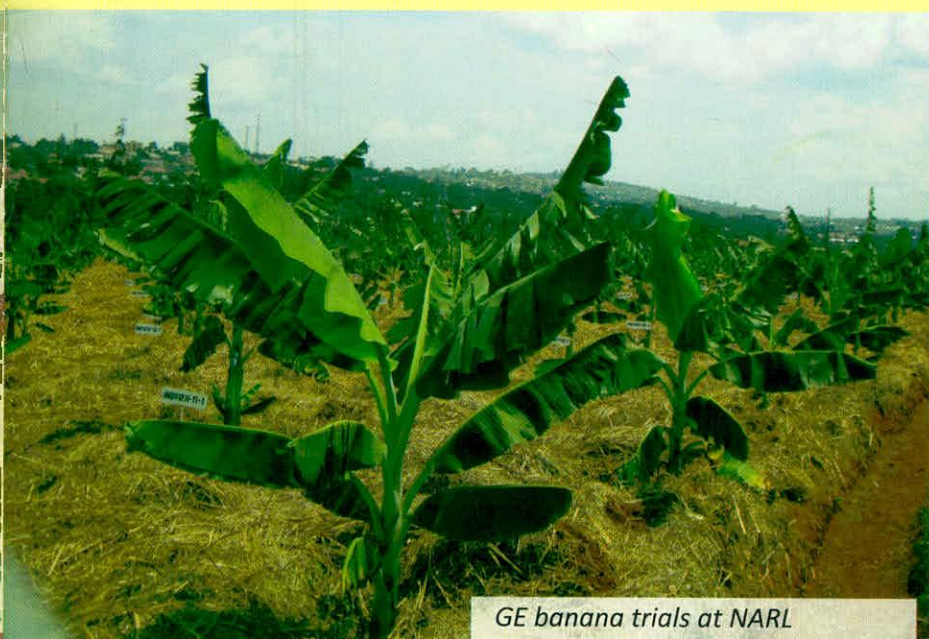


Vitamin A and Iron rich banana under trial in Uganda



GE banana trials at NARL

Peter Wamboga, Scifode

A biotechnology-based research for bananas enriched with Vitamin A, Iron and for varieties resistant to the devastating banana bacterial wilt (BXW), should be prioritized in passing a National Biotechnology and Biosafety law, stakeholders in agricultural modernization have demanded. Based on the information they received during a workshop at Kawempe near Kampala and from a tour of Vit. A and Iron-enriched bananas currently in a confined field trial (CFT), at NARL, Kawanda—the diversity of stakeholders asked the Government to prioritize expeditious processing of the biosafety law, as research was already showing exciting opportunities.

Dr. Andrew Kiggundu, head of the National Agro-Biotechnology Centre (NABC) at the Kawanda-based National Agricultural Research Laboratories (NARL), a key constituent institute of NARO, said that ongoing biotechnology-based research—of which he was part—had prioritized saving staple crops from virulent pests such as: weevils, nematodes and diseases like: banana bacterial wilt (BBW, and fungal black sigatoka also in bananas, cassava mosaic and cassava brown streak disease (CBSD) in cassava; and the sweet potatoes virus disease.

“This research is by Ugandan scientists and is at confined field trial (CFT) stages at NABC, Kawanda (bananas) and at the National Crops Resources Research Institute (NaCRRI), Namulonge—for cassava and sweet potatoes. We’re determined to provide resistant lines against these serious constraints using biotechnology. But unless the draft bill is passed into law, technology from this useful research cannot get to would-be beneficiaries,” Kiggundu said, while responding to questions from the diversity of stakeholders who included local leaders; representatives from National Association of Professional Environmentalists (NAPE); Uganda National Farmers’ Federation (UNFFE); faith-based organisations; the ministries of Tourism, Trade and Industry, Agriculture, Water and Environment, local seed breeders, rural farmers and the media.

