



IITA, partners initiate major push against the 'violet vampire' in Africa

Scientists based in Nigeria and Kenya have begun a major push against parasitic weeds that have spread across much of sub-Saharan Africa, causing up to US\$1.2 billion in damage every year to the maize and cowpea crops of tens of millions of smallholder farmers.

The project, coordinated by IITA, will introduce proven technologies for fighting *Striga*, or witchweed, and *Alectra*. Known by some as the "violet vampire" because of its bright purple color, *Striga* attaches itself to the roots of plants like maize and cowpea and sucks out nutrients, reducing yields and destroying entire harvests.

Witchweed primarily affects smallholder farmers who can't afford costly herbicides for fighting the parasitic plant. The most widespread *Striga* species is estimated to have infested up to 4 million hectares of land under maize production in sub-Saharan Africa, causing yield losses of up to 80 percent. According to researchers at IITA, this represents up to US\$1.2 billion in losses for farmers and affects approximately 100 million people in sub-Saharan Africa.

"Africa is plagued by a plant 'vampire' that robs farmers of their harvest," said Hartmann, IITA Director General. "Dedicated pursuit by farmers and researchers is delivering several ways to fight the parasite."

The US\$ 9.0 million *Striga* project is supported by a US\$ 6.75 million grant from the Bill & Melinda Gates Foundation to IITA. Its goal is to help 200,000 maize farmers and 50,000 cowpea farmers who work in areas with high rates of *Striga* infestation in Kenya and Nigeria. By project's end in 2014, organizers estimate that over 250,000 individual farmers will potentially see up to 50% higher maize yields and double their cowpea yields.

The four-year project will focus on improving and expanding access



Deadly beautiful: violet-flowered *Striga* infesting sorghum in a farmer's field.

to methods of *Striga* control, while supporting research to identify the most effective means of controlling the parasitic weed under varying conditions. The project will evaluate and implement four approaches: using *Striga*-resistant crop varieties; using a "push-pull" technology that involves intercropping with specific forage legumes that inhibit the germination of *Striga*; using herbicide-coated seeds; and deploying biocontrol of *Striga*. After a two-year evaluation, the project will scale up the most effective approaches.

Scientists expect that the integrated witchweed control interventions will generate an estimated US\$8.6 million worth of additional grain (maize and legumes) annually at the project locations—resulting in increased incomes, better nutrition, and reduced poverty, as well as employment opportunities from grain production to food markets.

The project will work with farmers, seed companies, community-based organizations, extension workers,

policymakers, and researchers. In pilot areas, it will supply witchweed-resistant maize and legume seed and chemically treated seed to private seed companies and community-based seed producers for production and distribution.

The project will also research new management techniques such as use of a biological control method. In addition, the project will provide lessons and strategies for scaling up in other areas of sub-Saharan Africa and generate scientific data on the biology of witchweed, including the plant's relationship with different hosts and methods for rapid screening for resistance to the weed in maize and other crops.

Project partners include the International Maize and Wheat Improvement Center (www.cimmyt.org), African Agricultural Technology Foundation (www.aatf-africa.org), International Centre of Insect Physiology and Ecology (www.icipe.org), and BASF Crop Protection.

IITA, China to partner in cassava and banana research

IITA and the Chinese Academy of Tropical Agricultural Sciences (CATAS) has agreed to develop an MoU for conducting collaborative research on cassava and banana that would mutually benefit the sectors in the target regions of both organizations.

The joint collaboration was discussed during workshops held on 23-27 May 2011 at CATAS,

Haikou, Hainan Province and Guangxi Sub-Tropical Crops Research Institute (GSTCRI), Nanning, in Guangxi Provinces in PR China.

Ming Peng, CATAS Director, welcomed the IITA team comprised of Gedil Melaku, Peter Kulakow, Abass Adebayo, Jim Lorenzen, Leena Tripathi and Lava Kumar. He expressed interest in development and promotion of technologies for commercialization of cassava production and processing for industrial use in sub-Saharan Africa, particularly Nigeria.

