AATF

Partnerships 03

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Nigeria to carry out first confined field trials (CFT) for transgenic cowpea in Africa

Dr Mohammed Ishiyaku, the cowpea breeder and principal investigator of the Bt Cowpea Project in Nigeria, inspects the performance of cowpea in the greenhouse. Inset: the Maruca pod borer.

Nigeria will carry out the first confined field trials of transgenic *Maruca*-resistant cowpea in Africa during the second half of 2009 after the Federal Government granted approval for the trials to the Institute for Agricultural Research (IAR), Samaru, Zaria.

The trials will mark a high point in the quest to provide smallholder farmers with high yielding cowpea that can resist *Maruca* damage. Scientists have been conducting research to introduce into cowpea a *Bt* gene that confers resistance against the *Maruca* pod borer. Laboratory results indicate that the plants are protected against the insect while preliminary results from the first confined field trial of the *Maruca*-resistant cowpea carried out in Puerto Rico, USA, in 2008 showed the cowpea lines can resist damage by *Maruca* in the field.

The *Maruca* pod borer (scientific name: *Maruca vitrata)* is a major problem in cowpea production causing losses of up to 80% in severe infestation. Whereas the crop is affected by various constraints, experts say that most damage occurs during flowering and pod-forming stages of cowpea when *Maruca* is most active (Jackai et al 1985). The average cowpea grain yields in Africa are low at 0.05 to 0.55 tonnes/ha compared to a high of 2.0–2.5 tonnes/ha going by work carried out by the International Institute of Tropical Agriculture (IITA) and the Bean/Cowpea CRSP (Purdue University).

The solution to *Maruca* damage in cowpea is insecticide spray and host plant resistance. Insecticide is expensive and not always available leading to some farmers using unapproved and hazardous chemicals while others tolerate the damage. Cowpea varieties with in-built capability to protect against attack by *Maruca* will make it easier and cheaper for farmers to produce higher yielding and better quality cowpeas in *Maruca*-prone areas, thereby increasing trading volumes and improving livelihoods.

Africa highest producer

Africa produces 64% of the world's cowpea, estimated at 7.6 million tonnes per year. Nigeria, Niger, Mali, Senegal, Burkina Faso, Benin and Ghana constitute the highest producers. Nigeria, producing 2.1 million tonnes per year, is also the largest consumer of cowpea at 2.7 million tonnes per year.

Partnership

Maruca-resistant cowpeas are being developed by an international public-private partnership coordinated by AATF. The other partners are national agricultural research institutes in Nigeria, Ghana and Burkina Faso, the Network for the Genetic Improvement of Cowpea for Africa (NGICA), Commonwealth Scientific and Industrial Research Organization in Australia (CSIRO), Program for Biosafety Systems and Monsanto. The project is funded by the United States Agency for International Development (USAID) and the Rockefeller Foundation. ■

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Jackai LEN, Singh SR, Raheja AK and Alhali AM. 1985. Recent trends in the control of cowpea pests in Africa. In: Singh SR and Rachie KO (Eds), *Cowpea Research, Production and Utilization* 233-243.

news

Reduced cost of tissue culture banana can help control spread of Banana Bacterial Wilt in Great Lakes region

Dr Leena Tripathi of the International Institute of Tropical Agriculture inspects transgenic banana plantlets at the Kawanda Agricultural Research Institute, Uganda.

The cost of tissue culture banana plantlets can be reduced by up to 60% through effective and efficient banana tissue culture practices that will increase affordability and accessibility of materials by smallholder farmers who currently have to pay an average of US$1 per plantlet. These cost saving production practices were discussed during a workshop held in Taipei, Taiwan, in April 2009. The workshop was organised by AATF and Academia Sinica and participants were drawn from the public and private sector organisations that produce tissue culture banana in eastern Africa and included Agro-Genetic Technologies of Uganda, Kenya Agricultural Research Institute and Mikocheni Agricultural Research Institute of Tanzania.

Banana tissue culture materials play an important role in the fight against the banana bacterial wilt disease that is causing loss of banana germplasm in the Great Lakes region and threatening the livelihoods of millions of smallholder farmers especially in Uganda, Kenya, Rwanda, Tanzania, Burundi and Democratic Republic of Congo. Long term control efforts are underway through a partnership project coordinated by AATF to develop banana varieties with resistance to the bacterium that causes the disease. In the project, the International Institute of Tropical Agriculture (IITA) in Uganda and the Kawanda Agricultural Research Institute are transforming the banana using genes donated by Academia Sinica. In the meantime, tissue culture banana is being utilised to manage reduction in loss of germplasm.