These stakeholders’ sentiments for enacting of a biotech law, were also voiced after they toured the NABC laboratory, the Biosafety Level II greenhouses and the confined field trials (CFT) site for genetically-modified bananas: sukali ndizi (apple banana) which is a dessert and nakyinyika (a cooking banana)—both bearing Vitamin A and Iron micronutrients, which are already expressing signs of integration of the two micronutrients, especially in the leaves. The workshop held at Tick Hotel, Kawempe—north of Kampala city, was sponsored by the Strengthening Agricultural Biotechnology Management in Sub-Saharan Africa (SABIMA) project of the Forum on Agricultural Research in Africa (FARA) being implemented by the National Agricultural Organisation (NARO) in Uganda.

Cont. pg 4

GMO debate: Biosafety is key

Theresa Sengooba

The deployment of modern biotech tools such as genetic engineering (GE) to agricultural production has created significant discourse among various interest groups. Following the introduction of transgenic plant varieties for use by farmers 15 years ago, groups opposed to the technology have criticised it as fulfilling less than it promises while developers and proponents have already demonstrated evidence of the technology increasing productivity of agricultural crops, even to smallholder farmers.

No farmer will adopt a technology that is not useful or profitable. Whereas the benefits of the GE technology have been demonstrated in adopting areas, the key focus of debate has been the safety of the technology to the environment, human health, and animal health. Socio-economic issues largely focussed on Intellectual Property Rights over the technology have also been viewed as a major concern with the technology. A lot of media attention has in the past six months been devoted to discussion of the concerns with GE technology.

An honest and credible debate is useful as long as facts or plausible theory based on sound science are presented. The potential risks associated with modern biotechnology use especially in agriculture is a subject of global interest and the Cartagena Protocol on Biosafety was established to assist countries develop laws and regulatory systems that can provide for assessment of GE products and allow only those that are safe to the environment and to human health. These laws and regulations collectively known as biosafety, form the key to mitigating any potential negative effects of using the technology. Biosafety regulatory frameworks are designed to address potential risks right from product development stages to post release monitoring of approved technologies. In Uganda for instance, the national competent authority (Uganda National Council for Science and Technology) has established guidelines and procedures for conducting any research with modern biotech in the country. This is to assure the citizenry of safety of such advances. The UNCST in this regard currently conducts thorough review of applications for GE plant field experiments and ensures that those that are approved are adequately inspected to observe compliance to agreed standards of specific experiments.

Other countries in the region, notably Kenya and Tanzania, have fully established legal frameworks for managing aspects of modern biotech related to agriculture. Uganda is also in process to fine-tune its biosafety regulatory framework by developing the hitherto missing sections such as a biotechnology safety law and regulations to govern advanced and general uses of products of modern biotechnology. It is important to recognize that in all research efforts, the key emphasis has been, and will be, the safety of any technologies developed for the Ugandan farmers and consumers. The agricultural research organization in Uganda has a system of vetting and monitoring all research activities in the country and only products that can make a positive contribution to livelihood and the country's development are released. In the case of GE technology, additional responsibility for proper assessment is undertaken by the Competent Authority and the overall biosafety framework.

Scientists and other stakeholders are encouraged to contribute to this process through appropriate discourse so that concerns are addressed where they occur but otherwise helping the country to competitively benefit from technology.

Biotech Crops Surge Over 1 Billion Hectares

International: In just 15 years after commercialization, accumulated biotech crops exceeded 1 billion hectares in 2010, a milestone that signifies biotech crops are here to stay, according to Clive James author of the annual report released in March 2011 by ISAAA (International Service for the Acquisition of Agri-biotech Applications). The 1 billionth hectare was planted in 2010 by one of the 15.4 million farmers in 29 countries who now benefit from the technology. With an unprecedented 87-fold increase between 1996 and 2010, biotech crops are the fastest-adopted crop technology in the history of modern agriculture. "Growth remains strong, with biotech hectareage increasing 14 million hectares - or 10 percent - between 2009 and 2010," said James. "That's the second highest annual hectare growth ever - bringing 2010 global plantings to 148 million hectares."

Kenyan government to publish biosafety guidelines

Nairobi, Kenya: The Kenyan government has said it will publish guidelines on biosafety in about two months, setting the country on course to join developing countries in commercialising genetically modified (GM) crops. The country enacted a law on Biosafety in 2008/2009 but has yet to publish regulations and guidelines for commercial releases of GM crops. The current guidelines allows only field trials with biotech crops but the National Biosafety Authority in Kenya says they are in the process of developing requisite regulations for the country to responsibly take advantage of biotech developments in the country and beyond. ■



Water efficient maize for Africa (WEMA) trials at Kasese. GM maize generated a lot of media debate in 2010.

