CROP BIOTECH UPDATE

A weekly summary of world developments in agri-biotech for developing countries, produced by the Global Knowledge Center on Crop Biotechnology, International Service for the Acquisition of Agri-biotech Applications SEAsiaCenter (ISAAA), and AgBiotechNet

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KENYAN GOVERNMENT OKAYS USE OF BIOTECH

The Kenyan government has given its nod to the use of genetically modified food in the country. President Mwai Kibaki said increased incidents of drought and diseases demanded the use of modern methods of farming to increase yields. He noted that Kenya was losing Shs. 6 billion annually in corn stocks from stem borer, which accounts for over 15 percent of total annual corn output.

The President spoke at the Kenya Agricultural Research Institute (KARI) while commissioning the Level 2 Biosafety Greenhouse Complex, one of its kind in sub-Saharan Africa for biotechnology research. The facility was developed with support from the International Center for Maize and Wheat Research (CIMMYT) and the Kenya government through KARI. The facility allows Kenya to conduct biotech research that conforms to international biosafety standards.

“My government is committed to improving agricultural performance through the adoption of modern technologies. Agricultural biotechnology is one of the modern innovative approaches that can make us overcome these constraints by ensuring that losses are minimized”, explained Kibaki.

The President said that he is well aware of the debates surrounding biotechnology but reiterated Kenya’s resolve to apply modern biotechnology in line with existing biosafety framework, national statutes and international obligations. He said the new facility symbolizes the government’s commitment to improve agricultural productivity and will allow Kenyan scientists and those in

the region to exploit scientific opportunities from biotechnology. /Kenya Biotechnology Information Centre (KBIC)

For more of KBIC, visit http://www.isaaa-africenter.org.

BURKINA FASO MINISTERIAL CONFERENCE ON S & T

A “Ministerial Conference on Harnessing Science and Technology to Increase Agricultural Productivity in Africa: West African Perspectives” is currently ongoing in Ougadougou, Burkina Faso, Africa to explore ways to increase agricultural productivity and living standards. Co-hosting the event with the government of Burkina Faso are the United States Department of State, and the US Agency for International Development.

US Agriculture Secretary Ann Veneman told the group that the gathering was a follow-up regional conference to the Ministerial Conference and Expo on Agriculture Science and Technology held in Sacramento, California. This conference “explored ways to use science and technology to boost agricultural productivity in an environmentally sustainable way to reduce global hunger and poverty.”

Veneman announced that the Norman Borlaug International Science and Technology Fellows Program will enable the scientific training and exchange of several African researchers, policymakers and university faculty in the US. She said that “our goal is to support and accelerate technological progress within Africa. We want to increase access to beneficial agricultural and food technologies, and to help build scientific capacity and expertise within Africa.”

For the full transcription of Veneman’s talk, visit http://www.usda.gov.

EUROPEAN VISION FOR PLANT BIOTECH

A vision paper on the long term strategy for European plant biotechnology towards 2025 has just been presented in Brussels. Entitled “Plants for the future”, it will form the basis for establishing a technology platform on plant biotechnology in cooperation with all stakeholders. The paper was written at the initiative of the European Commission, with representatives from the food and biotech industry, research, farming community and consumers’ organizations. Among these groups include the European Plant Science Organisation (EPSO) and EuropaBio, the association of European bioindustries.

“European researchers and small companies have pioneered the development of modern plant biotechnology”, said European Research Commissioner Philippe Busquin. “In recent years, however, European investment in plant genomics and biotechnology has stalled, partly as a result of a lack of communication to the public of the potential benefits of this technology. He stressed that with a proper regulatory framework in place “we urgently need to take action to reverse the exodus of European researchers and companies and to strengthen the European knowledge base in this area to maintain competitiveness of European agro-food and related industries”.

Marc Zabeau, chair of EPSO, added that basic and applied research goals need to be prioritized that are tailored to the needs of European society and agriculture and the food industries. The expertise and capabilities of European plant scientists also need to be effectively harnessed as well as partnerships to develop and commercialize these products.

For more details about the vision paper, visit http://www.epsoweb.org/catalog/TP/EPSO%20pressrelease%20web_22Jun04.htm.

The text of the vision paper will also be available on the following web sites http://www.epsoweb.org/catalog/TP/index.htm, and http://www.europabio.org/plant_genomics_platform.htm.

