

Where Nature and Science Meet

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Kenya Minister of Agriculture advocates biotech

<http://www.isaaa.org/kc>

Kenya's Minister of Agriculture, Minister Kipruto Kirwa, has called for rapid adoption of transgenic crops to help fight hunger and poverty in the Horn of Africa and the Great Lakes region. He said this while officially opening a regional biotechnology workshop jointly organized by the African Biotechnology Stakeholders Forum (ABSF) and Kenya Biotechnology Information Center (KBIC) in Nairobi.

The two-day workshop, called to discuss the status of biotechnology policy, research, and development in East and Central Africa, brought together over 60 regional fraternities of agricultural research institutions, life sciences industry, communication experts, regulatory agencies, researchers, policy makers, the media, academicians, religious bodies, and development experts from Kenya, Uganda, Tanzania, Ethiopia, and Rwanda.

"Agricultural biotechnology can greatly improve our food security situation and improve our farmers' income," he said. He urged the regional governments to speed up the process of adopting transgenic crops, but observed that the impact would be greater if the countries shared their experiences and synergies to avoid duplication of efforts.

As Drought Takes Hold, Zambia's Door Stays Shut to GMOs

Brenda Zulu, SCIDEV.NET (London), 21 April, 2005

Hunger is a perennial challenge facing African countries, and Zambia is no exception. But while some nations are prepared to boost supplies by importing food containing genetically modified (GM) organisms, Zambia is sticking to its guns and saying no.

Once an exporter of food, Zambia is in the grip of its third severe drought since 2000. The lack of rain is threatening Zambia's food security -- it needs at least 200,000 tonnes of maize to avert a crisis -- which has led the United States to increase pressure on the country to legalise imports of GM food. But Zambia's agriculture minister, Mundia Sikatana, says the government is staying firm on plans to develop legislation on GM products, and is reaffirming its ban on their entry into the country until it is satisfied they pose no threat to health or the environment.

Zambia's position on GM food was made clear in 2002, when president Levy Mwanawasa rejected food aid from the United States during that year's drought and subsequent food crisis because the aid could not be confirmed to be GM free. In August 2002, the Zambian government banned imports, sale and use of GM products, citing health, environmental and trade concerns. The decision was based on the recommendations of a team of Zambian scientists and economists that had conducted a fact-finding mission to South Africa, Europe and the United States.

In March 2005, the government produced draft biosafety legislation that, if approved by the cabinet, will be presented to parliament for debate. The government should not drag its feet in getting the law approved by parliament, says Muyunda Ililonga, executive secretary of the Zambia Consumers Association (ZACA). The association is worried that GM-derived products could enter Zambia illegally because some countries in southern Africa accept or, in the case of South Africa, grow GM crops.

Ililonga says Zambia needs to be able to check whether food coming in is GM or not. "We still feel that the government is not moving fast enough," he adds. ZACA was among the civil society groups that helped launch the idea of a biosafety law. To draft the law, the government consulted with stakeholders including farmers, women's groups, church leaders, politicians, scientists and non-governmental organizations. Ililonga feels that this diversity was representative enough for the government to make a decision that reflects public opinion.

But not all Zambians oppose GM crops. Supporters say they will bring relief to hungry Africans by improving crop yields and nutrition. They assert that citizens of rich countries, for whom the potential benefits of GM are less relevant, have exaggerated the risks posed by the technology. Among the proponents is the Biotechnology Outreach Society of Zambia, set up in 2003 to promote acceptance of GM technology.

The society points to the 2003 findings of a team of Southern African scientists that the member nations of the Southern African Development Community had asked to investigate the potential effects of planting and eating GM crops. The researchers concluded that GM crops pose no immediate risk to humans and animals, and advised the southern African nations to embrace the technology because of its potential to increase agricultural yields. However, they also warned that potential environmental risks remain a challenge.

As a result, the team recommended that GM technologies be evaluated in African environments, and called for African nations to develop their own capacity to regulate and test GM products.

Agriculture minister Sikatana says that for Zambian farmers the most pressing problem is the lack of mechanised agriculture, with many farmers still using hoes to till their land. He says the government plans to create training centres in every district that will lease agricultural equipment to farmers. "We shall plant and cultivate for them and recover the costs during the harvest," he explains.

There is also fear that adopting GM technology could affect European markets for Zambian flowers, coffee, fruit, vegetables and tobacco. Although the European Union recently relaxed its ban on GM products, authorising 26 for planting and sale, Sikatana insists that "if Zambia allows GM crops, Europe will not buy from us any more".

In the face of the current drought the government is encouraging farmers to grow alternatives to the staple maize, such as winter maize and cassava, and to irrigate their fields with water from wetlands. Sikatana says that this will allow production to be sustained but that even optimistic forecasts suggest Zambia will only produce enough for local consumption.