Science journalists recognised at the first-ever Uganda biotech media awards

Makara Arthur, Scifode

The Science journalists in Uganda have been awarded for excellence in scientific reporting by a tripartite consortium of organisations—the Science Foundation for Livelihoods and Development (Scifode), the National Agricultural Research Organisation (NARO) and the Africa Harvest Biotech Foundation International (AHBFI). These awards, the first of its kind in Sub-Saharan Africa were aimed at recognizing the efforts of Ugandan scientists in reporting issues of Biotechnology and genetic engineering. The function which took place on 21st December 2010 at the Kampala Serena Hotel was presided over by the Uganda's

First Deputy Prime Minister and Minister for East African Community Affairs Rt. Hon. Eriya Kategaya. Speaking at the function, the Deputy Prime Minister congratulated the organizers of the awards Ceremony upon organizing a colorful ceremony to recognize the efforts of journalists that are normally never given credit of informing and educating the public. He strongly supported the cause for using modern approaches in scientific research including genetic engineering and pledged Government support to these novel approaches especially to increasing food security and addressing effects of climate change.

The function saw five science journalists scooping awards for their great contribution to public understanding and awareness of biotechnology in Uganda and the Eastern African region as a whole. The overall winner of the first-ever Uganda Biotech Media Awards was Ms. Lominda Afedraru from the Daily Monitor newspaper, a Uganda independent daily, the first runner-up was Mr. Joseph Miti from the same paper and these were followed by Mr. John Kasozi from the government owned The New Vision, also a daily. The electronic Media was represented by Ms. Sarah Mawerere from the government-run Uganda Broadcasting Corporation (UBC) radio whereas the regional media were represented by Ms. Halima Abdallah from The East African, a weekly. Key personalities present at this debut Ceremony included the Director General of the National Agricultural Research Organisation, Dr. Denis Kyetere who presented a keynote paper on "Biotechnology Research, Development and Public Engagement: Key Challenges and Opportunities". In his keynote paper, Dr. Kyetere called for the bridging of the big gap that exists between scientists and journalists and pledged scientists support to journalists work by availing them information whenever they are called upon to do so.

Others present were the Executive Director of Science Foundation for Livelihoods and Development (Scifode), Mr. Arthur Makara (author); the regional coordinator of the Program for Biosafety Systems (PBS) who was also the Chairperson of the Vetting Committee, Dr. Theresa Sengooba; Ms. Julia Kagunda who represented the CEO of Africa Harvest Biotech Foundation, Dr. Florence Wambugu, among other notables that included scientists, media executives and journalists. The partners pledged for the continuation of this noble effort in the years to come and encouraged the Journalists to mentor others and to continue reporting and educating the public on issues of Biotechnology and Biosafety especially in the face of a wide range of challenges including drought, crop and animal diseases, food insecurity and climate change.



Journalists and other stakeholders on a recent trip to NARL, Kawanda

Biofortified Banana

from pg 1

Leaves in the sukali ndizi—a popular sweet banana variety, are showing strong presence of an orange-like colour, a sign which scientists use to determine visual presence of Vitamin A—via the betacarotene genes extracted from maize and a wild Asian banana called *Asupina*, which is very rich in Vitamin A.

Dr. Geoffrey Arinaitwe, the Trial Manager of this banana bio-fortification project at NARL told the visitors to the CFT site that leaves in any plant conduct photosynthesis (processing food for the plant using sunlight energy) and it's from here that plant-food is sent to other parts, such as the fruit (pulp) in bananas. "Similarly when we see beta carotene expression in the leaves we quickly know that it will be sent to the pulp (banana fingers) which human beings eat," explained Dr Arinaitwe, a molecular scientist. The ongoing experiment is the first of the kind in a developing country. "What we see this year is clearly that the gene we inserted promoting vitamin A has got fully integrated and it is a positive development. It is exciting to us because

it's the first indicator that the genes are working. This is what we wanted and it is called gene-expression. After that, the next thing we expect is expression of the same pro-vitamin A in the pulp (banana fingers). We shall only confirm this when bunches [now forming] finally mature and we open them up for examination." Solvents used in the testing of plants for vitamin and iron micronutrients' presence, have been ordered by NARL to arrive in the country, in time for the GM bananas' maturing stage.

