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

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.

Contact: Nompumelelo Obokoh (n.obokoh@aat-africa.org).

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

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.

Contact: Jacob Mignouna (h.mignouna@aatf-africa.org)
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.

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.

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 workshop was attended by about 30 participants from the different institutions involved in the project from Burkina Faso, Ghana and Nigeria.

Contact: Gospel Omanya (g.omanya@aatf-africa.org)
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. ■

Contact: Nancy Muchiri (n.muchiri@aatf-africa.org)

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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 12kg. 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. ■

Contact: Gospel Omanya (g.omanya@aatf-africa.org)

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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. ■