[Ed. *As Zambia's drought continues the list of options for ensuring food security shrinks. However, one thing seems certain -- the government is keeping the door to GM crops firmly closed.*]

Several developing countries now have well-developed biotech programmes

<http://www.fao.org/newsroom/en/news/2005/102236/index.html>

Several developing countries now have well-developed biotechnology programmes; they are approaching the leading edge of biotechnology applications and have significant research capacity, according to a new FAO assessment on the status of research and application of crop biotechnologies in developing countries.

Based on a review of the information in the FAO database on Biotechnology in Developing Countries (FAO-BioDeC), which covers both genetically modified (GM) crops and non-GM biotechnologies, the assessment suggests that developing countries will soon have new GM crops available such as virus-resistant papaya, sweet potato and cassava as well as rice tolerant to abiotic stresses (salinity and drought).

Most of the GMOs commercialized so far in developing countries have been acquired from developed countries and focus on a limited number of traits (mainly herbicide tolerance and insect pest resistance) and crops (commodities such as cotton, soybean and maize). However, the FAO assessment reveals that several developing countries have been conducting research on a wider range of crops, such as banana, cassava, cowpea, plantain, rice and sorghum, and on traits relevant for food security, such as abiotic stress tolerance and quality.

Argentina, Brazil, China, Cuba, Egypt, India, Mexico and South Africa have taken the lead. A second group of countries has medium-scale agricultural biotechnology programmes, usually in a few key areas. Other developing nations have relatively limited research capacity, according to the FAO report.

"We hope that research activities in developing countries will increasingly focus on issues important for food security," said Andrea Sonnino, from FAO's Research and Technology Development Service. There are, however, some noticeable gaps in research. For example, no research is reported in the field of nematode resistance despite the considerable losses caused by these plant parasites. Another fundamental but neglected research problem concerns post-harvest losses.

The study also notes that biosafety capacity building is needed to enable many countries in Africa, Eastern Europe, Latin America and the Near East to fully benefit from GMO technology.

Regarding non-GM biotechnologies, many are being used on a commercial scale but only a few studies have been carried out to assess their socio-economic impacts. The report highlights that this is an area needing urgent attention as it is likely to help guide research and technology policies and investments towards wider and efficient utilization of all biotechnologies.

South Africa in for climate change

<http://www.themercury.co.za/index.php?fSectionId=283&fArticleId=2510644>

South Africans have been warned to brace themselves for a series of "grave" and far-reaching changes to the climate which will gradually alter the lives of everyone in the country.

Malaria is predicted to spread across the country to reach as far as Johannesburg and even Port Elizabeth. Rainfall patterns will be turned upside down. Poor farmers could be driven off the hotter and drier landscape and thousands of animal and bird species will be at greater risk of extinction. These were some of the alarming findings presented at a recent press conference in Cape Town by Environment Minister Marthinus van Schalkwyk.

Based on a similar presentation given to the cabinet three weeks ago by the SA National Biodiversity Institute's chief, Prof Brian Huntley, the briefing outlined the predictions of a major study by local and international scientists into the expected impacts of global climate change in South Africa over

the next 50 years. "Too often climate change is regarded as someone else's problem . . . or as an issue important only to some nations threatened by rising ocean levels or expanding deserts," said Van Schalkwyk. "The simple truth, however, is that climate change is everyone's problem, and that over the next 50 years it may well define the worst social, economic and environmental challenges ever faced.

"The findings are a cause for grave concern. They are not, however, cause for panic," he said, noting that the first step to dealing with climate change was to gather reliable research so government policy-makers could take early mitigatory action. "This is why our government has made dealing with climate change a national priority."

Changes would not be uniform across South Africa. In the western regions there was likely to be significantly less rainfall and the landscape would become progressively arid or even desert-like. In eastern areas like KwaZulu-Natal, there could be more rain in the summer, although intervening dry spells could last longer. For farmers, maize harvests were likely to decline, especially in the west.

Poor farmers would be particularly hard hit as they would not have the financial resources to adapt as quickly as large-scale farmers. To deal with these scenarios, farmers would have to consider switching crops, intensifying production in marginal land or switching to GM crops.

New hybrid maize for parasitic weed control in Kenya

<http://www.africancrops.net/striga>.

Striga, a parasitic weed, has invaded approximately 200,000 hectares of Kenyan cropland, resulting in losses of about 800 million Kenyan shillings each year. The weed is a pest of cereal crops, particularly maize.

The most recent weapon in the fight against *Striga* is a new hybrid maize called Ua Kayongo, which is coated with the Strigaway herbicide. Ua Kayongo is Imazapyr Resistant maize (IR-maize), also known as the Clearfield system, whose resistance is based on a naturally occurring herbicide resistance in maize, and which was later incorporated into Kenyan maize varieties by African plant breeders at the International Maize and Wheat Improvement Center (CIMMYT) and the Kenya Agricultural Research Institute (KARI). The African Agricultural Technology Foundation (AATF), in partnership with several NGOs, research organizations, and seed companies, acts as distributor.