Dr. Arinaitwe—who in 2004 transformed a *gros michel* (*bogoya*) banana with rice *chitinase* genes for resistance to fungal black sigatoka disease—reveals that the pro-iron promoters in nakinyika bananas were extracted from soya

beans (the protein and iron rich leguminous crop).

The first research of the kind in the world involving transfer of pro-vitamin A and iron genes into bananas, was conducted in Australia in 2007-8 by scientists at Queensland University of Technology (QUT). The research was led by Prof. James Dale as Principal Investigator who tested cavendish—bananas closely-related to bogoya. NARL's GM *sukali ndizi* and GM *nakinyika*—both containing genes for enhanced Vit. A and iron, are first being grown in a CFT as a requirement under the Cartagena Protocol on biosafety—an international law regulating GMOs for safety to humans and the environment to which Uganda is signatory.

Dr. Arinaitwe says the National Biosafety Committee (NBC) at the Uganda National Council for Science and Technology (UNCST) gave NARO/NARL permission to undertake this cutting-edge research mid-2010, led by Prof. Wilberforce Tushemereirwe (Principal Investigator) and Head Banana Research Team in NARO. "It's the same pro-vitamin A genes used in bio-fortification of golden rice in Asia that we have

used in biofortifying our bananas," Dr. Arinaitwe explains, adding that they are vital in the fight against blindness in children, due to Vit. A Deficiency (VAD). Meanwhile Iron deficiency in humans leads to anaemia—a state of poor blood levels in the body,

with dire consequences particularly to pregnant women. Both cases lead to hundreds of deaths of blind children and anaemic pregnant women in Uganda.

According to another NARL molecular scientist specializing in bananas, Dr Andrew Kiggundu, severe vitamin A deficiency was identified in 31 out of 36 Ugandan districts surveyed in 1994. ... "and in 1999, it was concluded that more than 50% of children consumed inadequate vit-A..... Like Vit-A deficiency, iron-deficiency is a major public health problem

cont. pg 5

severe vitamin A deficiency was identified in 31 out of 36 Ugandan districts surveyed in 1994. ... "and in 1999, it was concluded that more than 50% of children consumed inadequate vit-A



Nutrient enhanced banana on trial at NARL



Leaves of Vitamin A enhanced banana



Dr. Kiggundu (L) describes the field trials

from pg 4

and is common in both women and children. For example in early 1990s in eastern Uganda, 40% of children less than 5 years old had Iron Deficiency Anaemia (IDA). In 1998, IDA was recognized in approximately 50% of pregnant women and about 30% of maternal deaths were attributable to IDA.....," adds Dr. Kiggundu.

The highly-anticipated Vit. A and Iron-biofortified banana (enriching) project is funded by American philanthropist—Bill and Melinda Gates Foundation under its Grand Challenges program. It aims at providing a dietary fortification of staple foods, as an option to Vit-A and Iron-rich capsules distributed through the national health system.

Principal Investigator, Prof. Tushemereirwe says their research is well-intended to provide Ugandans with a more beneficial staple banana crop for both farmers/traders and consumers. "We're the key stakeholders in this project as we scientists also consume bananas like the rest of the people. Therefore, what we shall come up with is a safe product both to humans and the environment," Tushemereirwe told a contingency of visitors to NARL from civil society, the media and NGO activists. "In fact, he added, we've asked government for permission to eat the first GM bananas from here, before anybody else eats them. We want to demonstrate to the world, the high level of confidence we have in the food from crops we have genetically-modified here, that it is as safe as any other banana". He added.

Arinaitwe says the biotech-based research is a continuous process as there are various stages yet to cover-including the conduct of the second-phase of biofortified sukali ndizi and nakinyika banana suckers that have stacked (combined) genes for pro-vitamin and iron promoters, in one sucker. This young trial was planted besides the old one (single-gene) on Nov. 23, 2010.