BIOTECH CATCHES UP AS CUTTING EDGE TECH SAYS ZAMBIAN MINISTER

“Information technology is a leading cutting edge technology, but biotechnology is catching up”, said Dr. Paul Zambezi, permanent secretary for the Zambian Ministry of Science, Technology and Vocational Training. Zambia adopted a policy on biotechnology and biosafety in 2003 and is now developing a strategy for implementation. Public awareness is one of the key components.

Zambezi opened the biotechnology communication workshop organized by the Biotechnology Outreach Society of Zambia (BOSZ) held in Lusaka on June 17-18. The event was attended by over 50 representatives from the media, government departments, members of parliament, and scientists.

“Zambia is in the process of creating an enabling environment for safe and responsible biotechnology application. Communication is needed for improved public understanding and a critical mass of Zambians will have to be developed to act as communicators”, urged Dr. Luke Mumba, chairperson of BOSZ. The meeting concluded with participants submitting communication proposals that will be compiled into a strategic plan. /AfricaBio and Biotechnology Stakeholders Association

In related news, Egypt will provide training and other forms of technical assistance to another African state, Tanzania, to develop its capability to produce genetically modified crops. SciDev.Net reported that Egypt’s deputy prime minister and minister for agriculture Youssef Wally gave this offer to a visiting Tanzanian delegation.

Wally said that GM research is expensive and that Tanzania should also seek assistance from China and India. Egypt is presently doing tests on GM strains of cotton, sugarcane and other crops although none have been commercialized yet.

See the full article online at http://www.scidev.net/news/index.cfm?fuseaction=readnews&itemid=1437&language=1

HOBAN: BIOTECH COULD UNDERMINE CONSUMER CONFIDENCE

A booming organic market, biopharming or using food crops for drug production, and animal cloning are some factors that could trigger a consumer backlash on the acceptance of all food biotechnology. This was stressed by Thomas Hoban, a North Carolina State University sociologist, in a talk on emerging social issues regarding food biotechnology with the United States' Department of Agriculture's Advisory Committee on Biotechnology and 21st Century Agriculture.

Hoban told the USDA panel that there is a need to recognize that concerned consumers and food companies are already moving toward organic foods. He recommended that crops with real consumer benefits such as healthier oils, better taste, and shelf life should be developed soon. In addition, he saw the need for the US government to maintain a strong regulatory program to ensure food safety, and to make sure that all farmers comply with the requirements for insect resistance management, identity preservation and regulatory approval.

The USDA committee is charged with examining the long-term impact of biotechnology on the U.S. food and agriculture system and providing guidance to USDA on pressing individual issues.

Email Tom Hoban at tom@sa.ncsu.edu.

AATF LAUNCHED IN NAIROBI

The African Agricultural Technology Foundation (AATF) was officially launched in Nairobi, Kenya, by the country's Agriculture Minister Kipruto Arap Kirwa. The Minister reiterated his support for the use of biotechnology to boost food production in Africa.

Dr. Mpoko Bokanga, AATF Executive Director, said AATF will work with existing institutions to address all the elements of the product value chain - from creation, distribution and creation of markets. The foundation's mission and core business is to improve food security and reduce poverty among resource-poor farmers in sub-Saharan Africa. This will be done by:

* Identifying and facilitating royalty free transfers of proprietary technologies through negotiation; and

* Entering into contractual agreements with existing institutions that will manage the deployment of the technologies and ensure that subsequent constraints after access are addressed.

Its current partners include farmers and consumers, national, regional and international institutions, non-government organizations, agricultural technology industry intellectual property holders, and African governments.

Dr Gordon Conway, President of the Rockefeller Foundation, called on AATF to form strong partnerships and linkages with existing technology transfer institutions. He supported the use of biotechnology to achieve what he described as "Doubly Green Revolution" in Africa.

The foundation has identified four main projects to embark on immediately. These are Striga control in maize, insect resistance management for Africa, pro-vitamin A enhancement in maize, and cowpea productivity improvement. /Kenya Biotechnology Information Center (KBIC)

For more information on KBIC, visit http://www.isaaa-africenter.org or email Daniel Otunge of KBIC at dotunge@absfafrica.org.

EU AND JAPAN COLLABORATE ON BIOTECHNOLOGY

In line with the European Union (EU)-Japan summit that was held last June 21, a business dialogue round table (BDRT) was held to promote the continuous discussion on life sciences, biotechnology, and collaborative research projects on sustainable development. According to Cordis News, the BDRT recommended closer cooperation in the life sciences and biotechnology between the two countries.

