer- preferred varieties, says Dr Abebe Menkir, IITA Maize Breeder. The project has been disseminating to farmers *Striga*-resistant maize varieties that produce grain yields up to 3.6 t/ha on-farm, an increase of up to 126% under *Striga* infestation, compared with the common farmers' varieties and commercial hybrids. In addition, *Striga*-resistant cowpea varieties are also being disseminated that produce grain yields of up to 1.35 t/ha on farm, when compared with 0.66 t/ha with farmer-preferred varieties.

The project is funded by the Bill & Melinda Gates Foundation and is being implemented in Nigeria in partnership with Kano Agricultural and Rural Development Authority (KNARDA); Bauchi State Agricultural Development Programme (BSADP); the Institute of Agricultural Research, Ahmadu Bello University; Bayero University, Kano; Maina Seed Company and Jirkur Seed Cooperatives in addition to many other public and private sector collaborators.

Stakeholders in the Striga Management project get together in an annual workshop.

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

IARSAF's 17th annual symposium held in Ibadan

The International Association of Research Scholars and Fellows (IARSAF) held its 17th annual symposium at IITA headquarters on 27 March to discuss the Agricultural Transformation Agenda initiative of the current administration which seeks to reposition agriculture to drive the Nigerian economy.

With the theme "Agricultural Transformation Agenda: Prospects for the African Youth", the symposium brought more than 300 students, speakers, researchers, and investors in the agricultural value chain together to discuss the way forward for the teeming population of African youth, most of whom are unemployed.

The IARSAF symposium looked at the agricultural transformation agenda and the youth.

Dr Ylva Hilbur welcomed the participants to the symposium on behalf of the Director General Dr Nteranya Sanginga. The DDG said "this symposium is indeed timely; happening at a time when there is a shift from perceiving agriculture as a way of life to seeing the profession as a business; it is an incubator where agricultural players will meet to exchange ideas and share information. IITA will not relent in its efforts to better the lot of the African farmer" she added.

IARSAF President Ms Elizabeth Oketade, in her opening remarks, thanked IITA for hosting IARSAF and for its unfailing financial, moral, and research support. She said that the ultimate goals of the symposium are to critically analyze the prospects of the Agricultural Transformation Agenda and examine its benefits as it affects farming families. "The theme is also relevant to the Agripreneur program of IITA which has exposed youths to the potentials in the field of agriculture," she added.

Speaking at the symposium, the Executive Director of the Cocoa Research Institute of Nigeria (CRIN) Prof Malachy Akoroda, lauded IARSAF for a contemporary theme. He said that government policies affect both large and small agricultural enterprises and translate into development, retrogression, or destruction over time. "Luckily, the face of agriculture and the dividends from the enterprise are growing geometrically and hard working youths can key into this and benefit from it," he said.

He attributed the current rise in yields and profit of Nigerian farmers to the foresight of the Honorable Minister of Agriculture, Dr Adesina, who has by his policy of subsidizing seeds and fertilizer to registered farmers, broken the barriers that could prevent youths from going into farming. "Inputs at subsidized rates are available to every farmer in their local government areas and this is the way to go," he said. He also enjoined other African leaders to take a cue from this.

Speakers at the symposium included Mr Jeremiah Nyachuru, CEO Canna Enterprises, who showcased the buried diffuser, an underground irrigation device which is an example of how participants could invest in and make profits from the agricultural value chain. Other speakers included Prof A.O. Ani (agricultural extension); Engr Prof Zinash Delebo Osunde, (agriculture and bioresources engineering); Mr G.A. Adedeji, Project Coordinator Osun State Fadama 3; and Mr A.G. Adetoye, Monitoring and Evaluation Officer, Osun State Fadama 3.

Risk mapping and management workshop held for unit heads & project managers

About 50 participants comprising heads of units and programs converged at the Conference Center on 4 April to brainstorm and map out risk mitigations plans for the Institute. The workshop, organized by the Institute's Risk Management Committee (RMC), aimed to revisit the outcome of the last Institute-wide risk management exercise and discuss plans for addressing these risks.