NARL has been gazetted as a centre of excellence in agro-

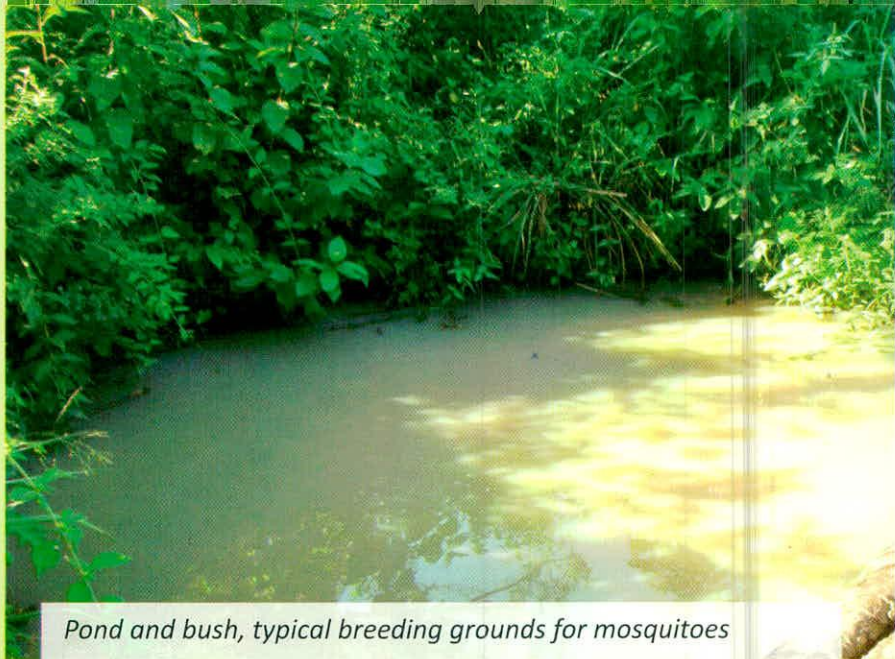


Mr Tindamanyire Jimmy, a scientist at NARL explains GE techniques to participants

research by global and African bodies, such as NEPAD's Bio-Sciences for Eastern and Central Africa Network (BeCA-Net) that has sponsored Rwandan, Burundi, Congolese and Ugandan graduate students to study biotechnology at the National Agro-Biotech Centre (NABC), at NARL, Kawanda.

Beta-carotene (pro-Vitamin A), is the pre-cursor of vitamin A in animals, including humans. It is a naturally occurring chemical and dietary intake is the primary source and most important source of vitamin A for humans. Vitamin A plays very many crucial roles in humans including supporting vision, boosting immunity, reproduction, as an anti-oxidant, and in development of various body tissues and organs. A deficiency in Vitamin A causes blindness, stunting and in severe cases, death in children as well as maternal mortality among expectant mothers. Deficiency in iron (Fe) causes the most common form of anaemia in the world as the nutrient is a major component of red blood cells and these cells cannot be formed without sufficient quantities of the nutrient in the body. In Uganda and in other developing countries, vitamin A and Fe deficiencies are commonly compounded, further worsening the situation. Fighting these two problems will go a long way in achieving the Millennium Development Goals of reducing Maternal Mortality and reducing Child Mortality.

Malaysia to release GM mosquitoes into the wild



Pond and bush, typical breeding grounds for mosquitoes

KUALA LUMPUR: Malaysia will soon take the controversial step of releasing genetically modified (GM) mosquitoes into the wild as part of an experiment to test their survival in natural conditions. The move was approved by the country's National Biosafety Board last year and will make the nation the first major country in the world to release GM *Aedes aegypti* mosquitoes for field testing — second only after the Cayman Islands in 2009. The mosquitoes, known as OX513A, have been developed by Malaysia's Institute for Medical Research (IMR) and the UK-based biotech company Oxitec to control the dengue virus, which is transmitted by *A. aegypti*.

A total of 4,000–6,000 male GM mosquitoes are expected to be released within the next couple of months, along with a similar number of unmodified male mosquitoes. The male GM mosquitoes mate with normal females to produce larvae that are unusual because of an extra enzyme they produce. This enzyme accumulates in the larvae to a level where it becomes toxic and kills them. The larvae's only hope for survival is if the antibiotic tetracycline is present — because it mops up the enzyme.