Participants had opportunity to learn different cost-effective production measures such as the preparation of meristematic tissue to generate multiple shoots with minimum contamination and labour, sterilisation costs; and use of liquid charcoal for rooting coupled with good orchard husbandry. They also learnt techniques for effective and efficient production of tissue culture plantlets that included initiation of mother plant, subculture, regeneration and rooting, weaning and hardening.

The workshop participants will share the knowledge with more stakeholders in the banana industry to promote private sector investment in producing tissue culture banana plantlets and boost public sector extension capacity in management of banana production. ■

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WEMA holds workshop on permit application procedures for confined field trials

The Water Efficient Maize for Africa (WEMA) Project held a three-day refresher course on procedures for preparing applications for confined field trials (CFT) for its partners from Kenya, Uganda, Tanzania, Mozambique and South Africa. The training, held in Johannesburg, South Africa in April 2009, covered the various stages of preparing regulatory safety information and submitting applications for CFTs. Other issues discussed included review of regulatory requirements for conducting CFTs in each of the five WEMA partner countries, discussions of the pertinent scientific and non-scientific issues

L to R: Dr. Roshan Abdalla, the Regulatory Team leader of Tanzania, Dr. Yoseph Beyene of CIMMYT and Dr. Barnabas Kiula, Product Development team leader of Tanzania, during the WEMA 'Confined Field Trial Permit Application' training held in South Africa in April 2009.

critical in completing CFT application forms, and submitting and defending CFT applications for all the five WEMA partner countries. ■

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Training in confined field trials compliance for cowpea scientists

A two-day training workshop on the theory and practice of CFT was conducted in Abuja, Nigeria for scientists and researchers involved in managing the *Maruca*-resistant cowpea confined field trials. The training was conducted by Jeff Stein, Biosafety Advisor from the Program for Biosafety Systems, and it aimed at enhancing the capacity of the participants to install, manage and execute the CFTs. The workshop focused on the need to ensure compliance with set government and world standards and regulations on safe and responsible management of GM trials. ■

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Participants to the CFT training workshop in a group discussion

Nigeria to use IR maize to fight *Striga* in maize fields

Dr Sam Ajala (left) of IITA makes a contribution during the Striga Stakeholders meeting held from 27-22 May 2009 in Ibadan, Nigeria

A stakeholders' workshop has endorsed the use of Imazapyr-Resistant maize (IR maize) as a key component of an integrated approach towards fighting *Striga* weed that is a major concern for farmers growing maize in the savannas of Nigeria.

The workshop, organised by the International Institute of Tropical Agriculture (IITA) and AATF, was held in Ibadan, Nigeria, in May 2009 to assess the options available for control of *Striga* in maize fields in Nigeria, and build a partnership for evaluation and deployment of IR maize technology in the country.

Stakeholders, including farmers, scientists, representatives from private seed companies, agro-chemicals, government, universities, NGOs and industry, discussed the various options available for *Striga* control, the use and effectiveness of IR maize, regulatory compliance, seed production and sustainable IR maize technology deployment and marketing. The stakeholders agreed on the need to control the *Striga* menace as soon as possible.

The workshop recommended that evaluation of the IR maize technology in Nigeria commences in 2009 with researcher-managed on-farm trials to be coordinated by IITA and the Institute for Agricultural research (IAR), Samaru to be followed by farmer-managed on-farm trials in 2010. Kaduna and Niger states were selected for the first farmer-managed trials.

IITA and the National Agricultural Research and Extension systems have developed and tested various *Striga* management options for control of *Striga*. IITA has incorporated the (IR) gene into maize varieties that already have good resistance to *Striga*. These varieties have been used to develop hybrids, synthetics and open pollinated varieties that have been tested with and without seed treatment under *Striga* infestation on-station and will be used in the farmer-managed trials.