Says EU President Romano Prodi, “I am confident of a successful summit that will reflect the importance of the EU-Japan relationship, reinforcing our strategic partnership both in the political and economic areas.”

The working groups on the life sciences and biotechnology of the European Union and Japan are both newly organized, and presented their initial recommendations during the summit. Apart from the initial action plans, concerted efforts to promote public acceptance of biotechnology were suggested by both parties. On sustainable development, the recommended research projects were on the technology development of alternative energy.

Read the news release at http://dbs.cordis.lu/cgi-bin/srchidadb?CALLER=NHP_EN_NEWS&ACTION=D&SESSION=&RCN=EN_RCN_ID:22217. And, for further information on the EU-Japan business dialogue round table, visit http://www.eujapan.com/europe/roundtable.html.

NEW ROLE OF RNA IN PLANT DEVELOPMENT

According to a study conducted by biologists at Rice University and the Whitehead Institute for Biomedical Research at the Massachusetts Institute of Technology (MIT), USA, the plant microRNA “miR164,” which is among the first microRNA discovered, plays a vital role in the proper development of the flowers, leaves, and stems of Arabidopsis - a common genetic model that is widely studied among all plant species. Research results show that the miR164 is a crucial regulatory component of the molecular circuitry that controls the basic organ development in plants.

Three strains of Arabidopsis (one normal or wild-type strain, and two mutant strains) were used in the experimentation. The researchers observed the abnormal development of leaves and flowers in both mutants. When miR164 regulation of a target gene was absent, plants produced the wrong number of organs (flowers tended to contain too many petals and too few sepals, the husk-like coverings that protects the flower during budding were different, etc). On the other hand, when too much miR164 was present, the organs tended to fuse together (sepals never fully separated, the stamen grew together in a mass, etc).

RNA, or ribonucleic acid, is a chemical that aids in translating the genetic code of DNA into a protein. The messenger RNA contains thousands of nucleotides,

and is used by cells to combine amino acids into proteins. MicroRNAs, on the other hand, are smaller in structure and are about 20 nucleotides long. They are responsible for "down-regulating" the production of certain plant proteins.

Read the full news article at http://media.rice.edu/media/Newsbot.asp?MODE=VIEW&ID=4470&SnID%20597787374.

ARS UNDERTAKES SORGHUM RESEARCH

Scott Bean of the Grain Quality and Structure Research Unit, Grain Marketing and Production Research Center, Agricultural Research Services (ARS) in Manhattan, Kansas, USA, is conducting a research on sorghum to find the right cultivar that can be used to introduce new products such as breads, waffles and noodles. Together with scientists from Ireland and Germany, Bean is currently studying the function of sorghum proteins.

According to Bean and colleagues, some varieties of sorghum can be a source of cancer-fighting compounds, and they also contain high levels of phenols and tannins, two important plant compounds. Further, sorghum brans are high in dietary fiber, and low in gluten content – making it attractive to many consumers in the US. Unfortunately, according to Bean, these gluten proteins (in wheat, etc) aid in the grain flour's visco-elasticity. In the US, sorghum is considered safe for the 1 to 2 million people diagnosed with "celiac disease" or gluten intolerance.

Lastly, in addition to investigating which sorghum varieties are suitable in making bread and other products, Bean and colleagues are researching on recipes for baked goods that can be made from grain, including breakfast food for those with gluten intolerance.

Email Scott Bean at scott@gmprc.ksu.edu for more information. And, read more about his sorghum research at http://www.ars.usda.gov/is/AR/archive/jun04/cows0604.htm.

NEW K-SHEET

Graham Brookes and Peter Barfoot's study entitled "Co-existence of GM and non-GM crops: the non-GM and organic context in the EU" is the latest Knowledge (K) Sheet from the Global Knowledge Center on Crop Biotechnology of the International Service for the Acquisition of Agri-biotech Applications (ISAAA). In their research, Brookes and Barfoot examined the context in which genetically modified (GM) crops are being developed, and the extent of the demand for non-GM crops in the European Union (EU). Download the K-Sheet at http://www.isaaa.org/kc.

POCKET K 2, NOW IN FRENCH

The French version of Pocket Knowledge (K) 2 entitled "Plant products of biotechnology" is now available online at http://www.isaaa.org/kc. Also available in English, Pocket K 2 discusses the biotech plant products that are

now available in the market, the special characteristics of these plants, and how both farmers and consumers can benefit from them.

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