The developers hope male GM mosquitoes will compete with normal males for females so that repeated releases cut numbers of *A. aegypti* in dengue-prone areas. The mosquitoes will be released in the inland districts of Bentong in the state of Pahang, and Alor Gajah and Melaka in the state of Malacca, according to the National Biosafety Board. Each location will have two release phases: the first at a site 0.5–1 kilometres from the nearest human settlement, and the second at an inhabited site. They will be recaptured using mosquito traps, which will be monitored for at least one month, while the inhabited release sites will also be fogged with insecticide when the experiment is over. The board made its decision after its Genetic Modifications Advisory Committee (GMAC) analysed the risk factors for the experiment. The issue was opened for public consultation.

Ahmad Parveez Ghulam Kadir, head of the GMAC, told

reporters in October 2010 that the committee had been concerned that lab tests had shown that three per cent of the offspring of male GM mosquitoes and normal females actually survive into adulthood rather than dying as larvae as intended. Ricarda Steinbrecher, a geneticist and co-director of EcoNexus, a UK-based non-profit research organisation, said that it is not clear how the offspring of the male GM mosquitoes survive into adulthood and do not die as 'programmed', but it raises the possibility that they could breed and pass on this — as yet unknown — mechanism for overcoming the lethality. "I would suggest that it is far too early for any open field releases. More data are needed from laboratory experiments. Furthermore, trials in field cages [large outdoor enclosures made from netting, i.e. confined field trials] are needed," she said.

The advisory committee had also been worried that female GM mosquitoes might accidentally be released. The technicians separate the male from the female GM mosquitoes based on the size of the pupae — the stage after the larval stage — and is therefore not completely accurate. Because of this, Parveez said, the board has insisted that scientists sort through the pupae twice — first mechanically and then manually. The 'self-limiting' strategy theoretically poses little threat of genes being released uncontrolled into the environment because of the death of the offspring. But future strategies, in which the aim is to overwhelm mosquito populations with those that are resistant to disease, are more controversial because the mosquitoes survive and breed.

A Malaysian geneticist, who declined to be named, said he hopes the experiments will be carried out under rigorous safety protocols. "We have the best laws on biosafety in the world, but the problem is the enforcement," he said. Liow Tiong Lai, health minister of Malaysia, told a press conference last year that the Malaysian government views the GM mosquitoes "as one of the most efficient and fast ways of getting rid of the *Aedes* mosquito from our local environment". ■

Source: SciDev.net

The Nagoya–Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety

World community adopts a new UN treaty on living modified organisms

Nagoya, 16 October 2010. At 6.15 p.m. Friday in Japan, a new international treaty, the Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety, was adopted at one of the largest intergovernmental meetings ever held on the safe use of modern biotechnology.

The adoption of the new treaty came at the end of the five-day meeting of the governing body of the Cartagena Protocol on Biosafety (known as the Conference of the Parties serving as the meeting of the Parties to the Protocol or COP-MOP 5) and concluded six years of negotiations.

The new supplementary Protocol provides international rules and procedure on liability and redress for damage to biodiversity resulting from living modified organisms (LMO). Setting the stage for its adoption, small group of government negotiators had resolved contentious issues and agreed on the text of the supplementary Protocol just six hours before the opening of the COP-MOP 5 meeting on Monday.

Mr. René Lefeber of the Netherlands, one of the Co-Chairs of the Group of the Friends who facilitated the negotiations of the text of the new treaty said: "It has been many years since the last global environmental agreement was agreed. The adoption of new supplementary Protocol during the International Year of Biodiversity will give new impetus to multilateral environmental negotiations. This agreement will also make important contribution to the on-going work under the Convention on Biological Diversity to protect life on earth."

The new treaty shall be open for signature at the United Nations Headquarters in New York from 7 March 2011 to 6 March 2012 and will enter into force 90 days after being ratified by at least 40 Parties to the Cartagena Protocol on Biosafety.

The historic meeting of the Parties to the Protocol, held in the city of Nagoya, in Aichi prefecture, Japan, took seventeen other decisions. These included the adoption of a ten-year Strategic Plan for the implementation of the Protocol, a programme of work on public awareness, education and participation concerning LMOs, and further guidance on risk assessment and risk management.