According to Sylvia Oyinlola, one of the facilitators, unit heads had earlier identified, ranked, and described about 730 risks based on their likelihood of occurrence and impact on operations. These were then merged by RMC into the top 15 risks which was used as the basis for the brainstorming session.

RMC Chairperson Busie Maziya-Dixon said that the expected outcome of the day was to develop a good institutional risk management plan which will be presented to the Board. Heads of units were also expected to use the knowledge from the brainstorming session to come up with their own mitigation plans at unit level.

David Oluwadare, Head, Security Unit, explained the necessity of this strategy when he presented some of the losses IITA had incurred over time which would have been averted if mitigation plans had been in place. "We have been operating in a safe environment; but we have to act now to ensure that we do not get to that point where we will have regrets" he said.

Unit heads and project leads in a workshop to map risk mitigation plans.

The strategies to be proposed at the meeting are also important to ensure that the likelihood and impact of risks occurrence are reduced, eliminated, or kept to the barest minimum.

This collaboration among units to design a comprehensive risk mitigation plan for the institute will not only synergize all efforts for better outcomes but also clearly define every individual's stake in the process.

Welcome, new staff

N'Tji Coulibaly has assumed duty as is the new SARD-SC Maize Country Coordinator for Mali. He is based in Bamako, Mali. N'Tji, well known in Mali as "NTji Maize", first visited IITA in November 1981. Since then, he had been visiting IITA at least once a year for training or scientific visits. He graduated with a BSc in Mali, and an MSc in maize production and physiology at Iowa State University, Ames, Iowa, USA in 1987 with a thesis on the "Effect of moisture stress and nitrogen fertilizer on corn grain yield and growth characteristics."

Before joining IITA, NTji was the national correspondent of IITA in Mali, and the leader of the national maize research program in Mali. His team contributed to the increase of the total maize production in the country, from 50,000 tons in 1980 to over 1.5 million tons in 2012, through the release of more than 10 high-yielding maize varieties. He received the Leadership awards, Iowa State University, 1986; Presidential award for the promotion of maize production in Mali, September 1995; Award for Outstanding scientist for the promotion of maize in West and Central Africa for the periods 1987-1997 and 1997-2005, respectively, in May 1997 and May 2005, Cotonou, Benin, an award given by IITA/WECAMAN. He is an author and coauthor of many scientific papers on maize.

He is married with three kids. His e-mail address is n.coulibaly@cgiar.org.

Rajesh Manoharan, an Indian national, has assumed duty at the IITA-Nairobi station in Kenya as a Postdoctoral Fellow in the Yam Tissue Culture and Genetic Transformation project under the supervision of Dr Leena Tripathi. He obtained his PhD in Biotechnology (2013) from the Department of Biotechnology and Genetic Engineering, School of Biotechnology, Bharathidasan University, Tiruchirappali in India. He received an MSc in Industrial Biotechnology (2006) from Bharathiar University, Coimbatore, India and a BSc in Industrial Microbiology (2004) from Madurai Kamaraj University, Madurai, India, He has experience in tissue culture, secondary metabolite production and genetic transformation studies in important medicinal plants *Podophyllum hexandrum, Withania somnifera*, and also in agricultural crops such as soybean and sugarcane.

Prior to his current appointment, he worked as a as a Project Fellow in Industrial Collaborative Project (Bejo Sheetal hybrid seeds Pvt Ltd) (2012–2013) in developing transgenic soybean for insect resistance; and Senior Research Fellow in the Council of Scientific and Industrial Research (CSIR), Government of India-funded project (2008–2011). He has papers published in peer-reviewed international journals in plant tissue culture and genetic transformation.

He can be contacted via his e-mail r.manoharan@cgiar.org or rajeshmanoh@gmail.com and mobile number (+254) 0737701659. His office address is IITA Kenya, c/o ILRI, P.O.Box 30709, Nairobi, Kenya.