CATAS and IITA teams presented on the key strengths and opportunities for the collaboration including: improvement of cassava and banana for abiotic and biotic stress tolerance and tuber quality using genomics, proteomics and transgenic approaches; exchange of germplasm; preemptive breeding for biotic stress tolerance; mechanization of cassava and banana cultivation; characterization and starch properties in various cassava



CATAS and IITA teams at the cassava field genebank in DanZhou.

cultivars; technologies for starch modification and prevention of postharvest losses; promotion of cassava processing industry; and exchange visits of scientists and students between IITA and CATAS.

As part of the workshop, the IITA team visited the Institute of Tropical Biosciences and Biotechnology (ITBB) of CATAS in Haikou; cassava farms and research facilities in Guangxi Institute of Cassava (GIC) in Nanning; cassava and banana field germplasm banks at the Tropical Crops Genetic Resources Institute of CATAS in Danzhou; the College of Life Science and Technology of Guangxi University in Nanning; a banana tissue culture production center of the Biotechnology Research Institute of Guangxi Academy of Agricultural Sciences in Nanning, which produces 80 million banana plants yearly; commercial banana production enterprise of Guangxi Jinsui Agricultural Investment Limited in Natong that produces

banana using tissue culture plants and sophisticated farm management practices on 1134 ha; and the Guangxi Mingyang Biochemical Science and Technology Ltd, the largest modern cassava processing factory in China producing cassava starch, alcohol, dextrin, paper, and other byproducts.

The workshop was envisaged during a visit of high-level delegation of CATAS team to IITA-Ibadan in 2008. Wenquan Wang, who led the CATAS team then, was the lead organizer of the 2011 workshop, with Dr Kim (GSTCRI) co-hosting, and Xin Chen and Yuhua Fu facilitating. Peng Zhang of the Institute of Plant Physiology and Ecology of Shanghai Institute for Biological Sciences, renowned for his work on development of cassava mosaic disease-resistant transgenic cassava, also participated in the workshop and part of the IITA partnership with Chinese academia.

Welcome Ryo Matsumoto, Visiting Scientist



Ryo Matsumoto

IITA welcomes Ryo Matsumoto, Visiting Scientist through the JSPS Program, to the Ibadan headquarters. Ryo is Japanese and will be working as a Yam Physiologist.

Ryo is a graduate of the Tokyo University of Agriculture where he completed his BSc in 2006. He followed this with an MSc in 2008 from the same university. Ryo obtained his PhD, again from Tokyo University of Agriculture, School of Agricultural Sciences, in 2011 with the thesis "Studies on physiological and

morphological characteristics of the growth of vine cutting in water yam (*Dioscorea alata* L.). Ryo spent eight months at IITA in 2006/2007 as a Research Fellow.

Ryo may be contacted in his office, 46 in Building 400 on extension 2336 or by email at r.matsumoto@cgiar.org.

Farm management & business skills training in Central Africa

IITA and TSBF-CIAT, under the framework of the CIALCA project, has organized a refresher training-of-trainer's workshop on farm management, marketing and agro-enterprise development skills in Bujumbura on 23-27 May 2011. The workshop was opened by ISABU Directeur des Etudes du Milieu et des Systèmes Production (DEMSP), Serges Ndayiragije.

The workshop provided trainees with skills in farm management participatory market research and business planning. They, in turn, will help smallholder farmers to improve their incomes by building their entrepreneurial skills and assisting them to engage with profitable markets.

Training participants included representatives from various NGOs such as Concern Worldwide Burundi, World Vision, and CARITAS-Belgique, among others, as well as farmer groups and CIALCA project field staff from the region.

The IITA Bulletin is produced by the Communication Office. For comments and/or contributions, please email: Jeffrey T. Oliver (o.jeffrey@cgiar.org), Godwin Atser (g.atser@cgiar.org), or Catherine Njuguna (c.njuguna@cgiar.org).