The AATF is involved in a similar partnership that is successfully testing and deploying the IR maize technology in Kenya, Uganda and Tanzania. ■

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Maruca-resistant cowpea project holds science communication workshop for project scientists

A two-day workshop on science communication for scientists in the Maruca-resistant project was held in Abuja, Nigeria, in June 2009 to equip project partners with skills on effective agricultural biotechnology communication, media relations, issue-management and designing and packaging comprehensive communication messages. The training was conducted by the International Service for the Acquisition of Agri-biotech Applications (ISAAA) and was attended by about 30 participants from the different institutions involved in the project from Burkina Faso, Ghana and Nigeria. ■

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Tanzania launches OFAB Chapter

The Open Forum on Agricultural Biotechnology (OFAB) in Africa opened its Tanzania chapter in May. The forum was officially launched by the Minister of Agriculture, Food Security and Cooperatives, Hon Stephen Wasira, who said that public understanding of biotechnology has great implication in successful application of biotechnology in research for development and on the acceptance of products developed from that research.

'Stakeholders, including policymakers and decision-makers, research managers and scientists in many developing countries including Tanzania, have low awareness about biotechnology, its impacts, as well as its potential for socioeconomic development,' said the Minister. The Tanzania forum brings to four the current OFAB chapters in Africa, the others being Kenya, Uganda and Nigeria. OFAB Tanzania is a partnership between AATF and Tanzania's Commission for Science and Technology (COSTECH).

OFAB Tanzania will hold monthly luncheon meetings in which stakeholders will share knowledge and experiences, and explore new avenues of bringing the benefits of biotechnology to the agricultural sector in Tanzania.

OFAB is an initiative of the African Agricultural Technology Foundation (AATF) which collaborates with various institutions in running the OFAB chapters in the different countries. ■

Dr Daniel Mataruka, AATF Executive Director (left), and Dr Hassan Mshinda, Director General, COSTECH, sign a collaborative agreement to set up the OFAB Tanzania Chapter

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Farmer Kennedy Okumu (middle) with Daniel Mataruka, AATF Executive Director, and Gospel Omanya, AATF Seed Systems Manager.

Farmer Kennedy visits AATF offices

Mr Kennedy Oure Okumu, a farmer from East Kagan location in Homa Bay, recently paid a rare kind of courtesy call on AATF. Kennedy visited AATF to share the exciting news about his healthy maize crop, something he had not witnessed most of his life. For Kennedy, this was incredible news indeed for he had battled with *Striga* weed on his three-quarter acre farm most of his life without success and for him it had become normal practice. In fact, Kennedy, who is also a herbalist, had become used to either not harvesting any maize or getting only six *'gorogoros'* (a 2kg container that is used to measure and sell maize in rural markets).

Kennedy learnt of the existence of maize seed that could fight *Striga* in late 2008 when he visited the IR maize technology exhibition at the Nairobi Agricultural Show. He was astounded at what the technology promised and without hesitation contacted Gospel Omanya, the AATF Seed Systems Manager. Kennedy narrated his ordeal with the weed to Gospel and requested for some seed for trial. Gospel invited Kennedy to meet him at Oyugis town, which is about 50km from Kennedy's home, to collect 4kg of demonstration seed. Kennedy was not deterred by the distance and he rode his bicycle all the way to pick the seed. What he has experienced since he planted the seed is, in his own words, 'a miracle', a statement being echoed by his neighbours. He says his field is not only clean of the weed but he has a healthy maize crop that is at grain filling stage and promises him more than the usual 12kg.

AATF and partners CIMMYT, BASF, NGOs and CBOs have been working with farmers in eastern Africa to control the weed. Farm results indicate significant reduction in *Striga* expression and impressive 50% maize yield increases. ■

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Staff Appointment

Nancy Okita
Administration/ Human Resource Associate

Nancy Okita has re-joined AATF as Administration/ Human Resource Associate from 18 July 2009 after four years working with United Nations Office on Drugs & Crime (UNODC) and the World Bank, Sudan, as an Administrative and Executive Assistant respectively. Nancy is one of the pioneer employees of AATF having worked with the Foundation from 2003 to 2005. Her new responsibilities at AATF will, among others, cover human resource, procurement and travel. Nancy's training is in Secretarial and Business Administration and Management. Before joining AATF in 2003, Nancy worked for Community Initiatives Support Services (CISS) International as an Executive Secretary for 13 years. AATF is happy to welcome Nancy back to the family. ■

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