Ua Kayongo will be distributed to over 16,000 households, and AATF's partners will conduct several farmer field days and other activities, including a traveling workshop in June 2005.

Call for more research on minor crops

http://www.mssrf.org/events_conferences/content_events/millets/millets.htm.

More research on neglected but nutritious crops can be the solution to hunger. This is according to agriculture and biodiversity experts who met during the International Consultation on the Role of Biodiversity in Achieving the United Nations Millenium Development Goal of Freedom from Hunger and Poverty held in Chennai, India. They said that a more varied selection of native crops can provide greater dietary diversity. Some examples of these crops are varieties of millet in Asia; quinoa, canihua, and amaranth in South America; and green leafy vegetables in Africa.

This undertaking is believed not only to address the first UN Millenium Development Goal to "reduce by half the number of people who suffer from hunger", but also two others: to reduce infant mortality and the number of women who die in childbirth.

The meeting was organized by the International Plant Genetic Resources Institute and Global Facilitation Unit for Underutilized Species, both from Rome, with the M.S. Swaminathan Research Foundation from Chennai. Recommendations from the meeting are being finalized to be part of UN's review on the progress of its Millenium Development Goals in September.

Sorghum trait for weed control

<http://www.ars.usda.gov/is/AR/archive/may05/sorghum0505.htm>

Because of its potent allelopathic traits, sorghum is being studied by scientists for a natural method of weed control.

Allelopathy in plants is the secretion of "phytotoxins" that ward off other crops, and this is exhibited in crops such as rice, black walnut, and sorghum. Sorgoleone is a compound in sorghum which fights weeds more vigorously than other similar compounds in other crops. Scientists at the Agricultural Research Service (ARS) Natural Products Utilization Research Unit are now generating essential information needed to help them increase sorgoleone in sorghum.

According to plant physiologist Stephen Duke, research leader, they must decide on which of the compounds used by sorghum would be herbicidal if manufactured, and could be secreted into the soil in adequate amounts. Moreover, there are other considerations such as weeds developing resistance to allelopathy and safety of non-target organisms such as humans.

Still, the team believes that the advantages will be significant. The use of herbicides may be lessened. Allelopathy is also a continuous source of protection, unlike herbicides. Lastly, it does not depend on weather conditions and does not harm the environment.

Sorghum is a major grain in most of the eastern hemisphere, and is notable for its drought tolerance. It originated in Africa and is now gaining popularity in the United States. This is because of its cancer-fighting compounds and digestibility for people with gluten intolerance.

NOTICE BOARD

- 27 – 29 June 2005 - National Agricultural Biotechnology Council** - The 17th Annual Meeting of the NABC will be hosted by the University of Kentucky and the University of Tennessee at the Renaissance Hotel in Nashville, Tennessee. The theme of the meeting is "Agricultural Biotechnology: Beyond Food and Energy to Health, and the Environment." Four main modules will be tackled – i) Plants as New Sources of Medicinals: Production of Protein Pharmaceuticals in Food and Non-Food Plants, ii). Bioremediation, Phytosensing, and Eco-restoration, iii) Gene-to-Product Development, and iv) Regulatory and Legal Challenges. For more details see <http://www.outreach.tennessee.edu/ppd/nabc/>.
- 21 – 24 August 2005 – 12th European Congress on Biotechnology** - The 12th European Congress on Biotechnology will be held at the Technical University of Denmark, north of Copenhagen. The theme of the congress is "Bringing Genomes to Life." The topics to be discussed include systems biology, functional and comparative genomics, cellular signaling, and stem cells and cloning. Other fields include industrial biotechnology, pharmaceutical biotechnology, food and feed biotechnology, environmental biotechnology, biotechnology education, ethics, the role of women in biotech, and global life sciences. The congress is organized by the Danish Biotechnology Forum, Danish Society for Biochemistry and Molecular Biology, and Medicon Valley Academy, on behalf of the European Federation of Biotechnology. For more information, contact the Secretariat at lhp@bio.auc.dk, or visit <http://www.ecb12.dk>
- 26 – 29 September 2005 – Biosafety Congress** - The 4th Biosafety Congress and Latin American Symposium on Transgenic Products will be held in Porto Alegre, Brazil. Talks will focus on biosafety, co-existence, dealing with biomedical waste, and working with genetically modified foods and organisms, among others. For more information, visit <http://www.anbio.org.br>.
- 10 - 11 November 2005 - SEARCA International Conference** - The SEAMEO Regional Center for Graduate Study and Research in Agriculture (SEARCA) will hold an international conference on Agricultural and Rural Development in Asia: Ideas, Paradigms, and Policies Three Decades After. The conference will be held at the SEARCA building in Los Baños, Laguna, Philippines. For more details contact the ARD Conference Secretariat at SEARCA, College 4031, Los Baños Laguna, Philippines; or +6349536-2365 to 67, local 133 and 137; or fax +6349536-4105. For on-line registration see <http://web.searca.org/ard/index.html>.