At the closing ceremony of COP-MOP 5, Ms. Masayo Tanabu, Parliamentary Secretary of Ministry of Agriculture, Forestry and Fisheries, speaking on behalf of the Government of Japan, stated:

"The new supplementary Protocol is a turning point for the Cartagena Protocol on Biosafety. There have been many challenges successfully overcome. Let us rekindle the spirit of cooperation to confront the biodiversity challenges as well."

Mr. Ahmed Djoghla, Executive Secretary of the Convention on Biological Diversity praised Japan as an outstanding host and paid tribute to delegates for the outcomes of the meeting. He said: "I congratulate all of you on this remarkable achievement. We have dreamt of this event for more than six years. This is indeed a historic event not only for the biodiversity family but also for the world community at large."

CBD Secretariat



A farmers groundnut field in eastern Uganda

Biosafety in Biotechnology

1. What is biosafety?

Biosafety is the safe development, application and utilization of biotechnology and its products.

2. Why biosafety?

Biosafety systems are established worldwide to minimize or control potential risks of biotechnology on human health, the environment, as well as socio-economic impacts of such risks.

3. What is a biosafety legal framework?

A biosafety legal and regulatory framework is a coordinating platform for implementation of biosafety laws and regulations. The framework consists of laws, regulations, and guidelines, together with specific institutional arrangements such as a Competent Authority; a National Focal Point; and related institutional mandates of the various government agencies in the regulation of biotechnology.

4. Why is GMO use regulated in the world?

Being a new technology, GMO use in the world is regulated to: guarantee and assure safety to humans, animals and the environment; to keep abreast with advances in the field of scientific knowledge and appropriately tap any potential; and to address public consciousness about environmental and food safety issues.

5. Do we need a law on biosafety?

Yes. A law to regulate biotechnology use is necessary so that a framework of operation is available to safely harness the benefits of biotechnology tools without creating undue negative effects on society and the environment. A biosafety law will thus encourage development of useful products from biotechnology and prevent or minimise any potential risks.

6. Where is Uganda and EA region?

Uganda has established a National Policy on Biotechnology and Biosafety that among others, seeks to promote the safe use for biotechnology tools in contributing to the country's sustainable development goals. The country also has a national Biosafety Framework in place that has been used in coordinating and regulating research and development activities involving biotechnology tools. An explicit law on Biosafety is under preparation in the responsible government departments. Kenya and Tanzania have already enacted their respective laws on biosafety.

7. Do we have capacity to manage biosafety in Uganda?

Over the past 15 years, the country has been steadily building both human and institutional capacity to administer the various aspects of biosafety. There is a functional National Biosafety Committee (NBC) consisting of a team of biosafety experts to oversee research involving modern biotechnology tools. In addition, human capacity has been developed to conduct monitoring and evaluation of biotech related activities in the environmental, agricultural, and health sectors.

8. Can biosafety framework assure safety?

A fully functional biosafety framework will without doubt, assure safety to humans and the environment. This is through a robust risk assessment process conducted for each biotech initiative with potential risk. An effective system will ensure that only safe biotech products are released to the environment.

9. And the Cartagena Protocol on Biosafety (CPB)?

This is an internationally binding legal instrument (already ratified by EA countries) that mandates countries to establish mechanisms for safe handling, use, and transfer of living products of modern biotechnology such as living modified organisms (LMOs). Under this protocol, Uganda is charged with a responsibility of establishing mechanisms to regulate, manage or control potential risks associated with modern biotechnology.

10. How do other countries regulate biotech use?

Different countries in the world have established laws, regulations, and guidelines to address various potential biosafety and ethical concerns as regards application of biotechnology tools in increasing agricultural production, improving human health and protecting the environment. Whereas some countries enacted explicit laws on biosafety, others regulate biotech through existing environmental and food/health safety laws. In all cases, new guidelines/regulations are issued, or existing ones modified to cope with advances in science and new evidence from risk assessment studies. The release of biotech products, especially those arising from modern biotech tools such as genetic engineering, is conducted on a case by case basis taking into account the possible interaction of the said product with the environment in which it is to be released. ■

Compiled by PBS

More FAQs to come in the next edition



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