Generose Nziguheba has rejoined IITA as a Soil Ecologist. Generose, a Belgian, is based in IITA-Kenya, Nairobi, Kenya. She obtained her PhD in Applied Biological Sciences from the Katholieke Universiteit Leuven, Belgium in 2001, and BSc and MSc in Agronomic Sciences at the University of Burundi in 1993.

Before she took up this new appointment, she was an Associate Research Scientist at the Agriculture and Food Security Center, Earth Institute at Columbia University, New York, since May 2008. She was an Adjunct Soil Scientist at CIAT (November 2008–2012); Adjunct Research Scientist at Earth Institute, Columbia University (January–April 2008); a Postdoctoral Fellow-Soil Fertility Specialist at IITA, Ibadan, Nigeria, and Postdoctoral Research Fellow at Katholieke Universiteit Leuven, Belgium (January 2003–March 2005).

She also served as a Postdoctoral Research Fellow at the University of Stellenbosch in South Africa (October 2001–October 2002), a Research Assistant at the Tropical Soil Biology and Fertility (TSBF) in Nairobi (May–October 1998), Postgraduate Research Fellow at the International Centre for Research in Agroforestry (ICRAF), Nairobi, Kenya, (May 1995–April 1998), and an Assistant Professor at the Department of Plant Production, Faculty of Agronomic Sciences, University of Burundi (October 1994–April 1995).

Her e-mail address is g.nziguheba@cgiar.org.

Kwadwo Obeng-Antwi has assumed duty as SARD-SC Maize Country Coordinator for Ghana at IITA-Ghana, Kumasi, Ghana. Kwadwo, from Ghana, obtained his PhD in Agriculture from the University of Reading, UK in 2007; his MSc in Plant Breeding from the University of Guelph, Guelph, Ontario, Canada in 1997; BSc in Crop Science from the Crop Science Department of KNUST, Kumasi, Ghana in 1992; and a Diploma in Horticulture from the Department of Horticulture, KNUST, Kumasi, Ghana in 1989.

Prior to his appointment, he had been the Head of the Maize Breeding Team of the Crops Research Institute since 2008. He was a PhD student at the University of Reading, UK (2003–2007) and Senior Research Scientist/Maize Breeder at the Crops Research Institute in Kumasi, Ghana. He worked on the Corn Breeding Project of the University of Guelph as Research Assistant (1995–1997) and as an Assistant Research Officer with the Maize Breeding Programme of CSIR/CRI (1992–1995). He served as Country Coordinator for the DTMA Project in Ghana for three years (2011–2013).

His e-mail address is K.Obeng-Antwi@cgiar.org; telephone: (+233) 244743044; office address: CSIR-Crops Research Institute, Box 3785, Kumasi, Ghana.

Johnson Onyibe has joined IITA-Ibadan as SARD-SC Maize Country Coordinator for Nigeria. Johnson, a Nigerian, obtained his PhD in Agronomy (2000), MBA in Agricultural Finance (1999), and MSc in Agronomy (1987) from Ahmadu Bello University, Zaria, Nigeria. He received his BSc (Hons) in Botany from the University of Benin in 1984.

Prior to his appointment at IITA, he was the Assistant Director for Research and Planning, National Agricultural Extension and Research Liaison Services (NAERLS) at Ahmadu Bello University (ABU), Zaria. He worked as the National Coordinator, Agricultural Performance Surveys (APS), NAERLS/ABU (2009–2013); Country Coordinator, Drought Tolerant Maize for Africa Project; Program Leader, Crop and Forestry Programme (NAERLS/ ABU) (2006–2009); National Coordinator, Nigeria, West and Central Africa Maize Network (2003 to 2005); Team Leader, Core Research Team, NAERLS/ABU (2002–2004); Coordinator, NAERLS, National Accelerated Industrial Crops Production Project (NAICPP), NAERLS/ABU (2001 to 2002); Coordinator-IDRC/IITA/NAERLS Soybean Utilization Project (1993–1994); and Assistant Export Manager, Port Express Service (Nig) Ltd, Kano State, Nigeria.

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